

# FOCUSED TRAFFIC IMPACT STUDY UPDATE

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New Commercial and Office Plaza  
At NWC of Alessandro Blvd and Lasselle St  
Moreno Valley

Date: April 6, 2021

*Prepared For:*

**Northwest Moreno Properties**

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Focused Traffic Impact Study Update  
For New Commercial and Office Plaza  
At NWC of Alessandro Blvd and Lasselle St, Moreno Valley



Prepared under the supervision of

A handwritten signature in black ink, appearing to read "Jende Kay Hsu", written over a horizontal line.

Jende Kay Hsu, P.E., T. E.

Lic. # T2285

## EXECUTIVE SUMMARY

This is an update study report for the commercial development located on an unimproved land at the northwest corner of Alessandro Boulevard and Lasselle Street in the City of Moreno Valley. The proposed development includes a new gas station with convenient store (3,825 sq. ft.) and 16 fueling positions, quick-service restaurant (1,600 sq. ft.), two drive-thru restaurants (3,320 sq. ft. each), a sit-down dining (5,500 sq. ft. with a patio of 1,750 sq. ft.), retail uses (1,600 sq. ft. x 2), office uses (4,950 sq. ft. x 2), an express carwash (3,850 sq. ft.), and a bank (3,775 sq. ft.). With pass-by considerations, the project would generate 204 inbound and 184 outbound trips in the AM peak hour, and 210 inbound and 201 outbound trips in the PM peak hour, and 4,482 daily trips.

The project will include the following off-site improvements:

- Widen Lasselle Street to its ultimate width on the west half (50 feet from centerline to ROW) and provide two southbound lanes, one northbound lane, a two-way-left-turn lane, and a southbound bike lane.
- Widen Alessandro Boulevard to its ultimate width on the north half (67 feet from centerline to ROW) and provide two westbound lanes. Provide a transition of the two-lane section to join the one-lane section west of Chara Street.
- Construct raised median islands along Alessandro Boulevard between Chervil Court and Lasselle Street.
- Construct a bus bay on the north side of Alessandro Boulevard immediately west of Lasselle Street.

According to the approved scoping agreement, this study collected traffic count data and conducted level of service analysis for eight (8) intersections in project vicinity and three (3) project driveways. With the proposed mitigation measures, all studied intersections will maintain level of service "D" or better for both AM and PM peak hours in each of the study scenarios except the intersection (#3) of Alessandro Boulevard and Lasselle Street which will operate at LOS E in the AM peak hour.

The project will result in no or less than significant traffic impact with the following mitigation measures:

- For the east approach of Alessandro Boulevard at Lasselle Street, convert the existing westbound right-turn lane to a shared through/right-turn lane and extend the lane length to a minimum of 250 feet.

The study examined the 95th percentile queue for left-turn pockets at the project-adjacent intersection in the AM and PM peak hours. In order to provide adequate queuing lengths, the following improvements are recommended:

- Provide 260 feet of storage length for eastbound left-turn lane on Alessandro Boulevard at Lasselle Street.
- Provide 400 feet of storage length for northbound left-turn lane on Lasselle Street at Alessandro Boulevard.
- Provide 180 feet of storage length for southbound left-turn lane on Lasselle Street at Alessandro Boulevard.

The study examined signal warrant for the following stop-controlled intersection:

- The intersection of Lasselle Street at Brodiaea Avenue does NOT meet the traffic signal warrant after completion of the project.

In accordance with the “Project Type Screening” recommended in the *City of Moreno Valley Traffic Impact Preparation Guide, June 2020*, this local servicing retail project of less than 50,000 square feet can be presumed to have less than significant impacts. Complete project-level VMT analysis and forecasting through regional model is, therefore, not required for the project.

Site access is adequately and properly provided via two new right-in-right-out driveways on Alessandro Boulevard and a full access driveway on Lasselle Street. The proposed two-way-left-turn lane on Lasselle Street is expected to provide additional space to shelter turning movements and enhance traffic safety. The proposed raised median on Alessandro Boulevard will provide a physical constrain for the proposed driveway to

right turns only. The “One Way” sign (R6-1) is recommended installation at the proposed median island of Alessandro Boulevard facing the proposed driveways. Adequate driveway throat lengths of at least 60 feet have been provided to ensure on-site circulation does not negatively affect public streets.

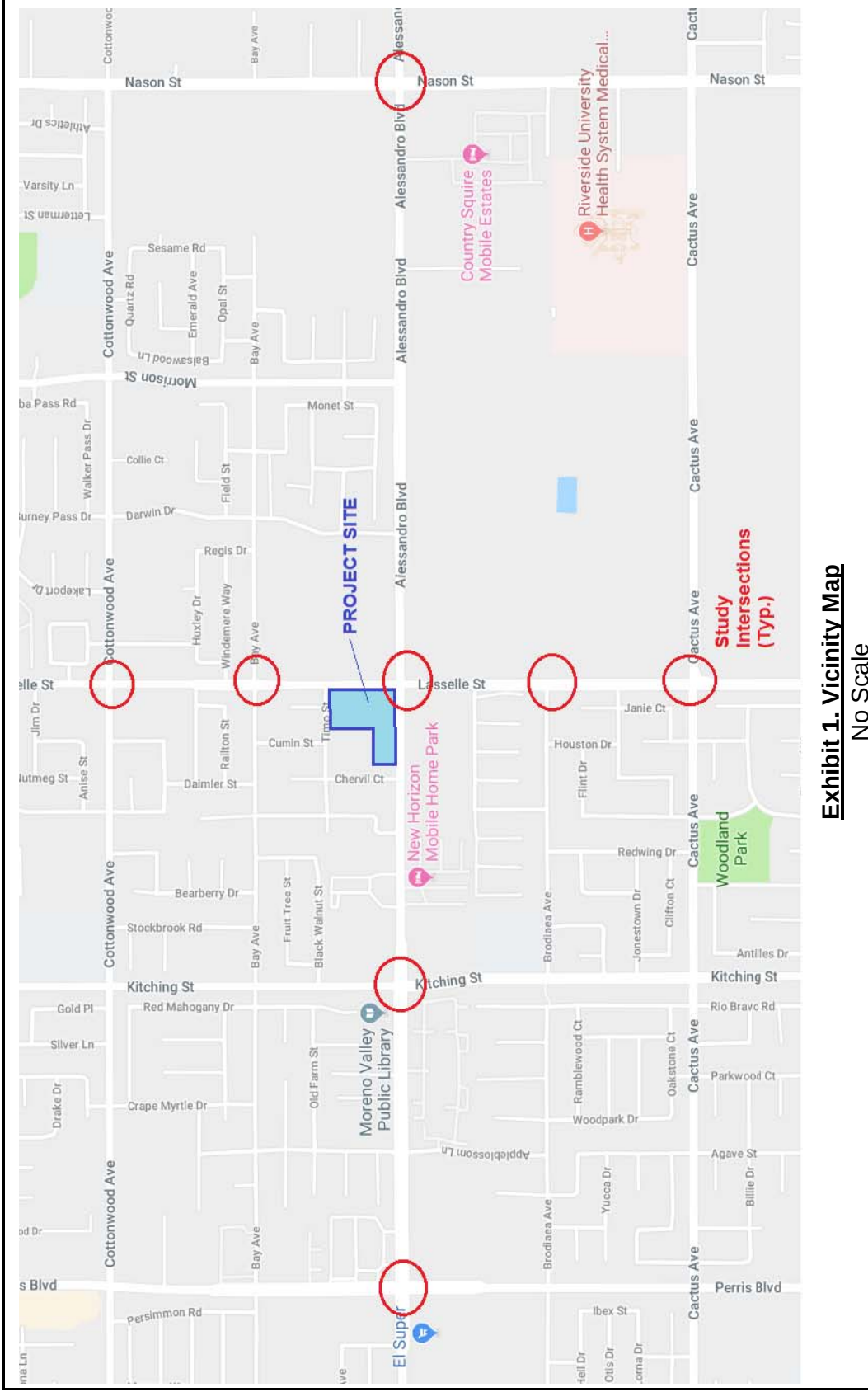
## INTRODUCTION

The purpose of this study is to evaluate traffic impact of the proposed development located at the northwest corner of Alessandro Boulevard and Lasselle Street in the City of Moreno Valley. Vicinity map is shown in **Exhibit 1**.

Project site is currently unimproved and vacant. The proposed development includes a new gas station with convenient store (3,825 sq. ft.) and 16 fueling positions, quick-service restaurant (1,600 sq. ft.), two drive-thru restaurants (3,320 sq. ft. each), a sit-down dining (5,500 sq. ft. with a patio of 1,750 sq. ft.), retail uses (1,600 sq. ft. x 2), office uses (4,950 sq. ft. x 2), an express carwash (3,850 sq. ft.), and a bank (3,775 sq. ft.). The proposed site plan is shown in **Exhibit 2**.

The project will include the following off-site improvements:

- Widen Lasselle Street to its ultimate width on the west half (50 feet from centerline to ROW) and provide two southbound lanes, one northbound lane, a two-way-left-turn lane, and a southbound bike lane.
- Widen Alessandro Boulevard to its ultimate width on the north half (67 feet from centerline to ROW) and provide two westbound lanes. Provide a transition of the two-lane section to join the one-lane section west of Chara Street.
- Construct raised median islands along Alessandro Boulevard between Chervil Court and Lasselle Street.
- Construct a bus bay on the north side of Alessandro Boulevard immediately west of Lasselle Street.



**Exhibit 1. Vicinity Map**  
No Scale



## STUDY SCENARIOS

Based on the scoping agreement approved by the City of Moreno Valley, this study includes the following study scenarios:

- i. Existing: Year 2018
- ii. Existing: Year 2018 plus Project
- iii. Pre-Project Conditions: Year 2025 plus Cumulative Projects
- iv. Post-Project Conditions: Year 2025 plus Cumulative Projects plus Project
- v. Post-Project Conditions: Year 2025 plus Cumulative Projects plus Project with Mitigation, if necessary

This proposed development is consistent with the General Plan of the City of Moreno Valley. Long term scenarios at Horizon Year has been sought by the regional planning of the City of Moreno Valley and Riverside County, and therefore not discussed in this study.

According to the approved scoping agreement, shown in **Appendix A**, the following intersections were included in this study:

1. Alessandro Blvd at Perris Blvd
2. Alessandro Blvd at Kitching St
3. Alessandro Blvd at Lasselle St
4. Alessandro Blvd at Nason St
5. Lasselle St at Cottonwood Ave
6. Lasselle St at Bay Ave
7. Lasselle St at Broadiaaea
8. Lasselle St at Cactus Ave
9. Alessandro Blvd at Project Driveway "A"
10. Alessandro Blvd at Project Driveway "B"
11. Lasselle St at Project Driveway "C"

## EXISTING CONDITIONS

Project site is an unimproved and vacant lot situated at the southwest corner of Alessandro Boulevard at Lasselle Street. Alessandro Boulevard is designated as a six-lane Divided Arterial in the east-west directions per City Standard Plan. At the project frontage, Alessandro Boulevard is currently undivided with one lane in each direction with a left turn lane. The posted speed limit is 45 mph.

Lasselle Street is classified as an Arterial in the north-south directions per City Standard Plan. At the project frontage, Lasselle Street is currently undivided with one lane in each direction with a left turn lane at the intersection. The posted speed limit is 40 mph north of Alessandro Boulevard and 45 mph south of Alessandro Boulevard.

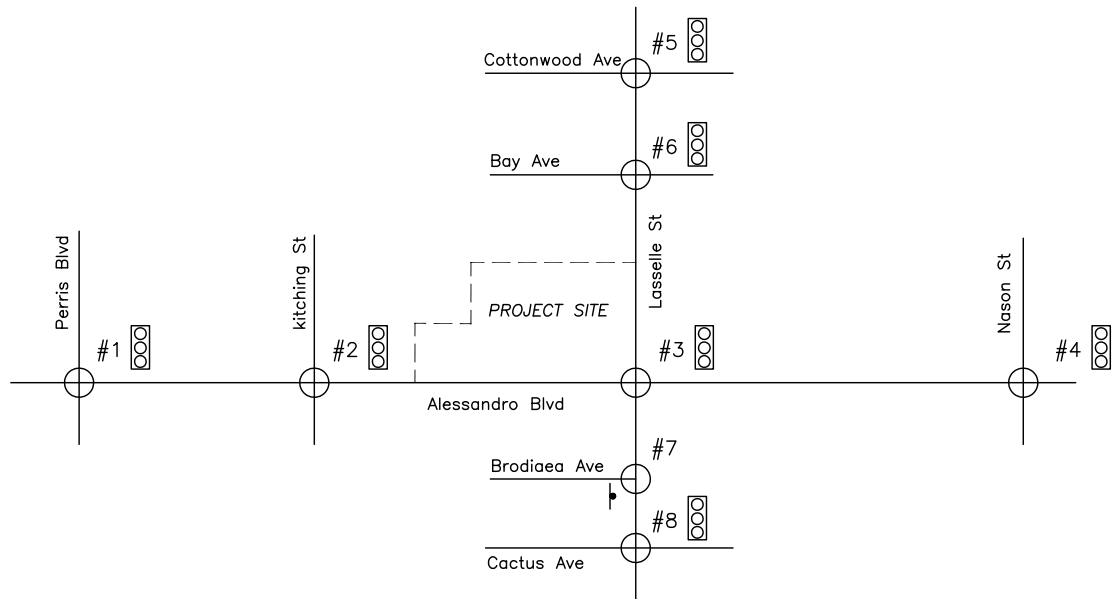
Timo Street is classified as a local residential street. The project does not provide any direct commercial access on a local residential street.

Traffic counts of AM and PM peak hour turning movements were collected on Thursday, August 23, 2018. Lane configurations and traffic volumes at the study intersections are shown in **Exhibit 3 and 4**, respectively. Complete traffic data can be found in **Appendix B**.

The study intersections currently operate at LOS "D" or better for both AM and PM peak hours as shown in **Table 1**. The analysis worksheets can be found in **Appendix D**.

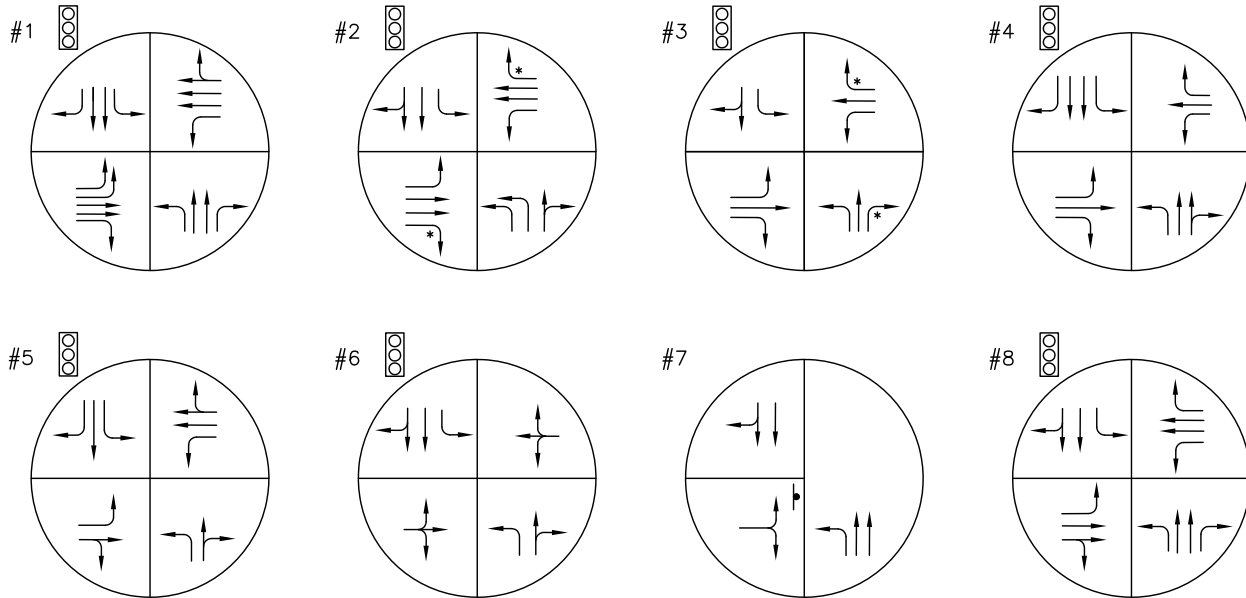
**Table 1. Existing Conditions**

| No. | Intersection                   | AM  |       | PM  |       |
|-----|--------------------------------|-----|-------|-----|-------|
|     |                                | LOS | Delay | LOS | Delay |
| 1   | Alessandro Blvd at Perris Rd   | D   | 36.0  | D   | 36.5  |
| 2   | Alessandro Blvd at Kitchin St  | C   | 28.4  | C   | 26.3  |
| 3   | Alessandro Blvd at Lasselle St | D   | 37.1  | C   | 26.7  |
| 4   | Alessandro Blvd at Nasson St   | C   | 21.9  | C   | 23.2  |
| 5   | Lasselle St at Cottonwood Ave  | C   | 34.0  | C   | 31.9  |
| 6   | Lasselle St at Bay Ave         | B   | 12.0  | C   | 26.7  |
| 7   | Lasselle St at Brodiaea Ave    | B   | 14.4  | C   | 15.3  |
| 8   | Lasselle St at Cactus Ave      | C   | 31.0  | C   | 27.1  |



**LEGEND:**

- INTERSECTION
- TRAFFIC SIGNAL
- STOP SIGN
- OVERLAP PHASE



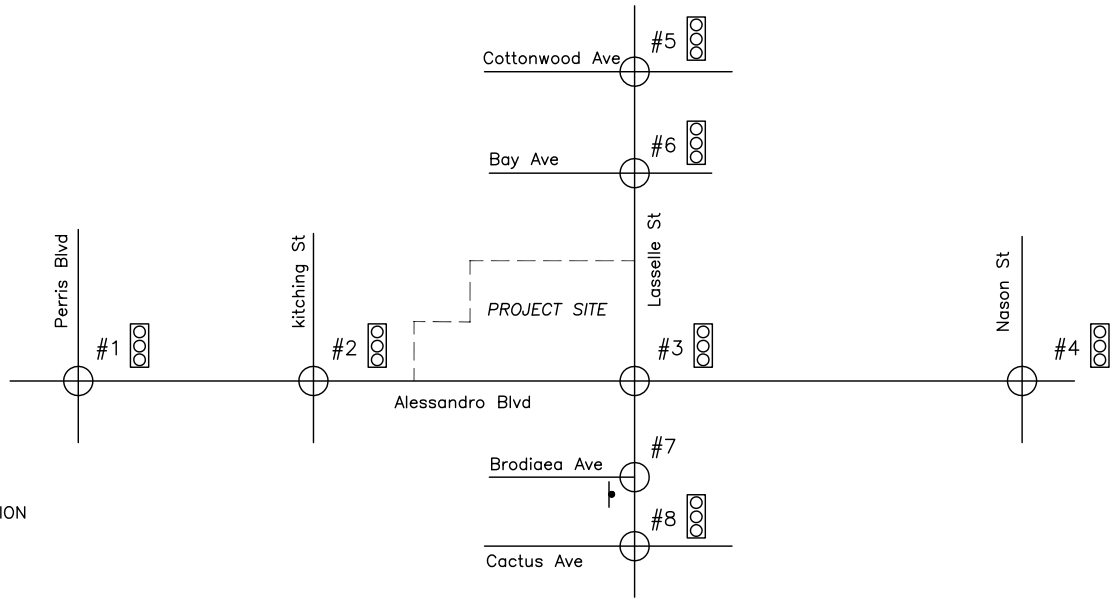
**EXISTING LANE CONFIGURATION**

PROPOSED GAS STATION, C-STORE, RESTAURANT, RETAIL, OFFICE, CARWASH  
AT NWC OF ALESSANDRO BLVD AND LASSELLE ST

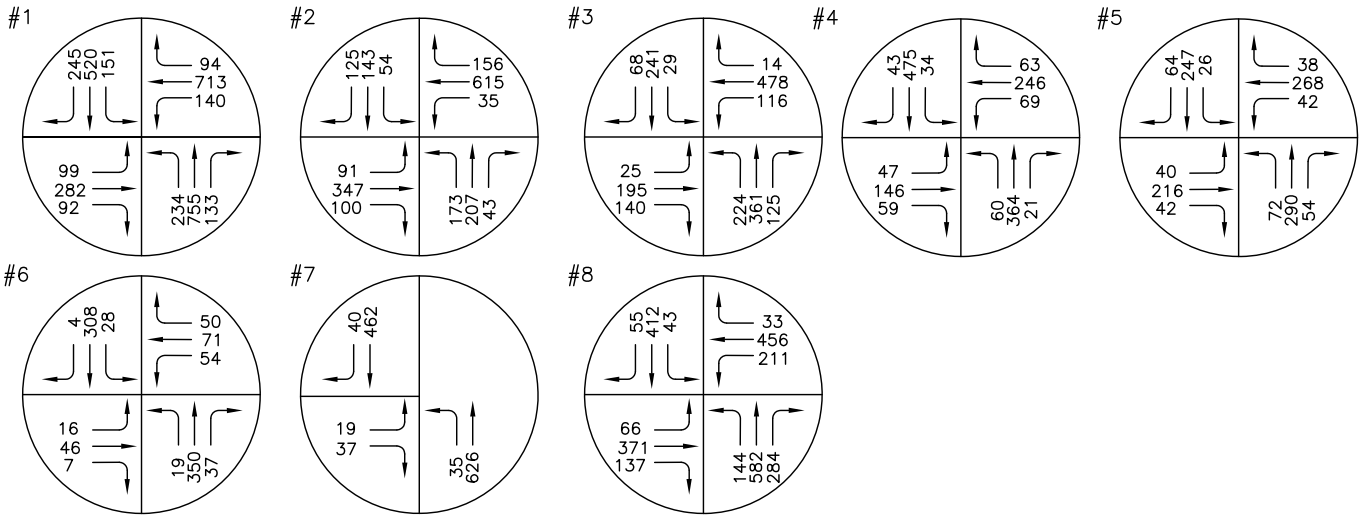


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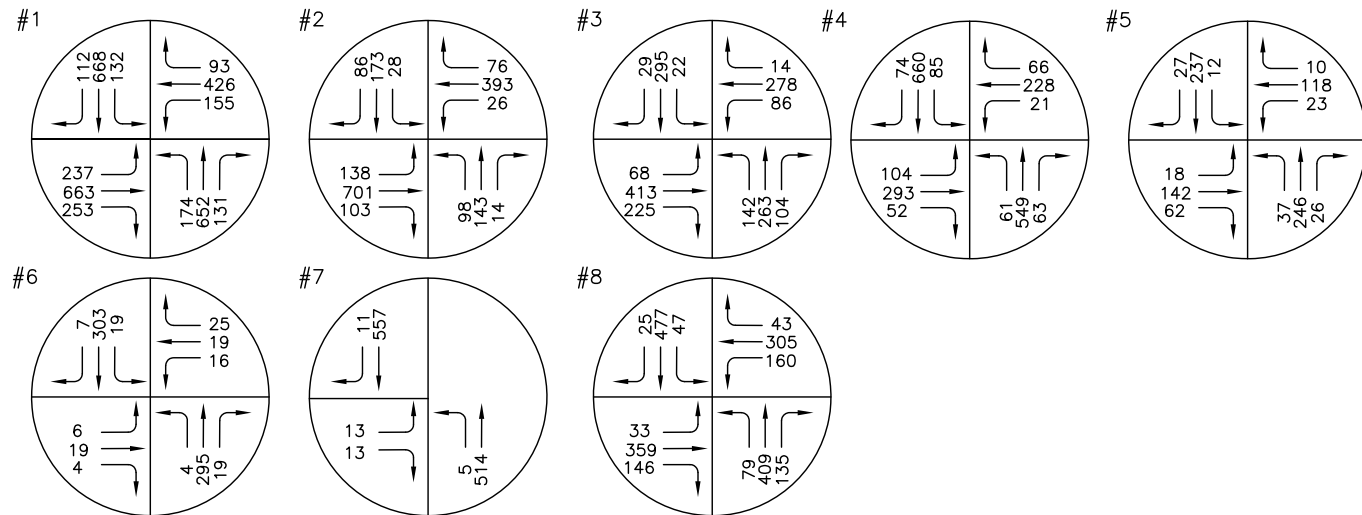
○ = INTERSECTION



AM PEAK



PM PEAK



PROPOSED GAS STATION, C-STORE, RESTAURANT, RETAIL, OFFICE, CARWASH  
AT NWC OF ALESSANDRO BLVD AND LASSELLE ST

EXISTING YEAR TRAFFIC VOLUMES

## TRIP GENERATION

Passenger vehicle trips are estimated using the rates and methodologies outlined in "Trip Generation", 10<sup>th</sup> Edition, published by the Institute of Transportation Engineers (ITE). Applicable trip generation rates are shown in **Table 2**.

**Table 2. Trip Generation Rate**

| LAND USE (ITE CODE)                                   | UNIT            | DAILY  | AM PEAK HOUR |     |     | PM PEAK HOUR |     |     |
|-------------------------------------------------------|-----------------|--------|--------------|-----|-----|--------------|-----|-----|
|                                                       |                 |        | Rate         | IN  | OUT | Rate         | IN  | OUT |
| Gas Station with Convenience Market (945)             | Fueling Station | 205.36 | 12.47        | 51% | 49% | 13.99        | 51% | 49% |
| Fast-Food Restaurant with Drive-Through Windows (934) | 1000SF          | 470.95 | 40.19        | 51% | 49% | 32.67        | 52% | 48% |
| High-Turnover (Sit-Down) Restaurant (932)             | 1000SF          | 112.18 | 9.94         | 55% | 45% | 9.77         | 62% | 38% |
| Fast Casual Restaurant (930)                          | 1000SF          | 315.17 | 2.07         | 67% | 33% | 14.13        | 55% | 45% |
| Shopping Center (820)                                 | 1000SF          | 37.75  | 0.94         | 62% | 38% | 3.81         | 48% | 52% |
| General Office Building (710)                         | 1000SF          | 9.74   | 1.16         | 86% | 14% | 1.15         | 16% | 84% |
| Automated Car Wash (948)*                             | 1000SF          | 142.00 | 6.31         | 50% | 50% | 14.20        | 50% | 50% |
| Drive-in Bank (912)                                   | 1000SF          | 100.03 | 9.50         | 58% | 42% | 20.45        | 50% | 50% |

\* Daily and AM peak hour volumes of Automated Car Wash were derived from SANDAG's "Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region".

Based on ITE's Trip Generation Handbook, Third Edition, the study applies pass-by rates applicable for the proposed uses. With pass-by considerations, the project would generate 204 inbound and 184 outbound trips in the AM peak hour, and 210 inbound and 201 outbound trips in the PM peak hour, and 4,482 daily trips. The projected trips associated with the project are provided in **Table 3**.

The approved internal trip deduction of 5% was applied to the trip generation, which is lower than the calculated projected internal trip capture, shown in **Appendix C**.

**Table 3. Project Trip Generation**

| Land Use                                              | Unit                     | Quantity                       | AM Peak Hour |            |            | PM Peak Hour |            |            | Daily        |
|-------------------------------------------------------|--------------------------|--------------------------------|--------------|------------|------------|--------------|------------|------------|--------------|
|                                                       |                          |                                | Total        | In         | Out        | Total        | In         | Out        |              |
| Super Convenience Market/Gas Station (960)            | Veh Fueling Position     | 16                             | 449          | 225        | 224        | 367          | 184        | 183        | 3,688        |
|                                                       | Pass-By Trip Deduction** | AM 28%,<br>PM 50%<br>Daily 28% | -278         | -140       | -138       | -206         | -103       | -103       | -2,176       |
| Fast-Food Restaurant with Drive-Through Windows (934) | 1,000 Sq. Ft.            | 6.64                           | 267          | 136        | 131        | 217          | 113        | 104        | 3,127        |
|                                                       | Pass-By Trip Deduction*  | 43%                            | -115         | -58        | -57        | -93          | -49        | -44        | -1,345       |
| High-Turnover (Sit-Down) Restaurant (932)             | 1,000 Sq. Ft.            | 7.25                           | 72           | 40         | 32         | 71           | 44         | 27         | 813          |
|                                                       | Pass-By Trip Deduction*  | 43%                            | -31          | -17        | -14        | -31          | -19        | -12        | -350         |
| Fast Casual Restaurant (930)                          | 1,000 Sq. Ft.            | 1.6                            | 16           | 9          | 7          | 16           | 10         | 6          | 504          |
|                                                       | Pass-By Trip Deduction*  | 43%                            | -7           | -4         | -3         | -7           | -4         | -3         | -217         |
| Shopping Center (820)                                 | 1,000 Sq. Ft.            | 3.2                            | 3            | 2          | 1          | 12           | 6          | 6          | 121          |
|                                                       | Pass-By Trip Deduction*  | PM 34%                         | 0            | 0          | 0          | -4           | -2         | -2         | 0            |
| General Office Building (710)                         | 1,000 Sq. Ft.            | 9.9                            | 11           | 9          | 2          | 11           | 2          | 10         | 96           |
| Automated Car Wash (948)                              | 1,000 Sq. Ft.            | 3.85                           | 24           | 12         | 12         | 55           | 28         | 27         | 547          |
|                                                       | Pass-By Trip Deduction** | 28%                            | -7           | -3         | -4         | -15          | -8         | -7         | -153         |
| Drive-in Bank (912)                                   | 1,000 Sq. Ft.            | 3.775                          | 36           | 21         | 15         | 77           | 39         | 38         | 378          |
|                                                       | Pass-By Trip Deduction*  | AM 23%,<br>PM 25%<br>Daily 23% | -8           | -5         | -3         | -19          | -10        | -9         | -87          |
| Gross Trip Generation (Before Deduction)              |                          |                                | 878          | 454        | 424        | 826          | 426        | 401        | 9,274        |
| Internal Trip Deduction (5%)                          |                          |                                | -44          | -23        | -21        | -41          | -21        | -20        | -464         |
| Trip Generation with Internal Trip Deduction          |                          |                                | 834          | 431        | 403        | 785          | 405        | 381        | 8,810        |
| Pass-By Trip Deduction                                |                          |                                | -446         | -227       | -219       | -375         | -195       | -179       | -4,328       |
| <b>Trip Generation (NET)</b>                          |                          |                                | <b>388</b>   | <b>204</b> | <b>184</b> | <b>410</b>   | <b>210</b> | <b>201</b> | <b>4,482</b> |

\* Per Trip Generation Handbook, 3rd Edition

\*\* Per SANDAG's "Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region"

## TRIP DISTRIBUTION

Trip distribution represents the directional orientation of traffic to and from the proposed project. Directional orientation is largely influenced by the geographical location of the site, among many other factors. The trip distribution pattern for the project is illustrated on **Exhibit 5**. Pass-by trip distribution is provided in **Exhibit 6**.

## TRAFFIC ASSIGNMENT

The traffic assignment to and from the site has been based upon the results of trip generation, trip distribution, and access layouts. Project's net and pass-by traffic assignments for the AM and PM peak hours are provided in **Exhibits 7** and **8**, respectively. **Exhibit 9** illustrates the traffic assignment of the proposed project for the AM and PM peak hours.

# **EXHIBIT 5. TRIP DISTRIBUTION**

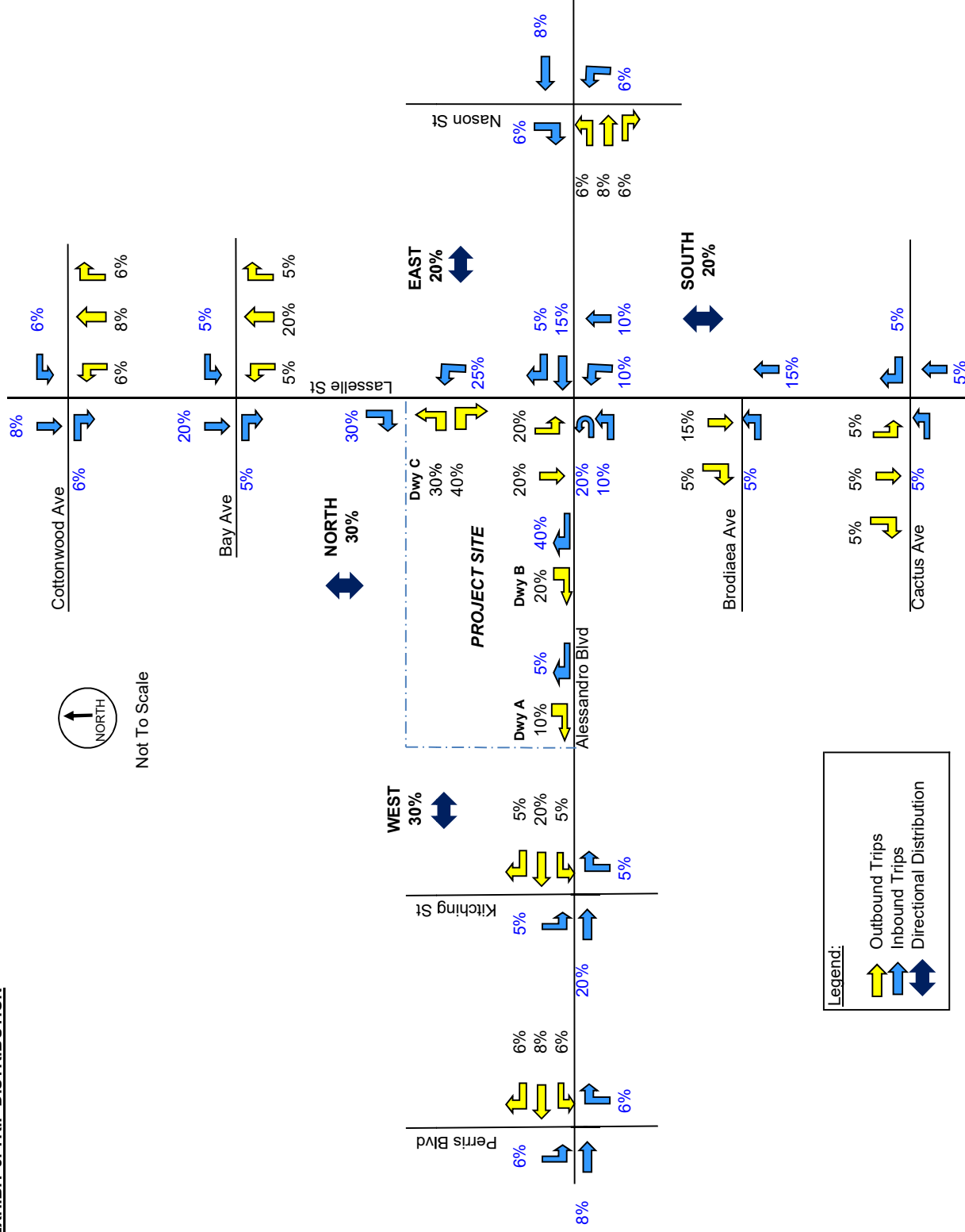


EXHIBIT 6. TRIP DISTRIBUTION (PASS-BY ONLY)

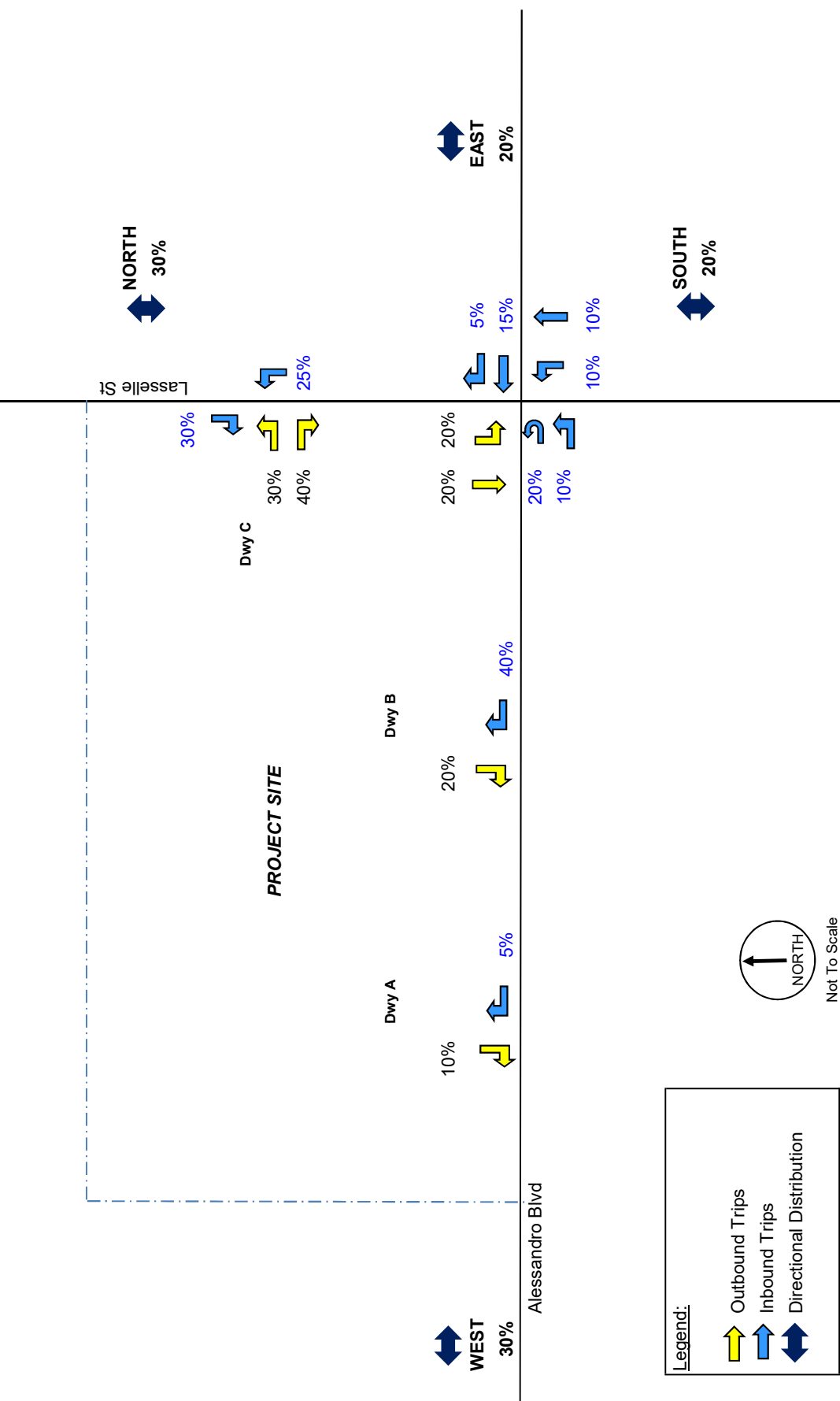


EXHIBIT 7. TRAFFIC ASSIGNMENT (PROJECT NET)

| NET TRIPS |     |
|-----------|-----|
| IN        | OUT |
| 204       | 184 |
| 210       | 201 |

AM Peak Hour  
PM Peak Hour

Legend:

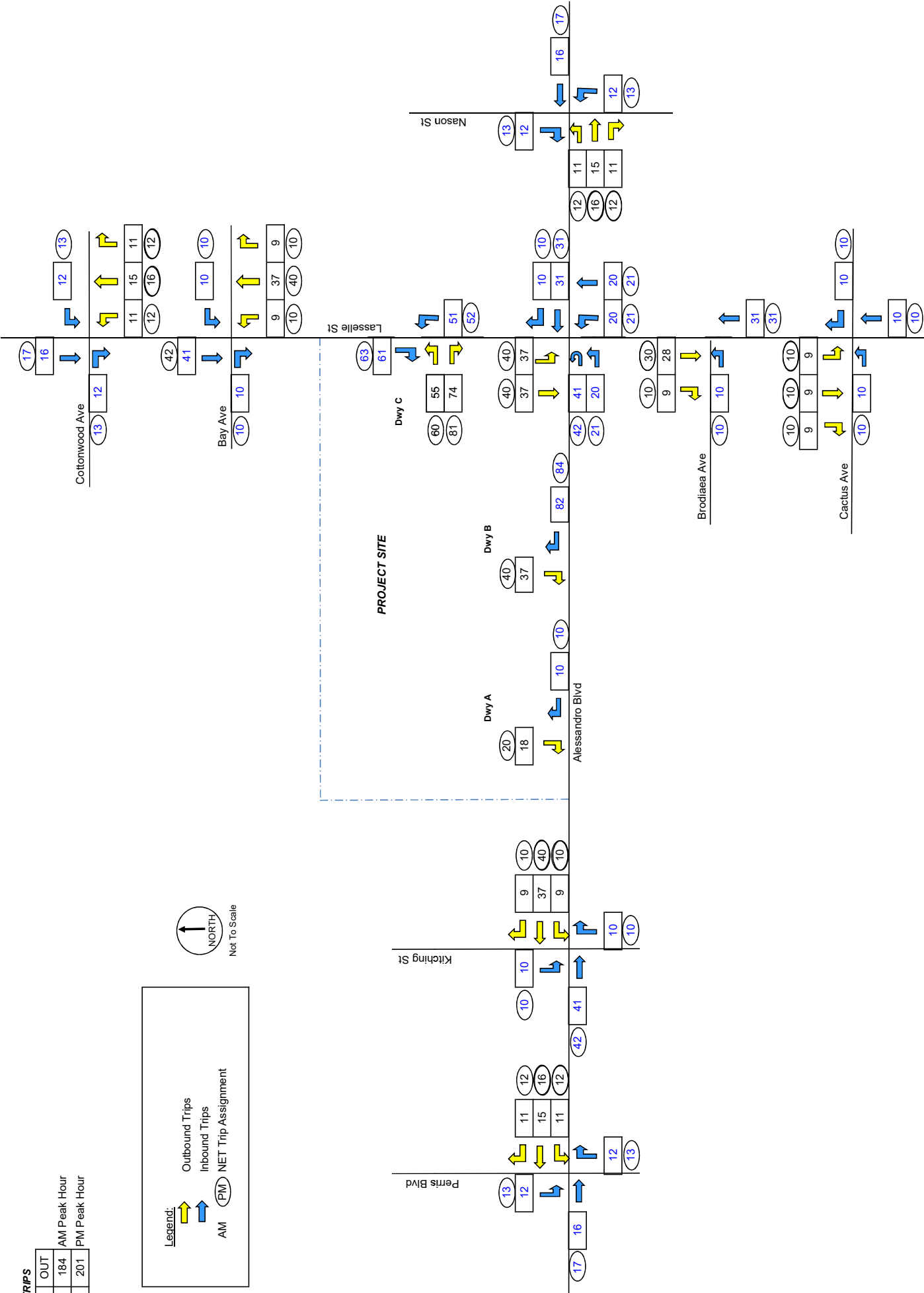
Outbound Trips

Inbound Trips

AM

PM

NET Trip Assignment

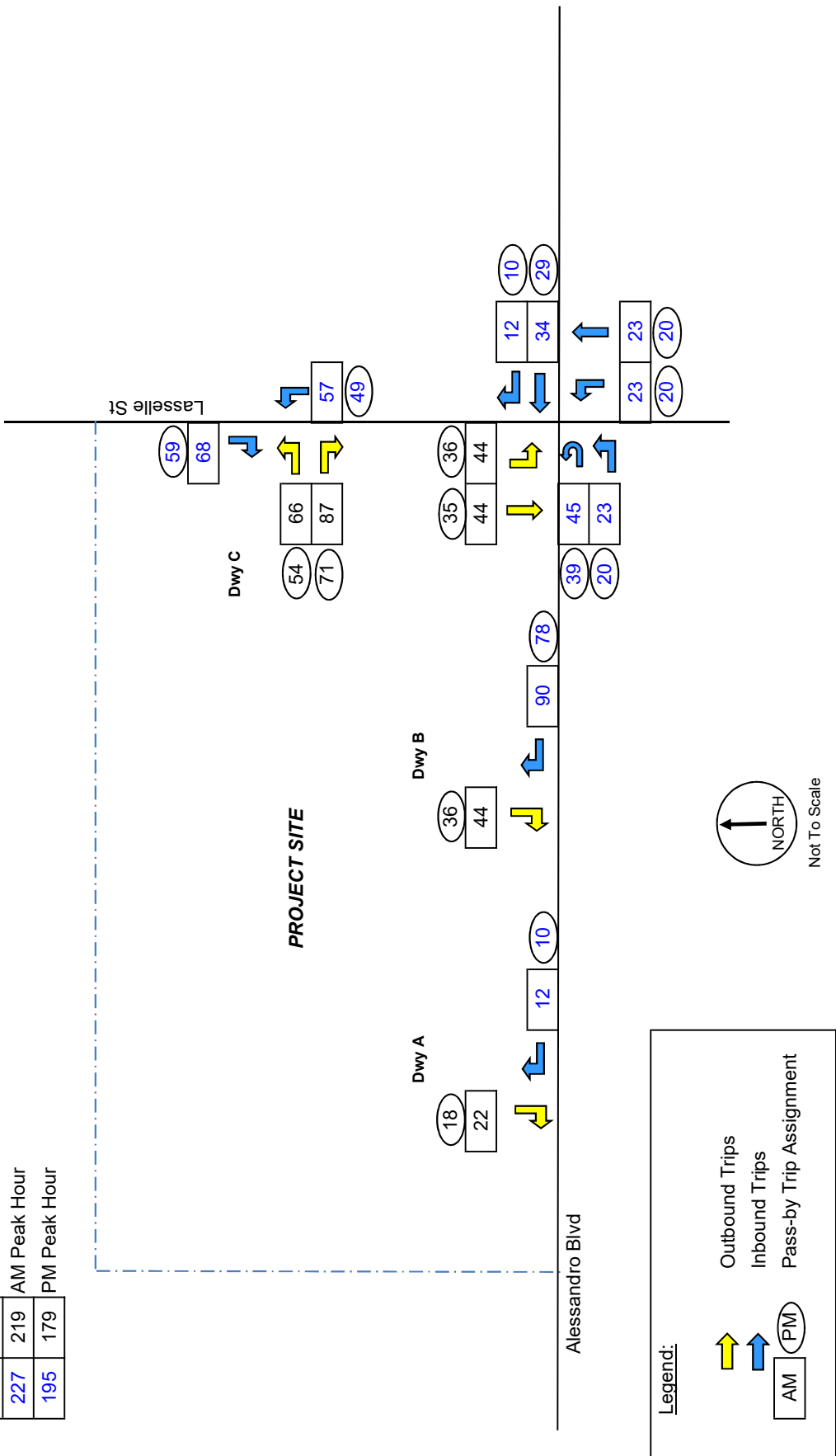


**EXHIBIT 8. TRIP ASSIGNMENT (PASS-BY ONLY\*)**

**PASS-BY TRIPS**

| IN  | OUT |
|-----|-----|
| 227 | 219 |
| 195 | 179 |

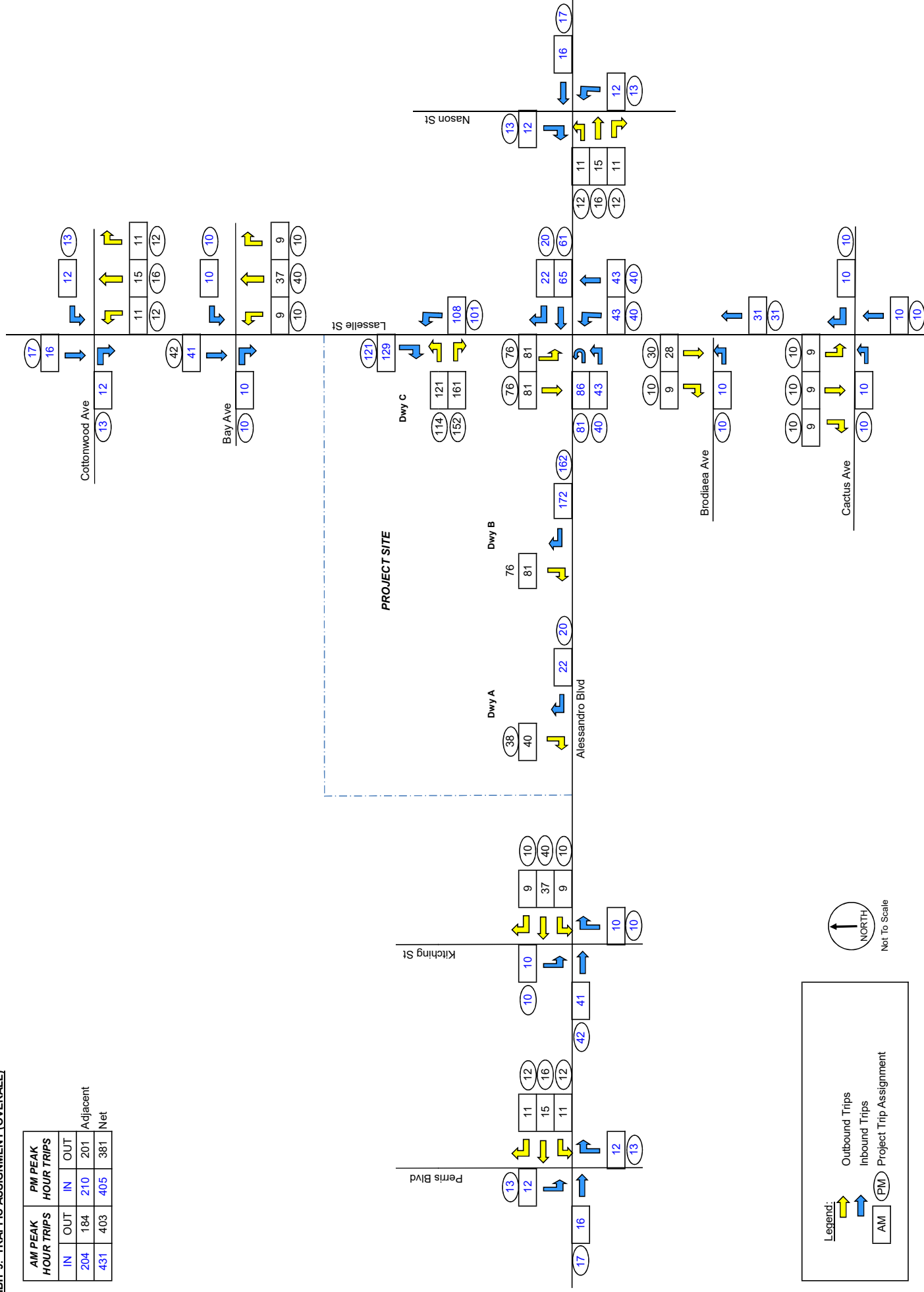
AM Peak Hour  
PM Peak Hour



\* Pass-by trips are additions to the existing traffic volumes. No reductions will be shifted from adjacent movements as a conservative approach.

**EXHIBIT 9. TRAFFIC ASSIGNMENT (OVERALL)**

|  | AM PEAK<br>HOUR TRIPS |     | PM PEAK<br>HOUR TRIPS |     | Adjacent<br>Net |
|--|-----------------------|-----|-----------------------|-----|-----------------|
|  | IN                    | OUT | IN                    | OUT |                 |
|  | 204                   | 184 | 210                   | 201 |                 |
|  | 431                   | 403 | 405                   | 381 |                 |



## EXISTING CONDITIONS PLUS PROJECT

Traffic volumes of the existing condition plus project traffic are shown in **Exhibits 10**.

The project's level of significance of traffic impact under existing conditions for the AM and PM peak hour are shown in **Table 4**. The analysis worksheets can be found in **Appendix D**. All studied intersections will maintain level of service "D" or better for the existing conditions plus project, except the following locations:

- #3 Alessandro Boulevard at Lasselle Street: LOS E in the AM peak hour

**Table 4. Existing Conditions Plus Project**

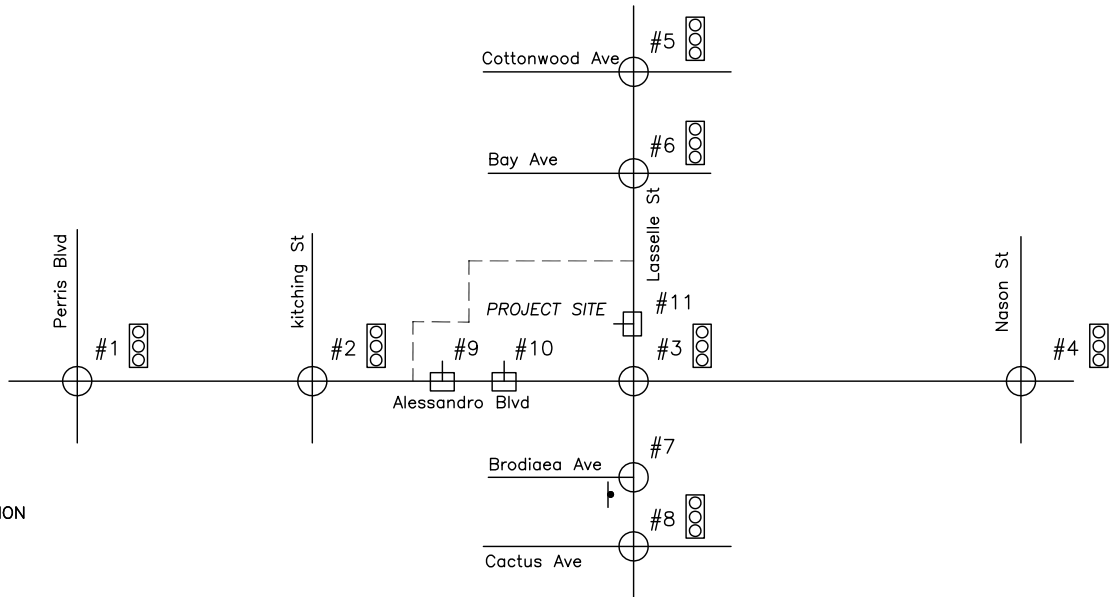
| No. | Intersection                    | AM       |             | PM  |       |
|-----|---------------------------------|----------|-------------|-----|-------|
|     |                                 | LOS      | Delay       | LOS | Delay |
| 1   | Alessandro Blvd at Perris Rd    | D        | 36.2        | D   | 37.4  |
| 2   | Alessandro Blvd at Kitchin St   | C        | 29.0        | C   | 26.3  |
| 3   | Alessandro Blvd at Lasselle St  | <b>E</b> | <b>59.1</b> | D   | 38.7  |
| 4   | Alessandro Blvd at Nason St     | C        | 23.5        | C   | 24.6  |
| 5   | Lasselle St at Cottonwood Ave   | C        | 35.5        | C   | 32.1  |
| 6   | Lasselle St at Bay Ave          | B        | 12.2        | C   | 26.7  |
| 7   | Lasselle St at Broderia Ave     | B        | 16.9        | C   | 18.3  |
| 8   | Lasselle St at Cactus Ave       | C        | 31.1        | C   | 27.3  |
| 9   | Alessandro Blvd at Driveway "A" | C        | 16.3        | B   | 11.8  |
| 10  | Alessandro Blvd at Driveway "B" | C        | 20.2        | B   | 13.3  |
| 11  | Lasselle St at Driveway "C"     | D        | 30.3        | C   | 24.4  |



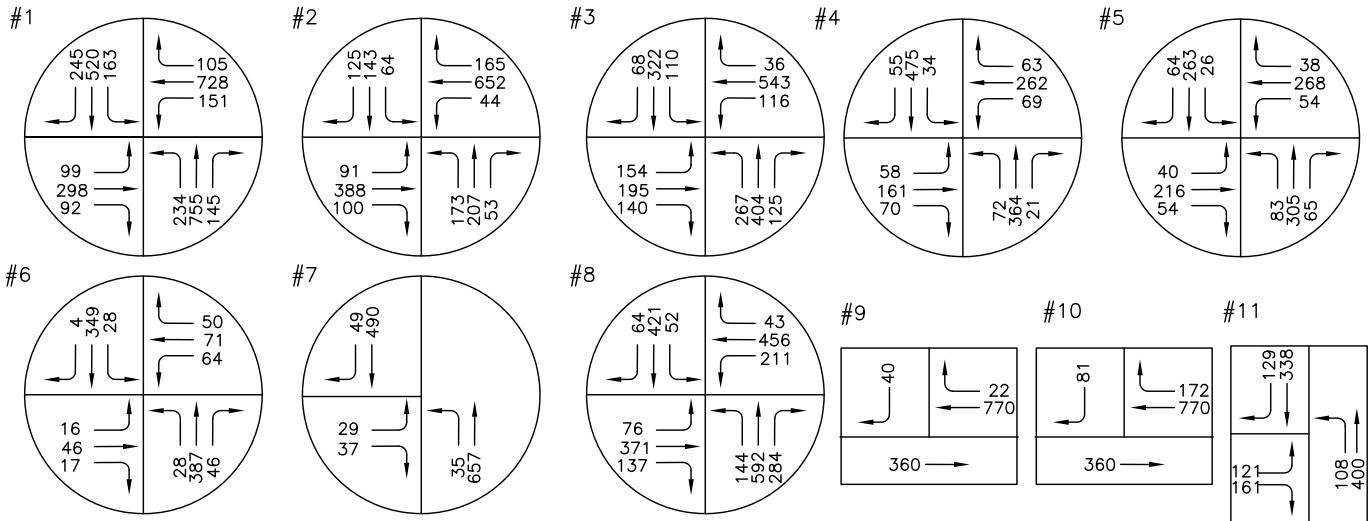
XXXX = ADT

○ = INTERSECTION

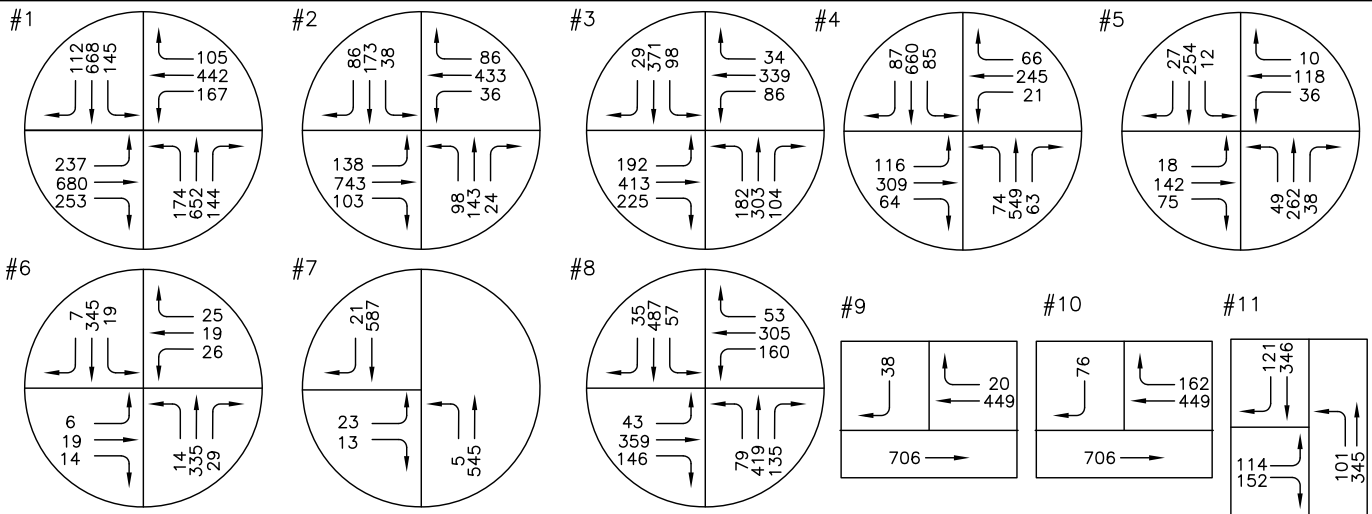
□ = DRIVEWAY



AM PEAK



PM PEAK



PROPOSED GAS STATION, C-STORE, RESTAURANT, RETAIL, OFFICE, CARWASH  
AT NWC OF ALESSANDRO BLVD AND LASSELLE ST

EXISTING (2018) PLUS PROJECT TRAFFIC

## PRE-PROJECT COMPLETION

Traffic conditions prior to completion of the proposed development is estimated by applying an annual growth rate of two percent (2%) over existing traffic counts for year 2025 conditions. Traffic volumes for the pre-project completion are illustrated in **Exhibit 11**. The level of services and intersection delays are shown in **Table 5**. The analysis worksheets can be found in **Appendix D**. All studied intersections will maintain level of service "D" or better.

**Table 5. Pre-Project Completion (2025) Level of Service**

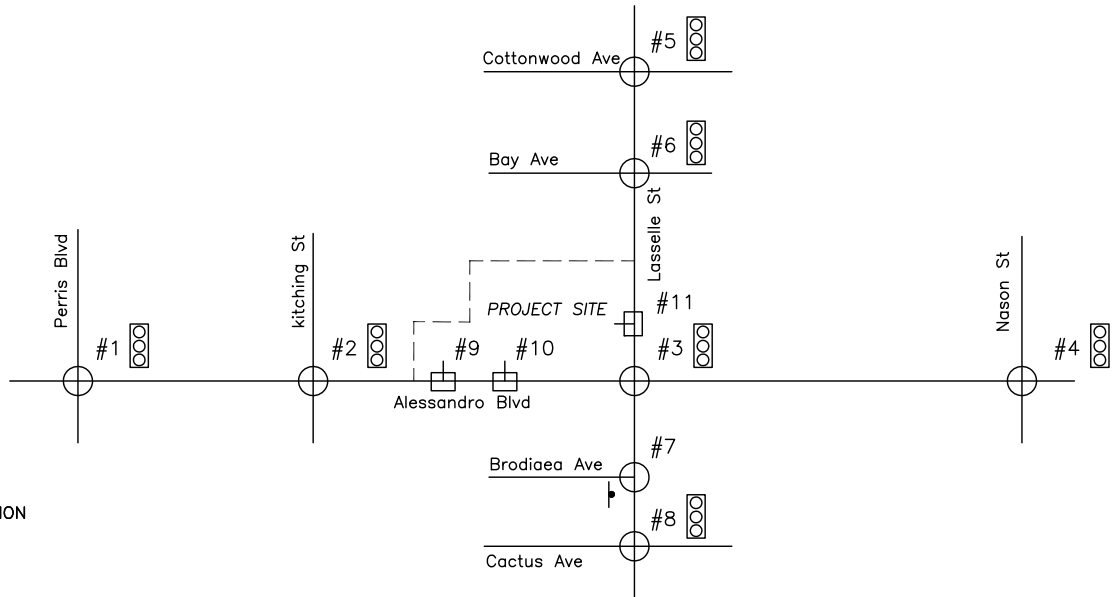
| No. | Intersection                   | AM  |       | PM  |       |
|-----|--------------------------------|-----|-------|-----|-------|
|     |                                | LOS | Delay | LOS | Delay |
| 1   | Alessandro Blvd at Perris Rd   | D   | 38.7  | D   | 42.7  |
| 2   | Alessandro Blvd at Kitchin St  | C   | 31.5  | C   | 23.8  |
| 3   | Alessandro Blvd at Lasselle St | D   | 48.1  | C   | 32.9  |
| 4   | Alessandro Blvd at Nason St    | C   | 24.1  | C   | 27.0  |
| 5   | Lasselle St at Cottonwood Ave  | D   | 37.9  | C   | 32.5  |
| 6   | Lasselle St at Bay Ave         | C   | 24.5  | C   | 26.1  |
| 7   | Lasselle St at Brodiaea Ave    | C   | 16.7  | C   | 17.7  |
| 8   | Lasselle St at Cactus Ave      | D   | 36.6  | C   | 29.3  |



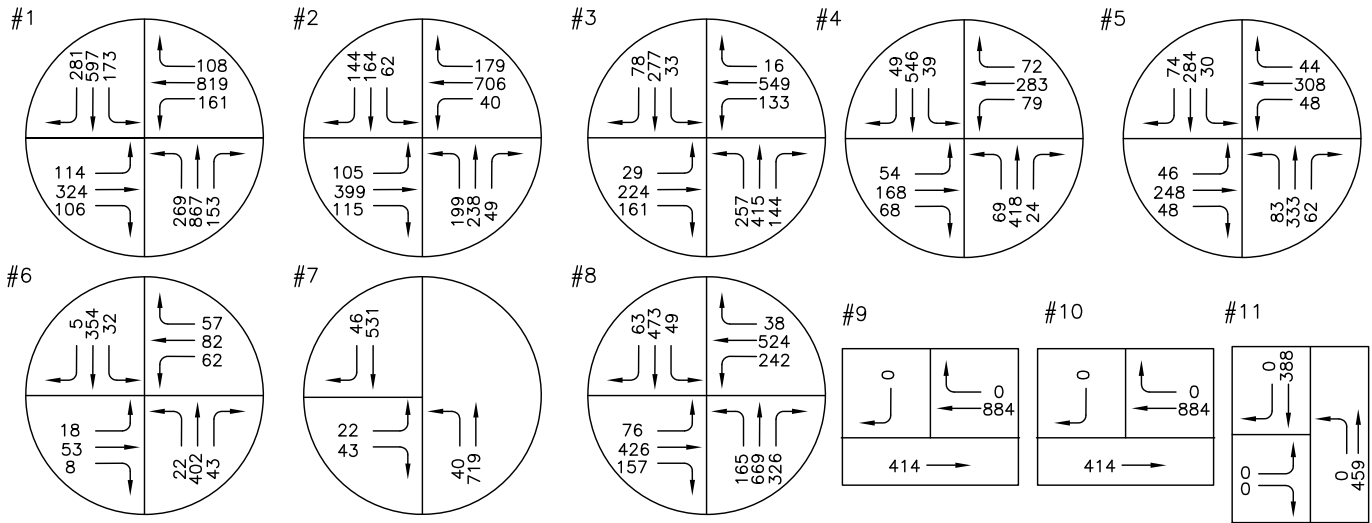
XXXX = ADT

○ = INTERSECTION

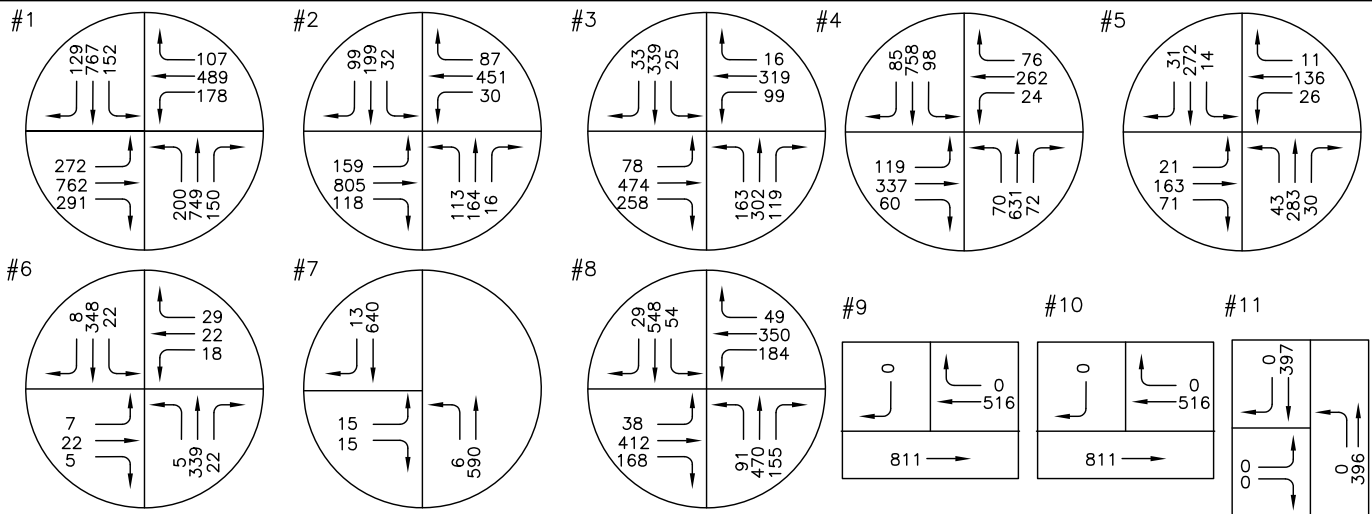
□ = DRIVEWAY



AM PEAK



PM PEAK



## PRE-PROJECT COMPLETION (2025) TRAFFIC VOLUMES

PROPOSED GAS STATION, C-STORE, RESTAURANT, RETAIL, OFFICE, CARWASH  
AT NWC OF ALESSANDRO BLVD AND LASSELLE ST

## POST-PROJECT COMPLETION

Traffic volumes for year 2025 after project completion (existing plus ambient growth plus cumulative plus project) are illustrated in **Exhibit 12**. The level of services and intersection delays are shown in **Table 6**. Analysis worksheets are provided in **Appendix D**.

**Table 6. Post-Project Completion (2025) Level of Service**

| No. | Intersection                             | AM       |             | PM  |       |
|-----|------------------------------------------|----------|-------------|-----|-------|
|     |                                          | LOS      | Delay       | LOS | Delay |
| 1   | Alessandro Blvd at Perris Rd             | D        | 40.6        | D   | 44.8  |
| 2   | Alessandro Blvd at Kitchin St            | C        | 32.1        | C   | 29.0  |
| 3   | Alessandro Blvd at Lasselle St           | <b>E</b> | <b>69.6</b> | D   | 35.8  |
| 4   | Alessandro Blvd at Nason St              | C        | 25.4        | C   | 29.0  |
| 5   | Lasselle St at Cottonwood Ave            | D        | 38.8        | C   | 32.9  |
| 6   | Lasselle St at Bay Ave                   | C        | 28.2        | C   | 28.0  |
| 7   | Lasselle St at Brodiaea Ave              | C        | 20.1        | C   | 21.5  |
| 8   | Lasselle St at Cactus Ave                | D        | 38.2        | C   | 31.5  |
| 9   | Alessandro Blvd at Driveway "A"          | B        | 12.5        | B   | 10.4  |
| 10  | Alessandro Blvd at Driveway "B"          | B        | 14.6        | B   | 11.6  |
| 11  | Lasselle St at Driveway "C" <sup>1</sup> | <b>E</b> | <b>42.3</b> | D   | 31.5  |

<sup>1</sup> Synchro program is unable to factor in the proposed two-way-left-turn lane on Laselle Street that will provide a mid-way shelter for the eastbound left-turn movements and reduce delays for the egress.

All studied intersections will maintain level of service "D" or better, except the following:

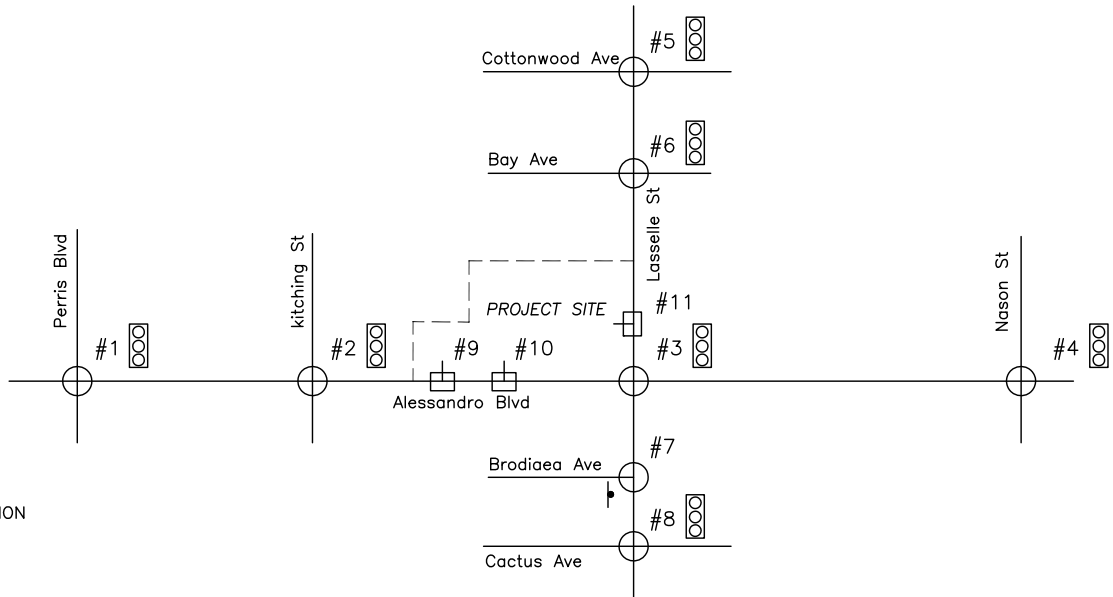
- #3. Alessandro Boulevard at Lasselle Street: LOS E in the AM peak hour.
- #11. Project Driveway "C" at Lasselle Street: LOS E in the AM peak hour.



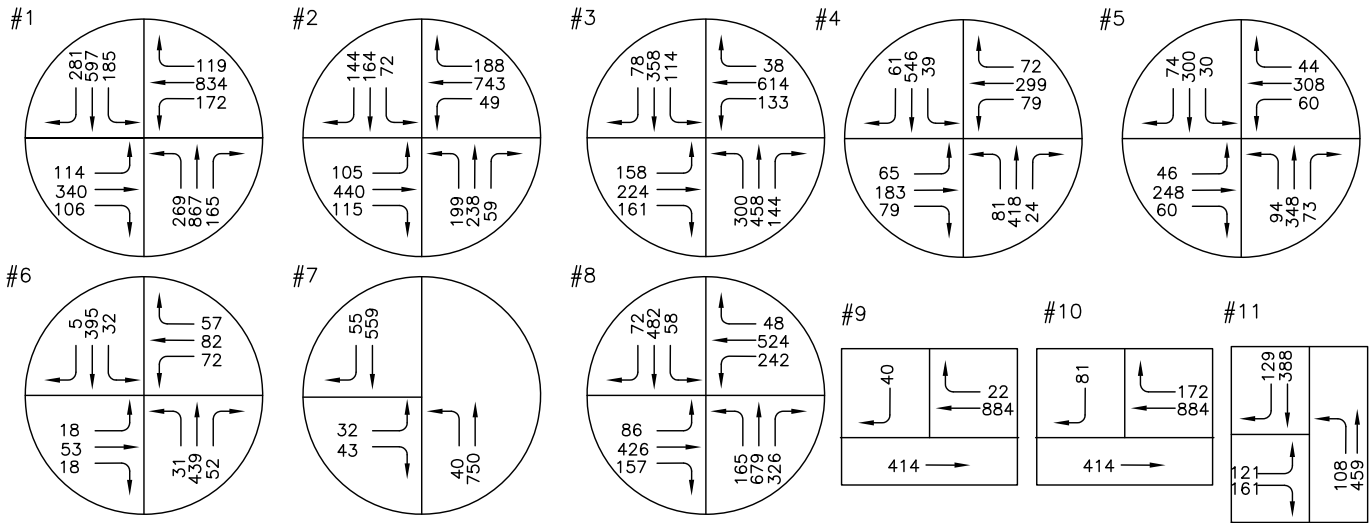
XXXX = ADT

○ = INTERSECTION

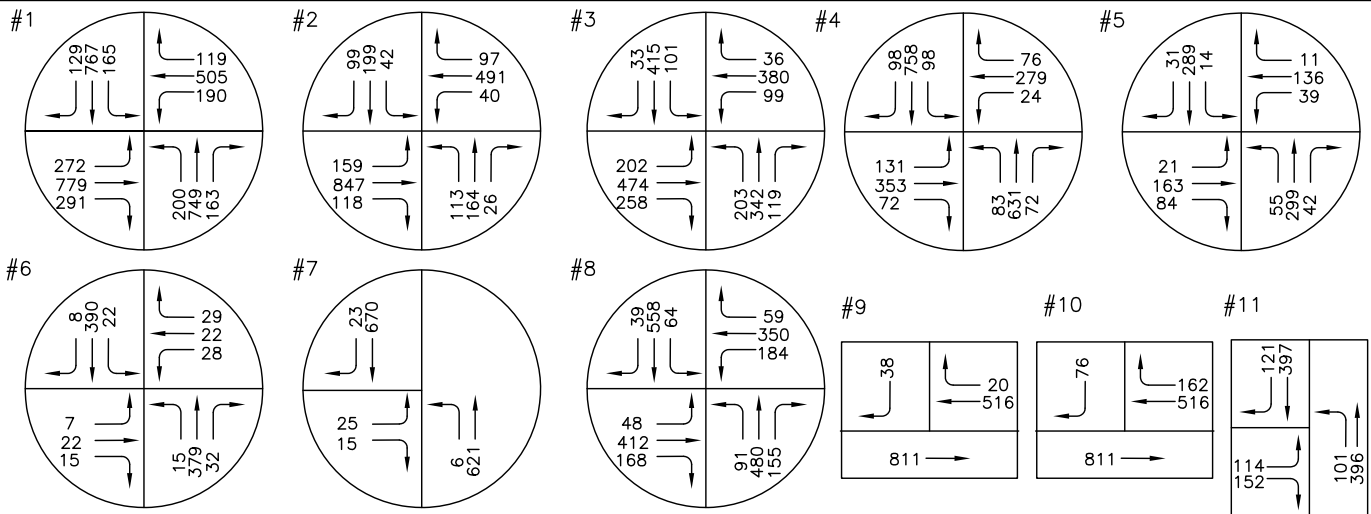
□ = DRIVEWAY



AM PEAK



PM PEAK



## POST-PROJECT COMPLETION TRAFFIC VOLUMES

PROPOSED GAS STATION, C-STORE, RESTAURANT, RETAIL, OFFICE, CARWASH  
AT NWC OF ALESSANDRO BLVD AND LASSELLE ST

## SIGNIFICANT IMPACT ANALYSIS

The City's Level of Service Standards, as published in the City of Moreno Valley General Plan are shown in **Exhibit 13**. The operational goal and intersection requirements are LOS D along Alessandro Boulevard and LOS C for all other study intersections.

To determine whether the addition of project-generated trips will result in a significant impact, the following criteria are used when identifying operational deficiency for signalized intersections:

- Any signalized study intersection operating at acceptable LOS without project traffic in which the addition of project traffic causes the intersection to degrade to unacceptable LOS.
- Any signalized study intersection that is operating at unacceptable LOS without project traffic where the project increases delay by 5.0 or more seconds

The following criteria are used when identifying operational deficiency for unsignalized intersections:

- a) The addition of project related traffic causes the intersection to degrade from an acceptable LOS to unacceptable LOS.

OR

- b) The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate without project traffic at unacceptable LOS,

AND

- c) The intersection meets the peak hour traffic signal warrant after the addition of project traffic.

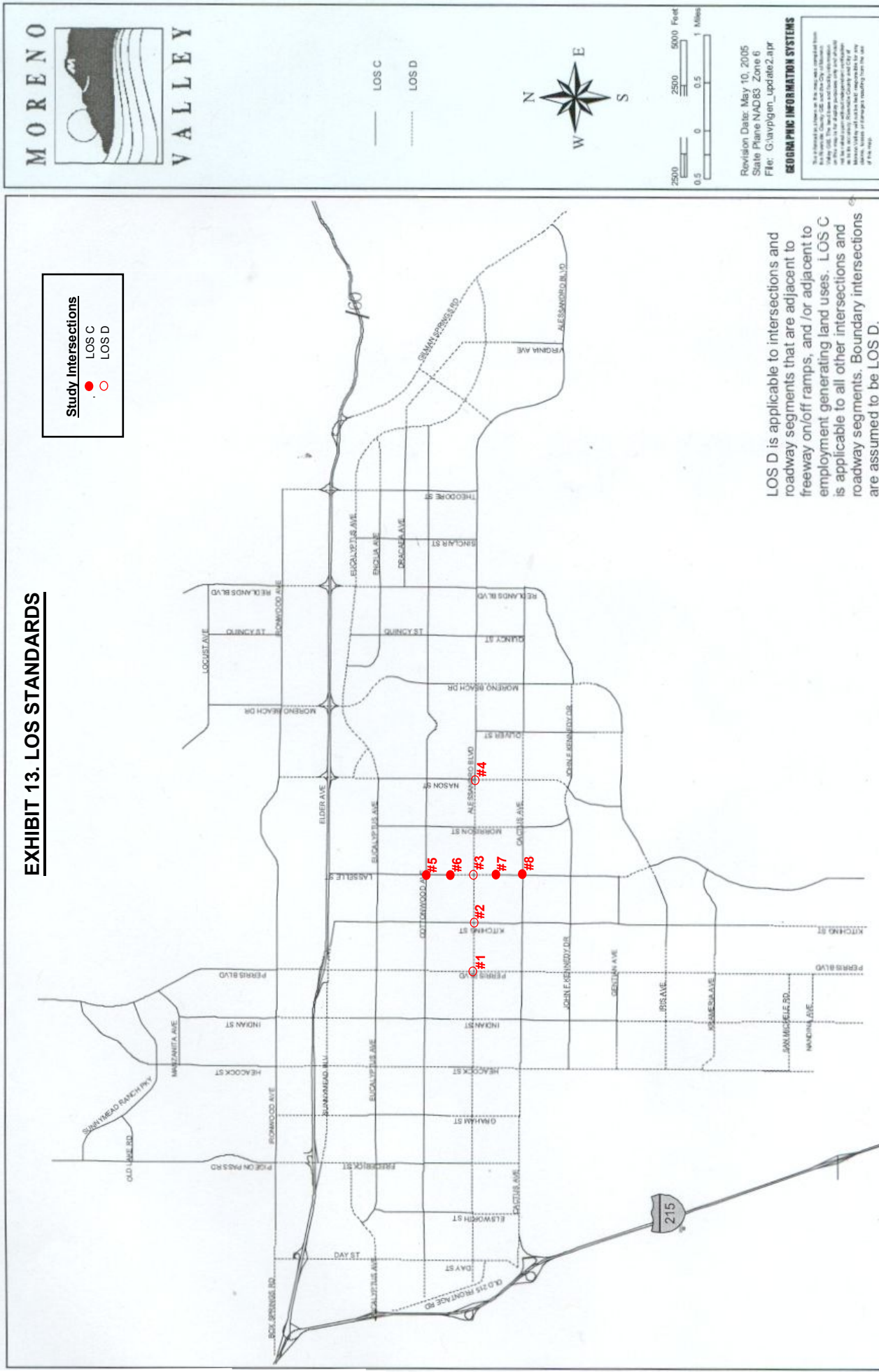
With consideration of the proposed project together with other developments in the area, the combined traffic impacts are shown in **Table 7**. Based on the threshold shown above, mitigation measures are required for the following intersection:

- Intersection #3 of Alessandro Boulevard at Lasselle Street in the AM peak hour

**Table 7. Project Impact Analysis**

| Intersection                      | Pre-Project Conditions |       | Post Project Conditions |       |            | Delay Increase | Significant Impact |
|-----------------------------------|------------------------|-------|-------------------------|-------|------------|----------------|--------------------|
|                                   | LOS                    | Delay | LOS                     | Delay | Target LOS |                |                    |
| AM PEAK                           |                        |       |                         |       |            |                |                    |
| 1. Alessandro Blvd at Perris Rd   | D                      | 38.7  | D                       | 40.6  | D (OK)     | -              | No                 |
| 2. Alessandro Blvd at Kitchin St  | C                      | 31.5  | C                       | 32.1  | D (OK)     | -              | No                 |
| 3. Alessandro Blvd at Lasselle St | D                      | 48.1  | E                       | 69.6  | D          | 21.5 (>5)      | Yes                |
| 4. Alessandro Blvd at Nason St    | C                      | 24.1  | C                       | 25.4  | D (OK)     | -              | No                 |
| 5. Lasselle St at Cottonwood Ave  | D                      | 37.9  | D                       | 38.8  | C          | 0.9 (<5)       | No                 |
| 6. Lasselle St at Bay Ave         | C                      | 24.5  | C                       | 28.2  | C (OK)     | -              | No                 |
| 7. Lasselle St at Brodiaea Ave    | C                      | 16.7  | C                       | 20.1  | C (OK)     | -              | No                 |
| 8. Lasselle St at Cactus Ave      | D                      | 36.6  | D                       | 38.2  | C          | 1.6 (<5)       | No                 |
| PM PEAK                           |                        |       |                         |       |            |                |                    |
| 1. Alessandro Blvd at Perris Rd   | D                      | 42.7  | D                       | 44.8  | D (OK)     | -              | No                 |
| 2. Alessandro Blvd at Kitchin St  | C                      | 23.8  | C                       | 29.0  | D (OK)     | -              | No                 |
| 3. Alessandro Blvd at Lasselle St | C                      | 32.9  | D                       | 35.8  | D (OK)     | -              | No                 |
| 4. Alessandro Blvd at Nason St    | C                      | 27.0  | C                       | 29.0  | D (OK)     | -              | No                 |
| 5. Lasselle St at Cottonwood Ave  | C                      | 32.5  | C                       | 32.9  | C (OK)     | -              | No                 |
| 6. Lasselle St at Bay Ave         | C                      | 26.1  | C                       | 28.0  | C (OK)     | -              | No                 |
| 7. Lasselle St at Brodiaea Ave    | C                      | 17.7  | C                       | 21.5  | C (OK)     | -              | No                 |
| 8. Lasselle St at Cactus Ave      | C                      | 29.3  | C                       | 31.5  | C (OK)     | -              | No                 |

# EXHIBIT 13. LOS STANDARDS



Source: Urban Crossroads, June 2004.

Figure 5.2-7  
LOS Standards

## MITIGATION MEASURE

The project will result no or less than significant traffic impact with the following mitigation measures:

- For the east approach of Alessandro Boulevard at Lasselle Street, convert the existing westbound right-turn lane to a shared through/right-turn lane and extend the lane length to a minimum of 250 feet.

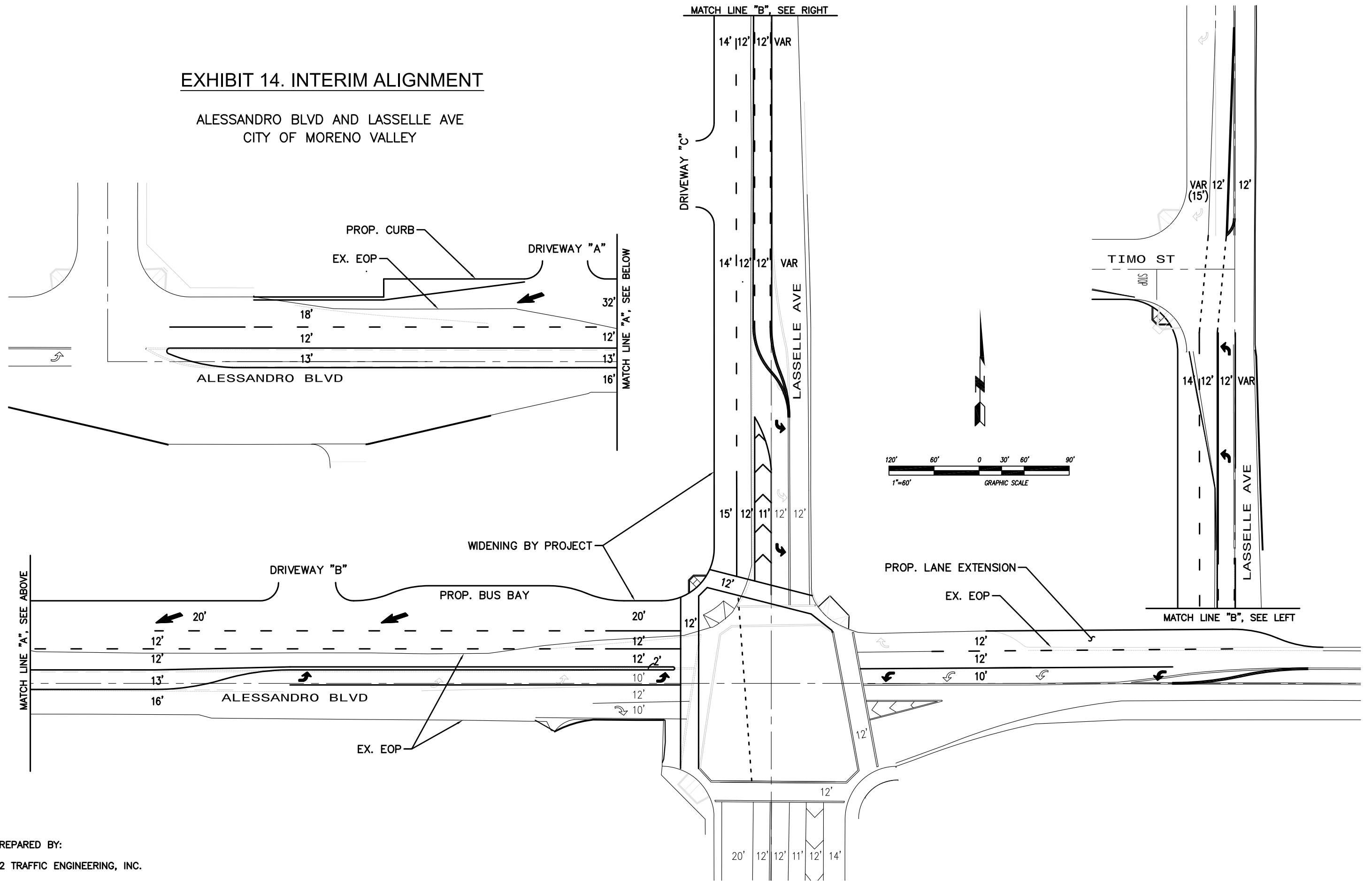
The interim and ultimate alignments for the intersection of Alessandro Boulevard and Lasselle Avenue are illustrated in **Exhibits 14 and 15**, respectively. With mitigation measures, level of services and average delays for the project completion year are shown in **Table 8**. Analysis worksheets are provided in **Appendix D**.

**Table 8. Project Impact Analysis with Mitigation Measure**

| Intersection #3<br>Alessandro Blvd at<br>Lasselle St | Pre-Project<br>Conditions |       | Post Project with Mitigation |       |               | Significant<br>Impact |
|------------------------------------------------------|---------------------------|-------|------------------------------|-------|---------------|-----------------------|
|                                                      | LOS                       | Delay | LOS                          | Delay | Target<br>LOS |                       |
| AM PEAK                                              | D                         | 48.1  | D                            | 51.2  | D             | No                    |
| PM PEAK                                              | C                         | 32.9  | D                            | 35.8  | D             | No                    |

# EXHIBIT 14. INTERIM ALIGNMENT

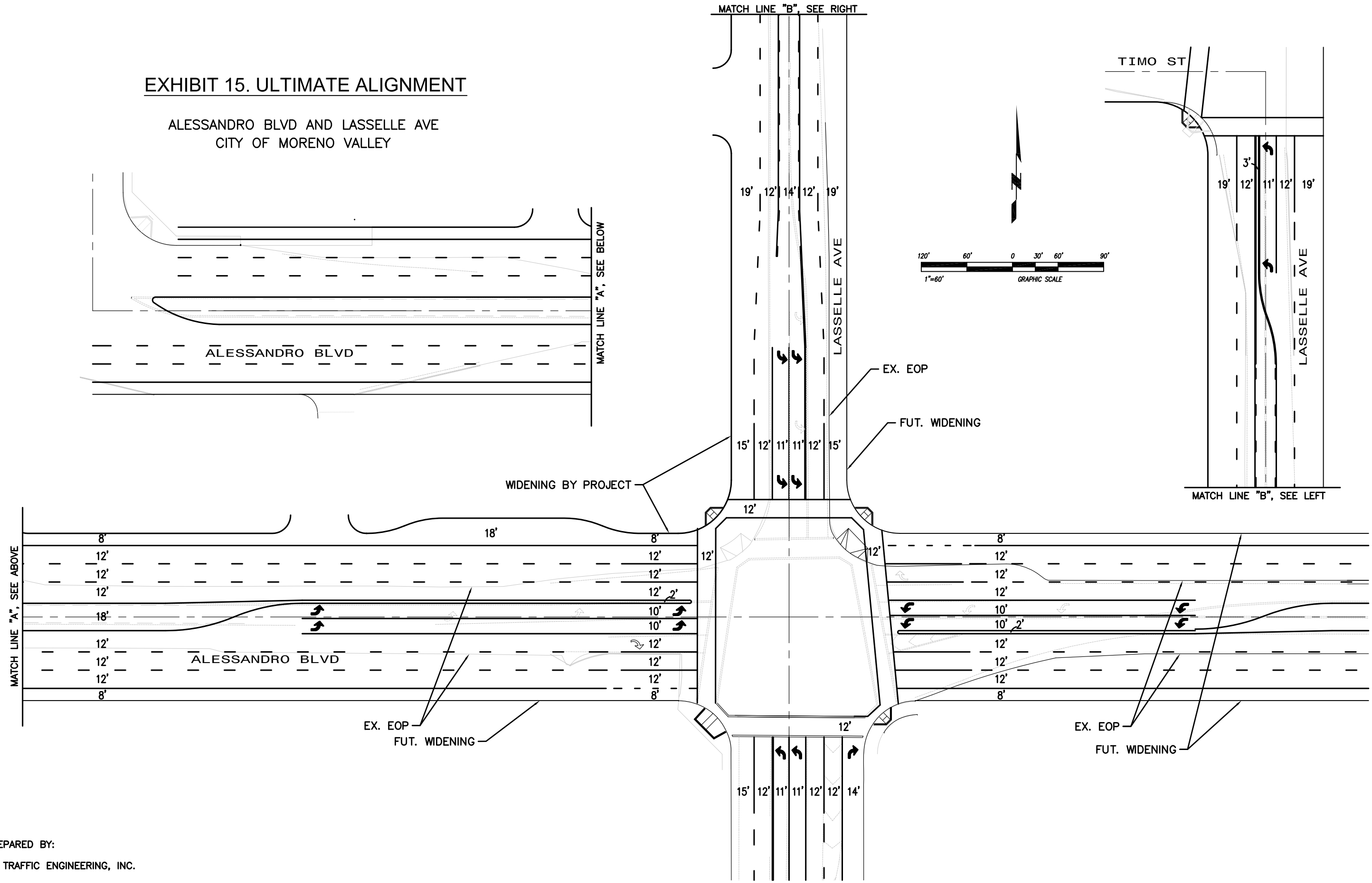
ALESSANDRO BLVD AND LASSELLE AVE  
CITY OF MORENO VALLEY



PREPARED BY:  
K2 TRAFFIC ENGINEERING, INC.

EXHIBIT 15. ULTIMATE ALIGNMENT

ALESSANDRO BLVD AND LASSELLE AVE  
CITY OF MORENO VALLEY



PREPARED BY:  
K2 TRAFFIC ENGINEERING, INC.

## **VEHICLE MILES TRAVELED (VMT) ASSESSMENT**

For purpose of SB743 compliance, a VMT analysis should be conducted for land use projects that have the potential to increase the average VMT per capita/employee compared to the City's threshold. A set of initial screening tools has been developed to identify projects with presumably less VMT impact and eliminate the requirement for a full project-level VMT analysis.

In accordance with the "Project Type Screening" recommended in the *City of Moreno Valley Traffic Impact Preparation Guide, June 2020*, this local servicing retail project of less than 50,000 square feet can be presumed to have less than significant impacts. Complete project-level VMT analysis and forecasting through regional model is, therefore, not required for the project.

## QUEUE ANALYSIS

The study examined the 95th percentile queue for left-turn pockets at the project-adjacent intersection of Lasselle Street and Alessandro Boulevard in the AM and PM peak hours. The queuing conditions are shown in **Table 9**. Queue analysis outputs can be found in **Appendix E**.

**Table 9. Queue Analysis - After Project Completion**

| Intersection #3                | Turn Movement | 95th Percentile Queue (ft) AM Peak | 95th Percentile Queue (ft) PM Peak | Existing Turn Bay Length (ft) | Exceeds Capacity |
|--------------------------------|---------------|------------------------------------|------------------------------------|-------------------------------|------------------|
| Alessandro Blvd at Lasselle St | <b>EBL</b>    | <b>260</b>                         | <b>182</b>                         | 180                           | <b>Yes</b>       |
|                                | WBL           | 136                                | 144                                | 160                           | No               |
|                                | <b>NBL</b>    | <b>396</b>                         | <b>238</b>                         | 200                           | <b>Yes</b>       |
|                                | <b>SBL</b>    | <b>180</b>                         | 140                                | 150                           | <b>Yes</b>       |

The excess demand of left turns in general should be addressed in the ultimate lane configuration with consideration of additional turn lanes, signal optimization and coordination, enhanced phasing, and travel demand management measures. As an interim solution to minimize the effects of left-turn queuing, the following improvements are recommended:

- Provide 260 feet of storage length for eastbound left-turn lane on Alessandro Boulevard at Lasselle Street.
- Provide 400 feet of storage length for northbound left-turn lane on Lasselle Street at Alessandro Boulevard.
- Provide 180 feet of storage length for southbound left-turn lane on Lasselle Street at Alessandro Boulevard.

## PEAK-HOUR SIGNAL WARRANT

According to the approved scoping agreement, this study examined peak-hour signal warrant for the following stop-controlled intersection:

- #7. Lasselle Street at Brodiaea Avenue

The worksheets of peak-hour signal warrant (Warrant 3) are shown in **Appendix F**. The results show that this stop-controlled intersection does NOT meet the traffic signal warrant after completion of the project.

## PEDESTRIAN, BICYCLE, PUBLIC TRANSIT

The project will dedicate 20 feet right-of-way along Lasselle Street and 7 feet along Alessandro Boulevard. Pedestrian sidewalks will be provided at project frontage on both Lasselle Street and Alessandro Boulevard in the project vicinity with adequate width clear of any apparent obstruction. The adjacent intersection of Alessandro Boulevard and Lasselle Street provides pedestrian crosswalk for each approach and ADA compliant access ramp at each corner along with pedestrian push buttons to activate pedestrian crossing phases.

Lasselle Street is a Class 2 Bike Lanes south of Alessandro Boulevard. The proposed Lasselle Street widening to its ultimate width will allow future bike lane extension and integration. Public transportation is provided currently on Alessandro Boulevard operated by Riverside Transit Agency (RTA) Bus Route 20. A new bus stop will be added on Alessandro Boulevard just west of Lasselle Street.

## **SITE ACCESS**

Site access is adequately and properly provided via two new right-in-right-out driveways on Alessandro Boulevard and a full access driveway on Lasselle Street. The locations and spacings of these driveways are conformant to the City's standards. The proposed two-way-left-turn lane on Lasselle Street is expected to provide additional space to shelter turning movements and enhance traffic safety. The proposed raised median on Alessandro Boulevard will provide a physical constraint for the proposed driveway to right turns only. The "One Way" sign (R6-1) is recommended for installation at the proposed median island of Alessandro Boulevard facing the proposed driveways.

## **ON-SITE CIRCULATION**

Adequate driveway throat lengths of at least 60 feet have been provided to ensure on-site circulation does not negatively affect public streets. The site sufficiently provides drive aisles of 28 feet wide for two-way circulation. Lasselle Street is not a truck route in the City; therefore, fuel delivery truck access is restricted to approach from the east on Alessandro Boulevard through Driveway "B". On-site circulation appears efficient and safe without bottleneck. Nonetheless, the site plan is subject to review and approval by the Fire Department, Planning Department and Traffic Engineer.

**APPENDIX A**  
**APPROVED SCOPING AGREEMENT**

## EXHIBIT A

### Project Scoping Form

This scoping form shall be submitted to the Lead Agency to assist in identifying infrastructure improvements that may be required to support traffic from the proposed project.

#### Project Identification:

Approved 8/11/20  
*[Signature]*

|                       |                                                                                                                                                                                                                                    |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Case Number:          | PPA18-0002                                                                                                                                                                                                                         |
| Related Cases:        |                                                                                                                                                                                                                                    |
| SP No.                |                                                                                                                                                                                                                                    |
| EIR No.               |                                                                                                                                                                                                                                    |
| GPA No.               |                                                                                                                                                                                                                                    |
| CZ No.                |                                                                                                                                                                                                                                    |
| Project Name:         | Commercial Development                                                                                                                                                                                                             |
| Project Address:      | Northwest Corner of Alessandro Blvd and Lasselle St                                                                                                                                                                                |
| Project Opening Year: | 2025                                                                                                                                                                                                                               |
| Project Description:  | Commercial developments including gas station (3,000 sf) with 12 fueling positions, quick-service restaurant (1,200 sf), drive-thru restaurant (1,475 sf), retail (5,700 sf), office (10,080 sf), and express car wash (3,960 sf). |

|            | Consultant:                                     | Developer:                                       |
|------------|-------------------------------------------------|--------------------------------------------------|
| Name:      | K2 Traffic Engineering (by Kay Hsu, TE)         | Empire Design Group (by Gregory Hann, Architect) |
| Address:   | 1442 Irvine Blvd, Suite 210<br>Tustin, CA 92780 | PO Box 944<br>Murrieta, CA 92564                 |
| Telephone: | 714-832-2116                                    | 951-696-1490                                     |
| Email:     | khsu@k2traffic.com                              | ghann@empiregr.biz                               |

#### Trip Generation Information:

Trip Generation Data Source: ITE's Trip Generation Manual, 10th Edition

Current General Plan Land Use:

Commercial

Proposed General Plan Land Use:

Commercial

Current Zoning:

C-2 (General Commercial)

Proposed Zoning:

C-2 (General Commercial)

|          | Existing Trip Generation |     |       | Proposed Trip Generation |     |       |
|----------|--------------------------|-----|-------|--------------------------|-----|-------|
|          | In                       | Out | Total | In                       | Out | Total |
| AM Trips | 0                        | 0   | 0     | 200                      | 180 | 380   |
| PM Trips | 0                        | 0   | 0     | 204                      | 198 | 401   |

Trip Internalization: ☒ Yes ☐ No ( 5 % Trip Discount)

Pass-By Allowance: ☒ Yes ☐ No (        % Trip Discount)

See Table A2

## Potential Screening Checks

Is your project screened from specific analyses (see Page 3 of the guidelines related to LOS assessment and Pages 22-23 for VMT screening criteria).

**Is the project screened from LOS assessment?** ☐ Yes ☒ No

LOS screening justification (see Page 3 of the guidelines): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Is the project screened from VMT assessment?**

☒ Yes

☐ No

VMT screening justification (see Pages 22-23 of the guidelines): \_\_\_\_\_

1. Within a low VMT generating TAZ based on Total VMT

2. Within a low VMT generating TAZ based on Home-Based Work VMT

See Exhibit 1.

## Level of Service Scoping

- Proposed Trip Distribution (Attach Graphic for Detailed Distribution): See Exhibit 2

| North | South | East | West |
|-------|-------|------|------|
| 30 %  | 20 %  | 20 % | 30 % |

### Link level of service and data collection:

\_\_\_\_\_ will be required

x  will not be required

- Attach list of study intersections (and roadway segments if applicable)
- Attach site plan See Exhibit 3. Site Plan
- Other specific items to be addressed:
  - Site access
  - On-site circulation
  - Parking
  - Consistency with Plans supporting Bikes/Peds/Transit
  - Other \_\_\_\_\_
- Date of Traffic Counts 8/23/2018
- Attach proposed analysis scenarios (years plus proposed forecasting approach)
- Attach proposed phasing approach (if the project is phased) N/A

See Exhibit 4 for Study Intersection and Analysis Scenarios

## VMT Scoping

For projects that are not screened, identify the following:

- Travel Demand Forecasting Model Used \_\_\_\_\_
- Attach WRCOG Screening VMT Assessment output or describe why it is not appropriate for use
- Attach proposed Model Land Use Inputs and Assumed Conversion Factors (attach)

**TABLE A1. TRIP GENERATION RATE (ITE)**

| Land Use                                              | Unit                 | Daily  | AM Peak Hour |     |     | PM Peak Hour |     |     |
|-------------------------------------------------------|----------------------|--------|--------------|-----|-----|--------------|-----|-----|
|                                                       |                      |        | Total        | In  | Out | Total        | In  | Out |
| Super Convenience Market/Gas Station (960)            | Veh Fueling Position | 230.52 | 28.08        | 50% | 50% | 22.96        | 50% | 50% |
| Fast-Food Restaurant with Drive-Through Windows (934) | 1,000 Sq. Ft.        | 470.95 | 40.19        | 51% | 49% | 32.67        | 52% | 48% |
| High-Turnover (Sit-Down) Restaurant (932)             | 1,000 Sq. Ft.        | 112.18 | 9.94         | 55% | 45% | 9.77         | 62% | 38% |
| Shopping Center (820)                                 | 1,000 Sq. Ft.        | 37.75  | 0.94         | 62% | 38% | 3.81         | 48% | 52% |
| General Office Building (710)                         | 1,000 Sq. Ft.        | 9.74   | 1.16         | 86% | 14% | 1.15         | 16% | 84% |
| Automated Car Wash (948)*                             | 1,000 Sq. Ft.        | 142.00 | 6.31         | 50% | 50% | 14.20        | 50% | 50% |
| Drive-in Bank (912)                                   | 1,000 Sq. Ft.        | 100.03 | 9.50         | 58% | 42% | 20.45        | 50% | 50% |

Source: *Trip Generation Manual, 10th Edition*\* Daily and AM peak hour volumes derived from SANDAG's *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region***TABLE A2. TRIP GENERATION**

| Land Use                                              | Unit                     | Quantity                    | AM Peak Hour |      |      | PM Peak Hour |      |      | Daily        |
|-------------------------------------------------------|--------------------------|-----------------------------|--------------|------|------|--------------|------|------|--------------|
|                                                       |                          |                             | Total        | In   | Out  | Total        | In   | Out  |              |
| Super Convenience Market/Gas Station (960)            | Veh Fueling Position     | 16                          | 449          | 225  | 224  | 367          | 184  | 183  | 3,688        |
|                                                       | Pass-By Trip Deduction** | AM 28%, PM 50%<br>Daily 28% | -278         | -140 | -138 | -206         | -103 | -103 | -2,176       |
| Fast-Food Restaurant with Drive-Through Windows (934) | 1,000 Sq. Ft.            | 6.64                        | 267          | 136  | 131  | 217          | 113  | 104  | 3,127        |
|                                                       | Pass-By Trip Deduction*  | 43%                         | -115         | -58  | -57  | -93          | -49  | -44  | -1,345       |
| High-Turnover (Sit-Down) Restaurant (932)             | 1,000 Sq. Ft.            | 7.25                        | 72           | 40   | 32   | 71           | 44   | 27   | 813          |
|                                                       | Pass-By Trip Deduction*  | 43%                         | -31          | -17  | -14  | -31          | -19  | -12  | -350         |
| Shopping Center (820)                                 | 1,000 Sq. Ft.            | 3.2                         | 3            | 2    | 1    | 12           | 6    | 6    | 121          |
|                                                       | Pass-By Trip Deduction*  | PM 34%                      | 0            | 0    | 0    | -4           | -2   | -2   | 0            |
| General Office Building (710)                         | 1,000 Sq. Ft.            | 9.9                         | 11           | 9    | 2    | 11           | 2    | 10   | 96           |
| Automated Car Wash (948)                              | 1,000 Sq. Ft.            | 3.85                        | 24           | 12   | 12   | 55           | 28   | 27   | 547          |
|                                                       | Pass-By Trip Deduction** | 28%                         | -7           | -3   | -4   | -15          | -8   | -7   | -153         |
| Drive-in Bank (912)                                   | 1,000 Sq. Ft.            | 3.775                       | 36           | 21   | 15   | 77           | 39   | 38   | 378          |
|                                                       | Pass-By Trip Deduction*  | AM 23%, PM 25%<br>Daily 23% | -8           | -5   | -3   | -19          | -10  | -9   | -87          |
| Gross Trip Generation (Before Deduction)              |                          |                             | 862          | 445  | 417  | 810          | 416  | 395  | 8,770        |
| Internal Trip Deduction (5%)                          |                          |                             | -43          | -22  | -21  | -41          | -21  | -20  | -439         |
| Trip Generation with Internal Trip Deduction          |                          |                             | <b>819</b>   | 423  | 396  | <b>769</b>   | 395  | 375  | <b>8,331</b> |
| Pass-By Trip Deduction                                |                          |                             | -439         | -223 | -216 | -368         | -191 | -177 | -4,111       |
| Trip Generation (NET)                                 |                          |                             | <b>380</b>   | 200  | 180  | <b>401</b>   | 204  | 198  | <b>4,220</b> |

\* Per *Trip Generation Handbook, 3rd Edition*\*\* Per SANDAG's *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*

K2 Traffic Engineering, Inc.

**EXHIBIT 1.**APN:479631010; TAZ:3,829

---

**Within a Transit Priority Area (TPA)?**

No (Fail)

**Within a low VMT generating TAZ based on Total VMT?**

Yes (Pass)

Jurisdictional average 2012 daily total VMT per service population = 24.49

Project TAZ 2012 daily total VMT per service population = 23.80

**Within a low VMT generating TAZ based on Residential Home-Based VMT?**

No (Fail)

Jurisdictional average 2012 daily residential home-based VMT per capita = 12.79

Project TAZ 2012 daily residential home-based VMT per capita = 12.81

**Within a low VMT generating TAZ based on Home-Based Work VMT?**

Yes (Pass)

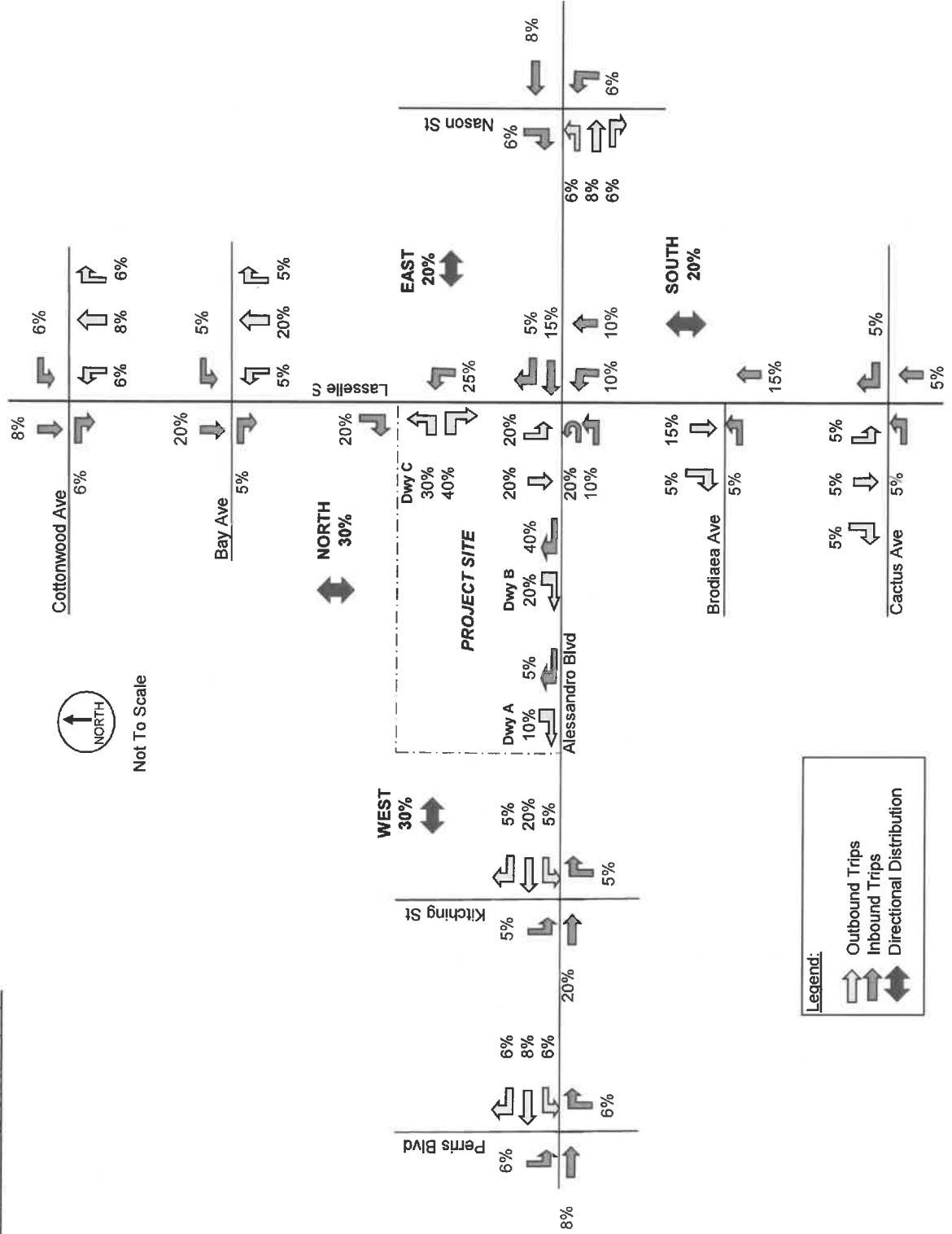
Jurisdictional average 2012 daily home-based work VMT per worker = 11.01

Project TAZ 2012 daily home-based work VMT per worker = 7.48

**Notes:**

- TPA designation is based on October 2018 conditions.
- Screening results are based on location of parcel centroids. If results are desired considering the full parcel, please refer to the associated map layers to visually review parcel and TAZ boundary relationship.
- If VMT screening is desired for current baseline conditions, contact WRCOG for 2012 and 2040 VMT data. Interpolated VMT results can be obtained using the complete data set.
- VMT results do not account for full length of trips that occur beyond the SCAG region.

# **EXHIBIT 2. TRIP DISTRIBUTION**





## Exhibit 4.

### **A. List of Study Intersection**

- 1 Alessandro Blvd at Perris Blvd
- 2 Alessandro Blvd at Lasselle St
- 3 Alessandro Blvd at Nason St
- 4 Lasselle St at Cactus Ave
- 5 Lasselle St at Cottonwood Ave
- 6 Alessandro Blvd at Kitching St;
- 7 Lasselle St at Bay Ave
- 8 Lasselle St at Brodiaea Ave;
- 9 Alessandro Blvd at Driveway "A"
- 10 Alessandro Blvd at Driveway "B"
- 11 Lasselle St at Driveway "C"

### **B. List of Analysis Scenarios**

- 1 Existing: Year 2018
- 2 Existing: Year 2018 + Project condition
- 3 Pre-Project Conditions: Year 2025 (Existing + Growth)
- 4 Post-Project Conditions: Year 2026 (Pre-Project Conditions + Project)
- 5 Post-Project Conditions: Year 2026 with Mitigation Measure, if necessary

### **C. Phasing Approach**

The project will be construction in one phase.

### **D. Note**

- 1 Cumulative analysis is not required
- 2 Segment analysis is not required

**APPENDIX B**  
**TURNING MOVEMENT COUNT DATA**

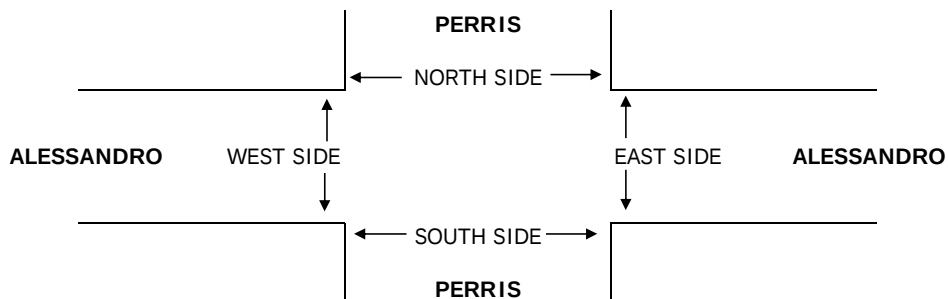
# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

|                                                   |                                                                                    |                                                                                                                                                                                                                                                               |
|---------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DATE:</b><br><b>8/23/18</b><br><b>THURSDAY</b> | <b>LOCATION:</b><br>NORTH & SOUTH: <b>PERRIS</b><br>EAST & WEST: <b>ALESSANDRO</b> | <b>PROJECT #:</b><br>LOCATION #: <b>1</b><br>CONTROL: <b>SIGNAL</b>                                                                                                                                                                                           |
| <b>NOTES:</b>                                     |                                                                                    | <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">             AM<br/>PM<br/>MD<br/>OTHER<br/>OTHER           </div> <div style="text-align: center;">             ▲<br/>N<br/>◀ W   E ▶<br/>S<br/>▼           </div> </div> |

|        | NORTHBOUND |         |         | SOUTHBOUND |         |         | EASTBOUND  |         |         | WESTBOUND  |         |         |       |
|--------|------------|---------|---------|------------|---------|---------|------------|---------|---------|------------|---------|---------|-------|
|        | PERRIS     |         |         | PERRIS     |         |         | ALESSANDRO |         |         | ALESSANDRO |         |         |       |
| LANES: | NL<br>1    | NT<br>2 | NR<br>1 | SL<br>1    | ST<br>2 | SR<br>1 | EL<br>2    | ET<br>2 | ER<br>1 | WL<br>2    | WT<br>3 | WR<br>0 | TOTAL |

|    |                |         |       |       |       |       |       |       |       |       |       |       |       |       |
|----|----------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| AM | 7:00 AM        | 57      | 180   | 14    | 26    | 112   | 37    | 20    | 59    | 13    | 17    | 175   | 14    | 724   |
|    | 7:15 AM        | 51      | 165   | 24    | 35    | 104   | 45    | 16    | 55    | 31    | 23    | 171   | 9     | 729   |
|    | 7:30 AM        | 65      | 206   | 51    | 47    | 143   | 54    | 19    | 82    | 22    | 35    | 198   | 27    | 949   |
|    | 7:45 AM        | 49      | 177   | 40    | 36    | 129   | 74    | 30    | 78    | 18    | 44    | 161   | 35    | 871   |
|    | 8:00 AM        | 69      | 207   | 18    | 33    | 144   | 72    | 34    | 67    | 21    | 38    | 183   | 23    | 909   |
|    | 8:15 AM        | 46      | 124   | 16    | 29    | 76    | 42    | 36    | 71    | 16    | 22    | 151   | 12    | 641   |
|    | 8:30 AM        | 50      | 118   | 18    | 24    | 83    | 42    | 35    | 73    | 37    | 26    | 122   | 18    | 646   |
|    | 8:45 AM        | 43      | 116   | 14    | 26    | 92    | 37    | 35    | 61    | 26    | 14    | 153   | 19    | 636   |
|    | VOLUMES        | 430     | 1,293 | 195   | 256   | 883   | 403   | 225   | 546   | 184   | 219   | 1,314 | 157   | 6,105 |
|    | APPROACH %     | 22%     | 67%   | 10%   | 17%   | 57%   | 26%   | 24%   | 57%   | 19%   | 13%   | 78%   | 9%    |       |
|    | APP/DEPART     | 1,918   | /     | 1,675 | 1,542 | /     | 1,286 | 955   | /     | 997   | 1,690 | /     | 2,147 | 0     |
| PM | BEGIN PEAK HR  | 7:15 AM |       |       |       |       |       |       |       |       |       |       |       |       |
|    | VOLUMES        | 234     | 755   | 133   | 151   | 520   | 245   | 99    | 282   | 92    | 140   | 713   | 94    | 3,458 |
|    | APPROACH %     | 21%     | 67%   | 12%   | 16%   | 57%   | 27%   | 21%   | 60%   | 19%   | 15%   | 75%   | 10%   |       |
|    | PEAK HR FACTOR | 0.871   |       |       | 0.920 |       |       | 0.938 |       |       | 0.911 |       |       | 0.911 |
|    | APP/DEPART     | 1,122   | /     | 948   | 916   | /     | 752   | 473   | /     | 566   | 947   | /     | 1,192 | 0     |
|    | 4:00 PM        | 54      | 173   | 20    | 35    | 144   | 36    | 57    | 141   | 50    | 40    | 99    | 17    | 866   |
|    | 4:15 PM        | 52      | 181   | 20    | 42    | 180   | 36    | 46    | 149   | 60    | 35    | 91    | 19    | 911   |
|    | 4:30 PM        | 27      | 150   | 42    | 29    | 153   | 31    | 62    | 165   | 66    | 42    | 95    | 28    | 890   |
|    | 4:45 PM        | 52      | 179   | 33    | 34    | 203   | 30    | 60    | 159   | 57    | 39    | 103   | 22    | 971   |
|    | 5:00 PM        | 50      | 162   | 26    | 36    | 168   | 23    | 54    | 162   | 68    | 42    | 97    | 24    | 912   |
|    | 5:15 PM        | 45      | 161   | 30    | 33    | 144   | 28    | 61    | 177   | 62    | 32    | 131   | 19    | 923   |
|    | 5:30 PM        | 38      | 143   | 23    | 41    | 138   | 28    | 56    | 169   | 67    | 37    | 106   | 16    | 862   |
|    | 5:45 PM        | 58      | 146   | 20    | 79    | 163   | 16    | 42    | 145   | 53    | 35    | 102   | 16    | 875   |
|    | VOLUMES        | 376     | 1,295 | 214   | 329   | 1,293 | 228   | 438   | 1,267 | 483   | 302   | 824   | 161   | 7,210 |
|    | APPROACH %     | 20%     | 69%   | 11%   | 18%   | 70%   | 12%   | 20%   | 58%   | 22%   | 23%   | 64%   | 13%   |       |
|    | APP/DEPART     | 1,885   | /     | 1,894 | 1,850 | /     | 2,078 | 2,188 | /     | 1,810 | 1,287 | /     | 1,428 | 0     |
|    | BEGIN PEAK HR  | 4:30 PM |       |       |       |       |       |       |       |       |       |       |       |       |
|    | VOLUMES        | 174     | 652   | 131   | 132   | 668   | 112   | 237   | 663   | 253   | 155   | 426   | 93    | 3,696 |
|    | APPROACH %     | 18%     | 68%   | 14%   | 14%   | 73%   | 12%   | 21%   | 58%   | 22%   | 23%   | 63%   | 14%   |       |
|    | PEAK HR FACTOR | 0.906   |       |       | 0.854 |       |       | 0.961 |       |       | 0.926 |       |       | 0.952 |
|    | APP/DEPART     | 957     | /     | 982   | 912   | /     | 1,076 | 1,153 | /     | 926   | 674   | /     | 712   | 0     |



# INTERSECTION TURNING MOVEMENT COUNTS

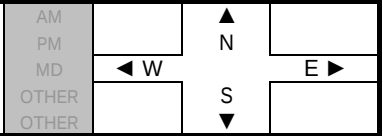
PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:  
8/23/18  
THURSDAY

LOCATION:  
NORTH & SOUTH: MORENO VALLEY  
EAST & WEST: KITCHING  
ALESSANDRO

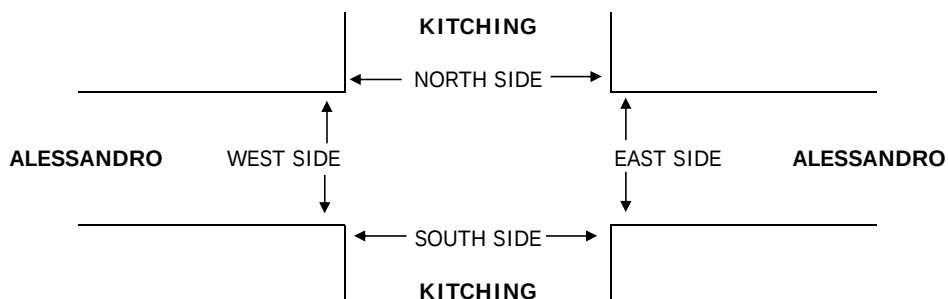
PROJECT #:  
LOCATION #: 2  
CONTROL: SIGNAL

NOTES:



|        | NORTHBOUND<br>KITCHING |         |         | SOUTHBOUND<br>KITCHING |         |         | EASTBOUND<br>ALESSANDRO |         |         | WESTBOUND<br>ALESSANDRO |         |         |       |
|--------|------------------------|---------|---------|------------------------|---------|---------|-------------------------|---------|---------|-------------------------|---------|---------|-------|
| LANES: | NL<br>2                | NT<br>1 | NR<br>0 | SL<br>1                | ST<br>2 | SR<br>0 | EL<br>1                 | ET<br>2 | ER<br>1 | WL<br>1                 | WT<br>2 | WR<br>1 | TOTAL |

|    |                |         |     |     |       |     |     |       |       |       |       |       |       |       |
|----|----------------|---------|-----|-----|-------|-----|-----|-------|-------|-------|-------|-------|-------|-------|
| AM | 7:00 AM        | 33      | 31  | 1   | 8     | 21  | 23  | 14    | 51    | 31    | 3     | 152   | 4     | 372   |
|    | 7:15 AM        | 38      | 41  | 4   | 12    | 38  | 25  | 11    | 83    | 15    | 2     | 147   | 12    | 428   |
|    | 7:30 AM        | 46      | 61  | 8   | 14    | 42  | 20  | 29    | 100   | 45    | 5     | 146   | 18    | 534   |
|    | 7:45 AM        | 42      | 51  | 11  | 15    | 49  | 15  | 30    | 107   | 34    | 4     | 137   | 19    | 514   |
|    | 8:00 AM        | 43      | 56  | 17  | 10    | 32  | 60  | 21    | 61    | 12    | 22    | 203   | 52    | 589   |
|    | 8:15 AM        | 42      | 39  | 7   | 15    | 20  | 30  | 11    | 79    | 9     | 4     | 129   | 67    | 452   |
|    | 8:30 AM        | 30      | 23  | 0   | 4     | 19  | 14  | 22    | 75    | 10    | 1     | 110   | 61    | 369   |
|    | 8:45 AM        | 25      | 34  | 3   | 3     | 17  | 13  | 7     | 79    | 16    | 11    | 118   | 6     | 332   |
|    | VOLUMES        | 299     | 336 | 51  | 81    | 238 | 200 | 145   | 635   | 172   | 52    | 1,142 | 239   | 3,590 |
|    | APPROACH %     | 44%     | 49% | 7%  | 16%   | 46% | 39% | 15%   | 67%   | 18%   | 4%    | 80%   | 17%   |       |
| PM | APP/DEPART     | 686     | /   | 720 | 519   | /   | 462 | 952   | /     | 767   | 1,433 | /     | 1,641 | 0     |
|    | BEGIN PEAK HR  | 7:30 AM |     |     |       |     |     |       |       |       |       |       |       |       |
|    | VOLUMES        | 173     | 207 | 43  | 54    | 143 | 125 | 91    | 347   | 100   | 35    | 615   | 156   | 2,089 |
|    | APPROACH %     | 41%     | 49% | 10% | 17%   | 44% | 39% | 17%   | 64%   | 19%   | 4%    | 76%   | 19%   |       |
|    | PEAK HR FACTOR | 0.912   |     |     | 0.789 |     |     | 0.773 |       |       | 0.727 |       |       | 0.887 |
|    | APP/DEPART     | 423     | /   | 454 | 322   | /   | 278 | 538   | /     | 444   | 806   | /     | 913   | 0     |
|    | 4:00 PM        | 26      | 37  | 3   | 12    | 37  | 17  | 30    | 138   | 19    | 6     | 85    | 11    | 421   |
|    | 4:15 PM        | 28      | 53  | 5   | 6     | 43  | 18  | 21    | 161   | 31    | 3     | 99    | 12    | 480   |
|    | 4:30 PM        | 18      | 31  | 3   | 4     | 43  | 17  | 33    | 178   | 19    | 11    | 103   | 27    | 487   |
|    | 4:45 PM        | 23      | 42  | 2   | 7     | 37  | 21  | 44    | 157   | 21    | 6     | 99    | 16    | 475   |
| PM | 5:00 PM        | 29      | 30  | 6   | 7     | 44  | 26  | 32    | 154   | 28    | 6     | 90    | 19    | 471   |
|    | 5:15 PM        | 28      | 40  | 3   | 10    | 49  | 22  | 29    | 212   | 35    | 3     | 101   | 14    | 546   |
|    | 5:30 PM        | 23      | 41  | 4   | 5     | 40  | 11  | 30    | 150   | 17    | 2     | 92    | 13    | 428   |
|    | 5:45 PM        | 31      | 48  | 5   | 7     | 63  | 28  | 28    | 153   | 21    | 0     | 103   | 11    | 498   |
|    | VOLUMES        | 206     | 322 | 31  | 58    | 356 | 160 | 247   | 1,303 | 191   | 37    | 772   | 123   | 3,806 |
|    | APPROACH %     | 37%     | 58% | 6%  | 10%   | 62% | 28% | 14%   | 75%   | 11%   | 4%    | 83%   | 13%   |       |
|    | APP/DEPART     | 559     | /   | 692 | 574   | /   | 584 | 1,741 | /     | 1,392 | 932   | /     | 1,138 | 0     |
|    | BEGIN PEAK HR  | 4:30 PM |     |     |       |     |     |       |       |       |       |       |       |       |
|    | VOLUMES        | 98      | 143 | 14  | 28    | 173 | 86  | 138   | 701   | 103   | 26    | 393   | 76    | 1,979 |
|    | APPROACH %     | 38%     | 56% | 5%  | 10%   | 60% | 30% | 15%   | 74%   | 11%   | 5%    | 79%   | 15%   |       |
| PM | PEAK HR FACTOR | 0.898   |     |     | 0.886 |     |     | 0.853 |       |       | 0.878 |       |       | 0.906 |
|    | APP/DEPART     | 255     | /   | 357 | 287   | /   | 302 | 942   | /     | 743   | 495   | /     | 577   | 0     |



# INTERSECTION TURNING MOVEMENT COUNTS

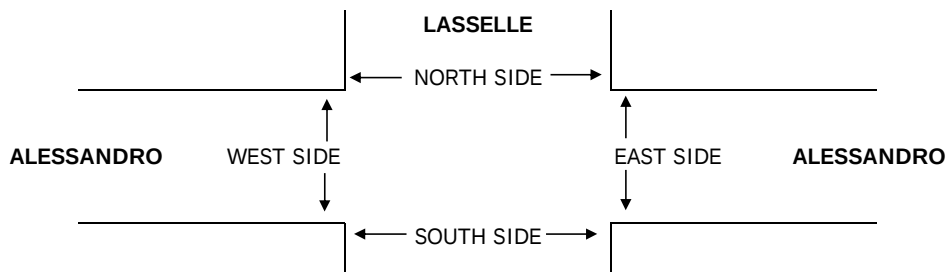
PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

|                              |                                             |                                         |                                       |             |
|------------------------------|---------------------------------------------|-----------------------------------------|---------------------------------------|-------------|
| DATE:<br>8/23/18<br>THURSDAY | LOCATION:<br>NORTH & SOUTH:<br>EAST & WEST: | MORENO VALLEY<br>LASSELLE<br>ALESSANDRO | PROJECT #:<br>LOCATION #:<br>CONTROL: | 3<br>SIGNAL |
|------------------------------|---------------------------------------------|-----------------------------------------|---------------------------------------|-------------|

|        |                                  |                                |
|--------|----------------------------------|--------------------------------|
| NOTES: | AM<br>PM<br>MD<br>OTHER<br>OTHER | ▲<br>N<br>◀ W<br>S<br>▶ E<br>▼ |
|--------|----------------------------------|--------------------------------|

|        | NORTHBOUND<br>LASSELLE |         |         | SOUTHBOUND<br>LASSELLE |         |         | EASTBOUND<br>ALESSANDRO |         |         | WESTBOUND<br>ALESSANDRO |         |         | TOTAL |
|--------|------------------------|---------|---------|------------------------|---------|---------|-------------------------|---------|---------|-------------------------|---------|---------|-------|
| LANES: | NL<br>1                | NT<br>1 | NR<br>1 | SL<br>1                | ST<br>1 | SR<br>0 | EL<br>1                 | ET<br>1 | ER<br>1 | WL<br>1                 | WT<br>1 | WR<br>1 |       |

|    |                |         |     |     |       |     |       |       |     |       |       |     |       |       |
|----|----------------|---------|-----|-----|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|
| AM | 7:00 AM        | 48      | 67  | 15  | 1     | 46  | 21    | 3     | 24  | 28    | 16    | 86  | 1     | 356   |
|    | 7:15 AM        | 53      | 90  | 34  | 6     | 59  | 17    | 4     | 34  | 32    | 21    | 109 | 5     | 464   |
|    | 7:30 AM        | 60      | 115 | 33  | 8     | 75  | 14    | 6     | 57  | 42    | 35    | 136 | 7     | 588   |
|    | 7:45 AM        | 65      | 74  | 35  | 12    | 70  | 19    | 9     | 59  | 35    | 35    | 143 | 0     | 556   |
|    | 8:00 AM        | 46      | 82  | 23  | 3     | 37  | 18    | 6     | 45  | 31    | 25    | 90  | 2     | 408   |
|    | 8:15 AM        | 36      | 57  | 5   | 7     | 52  | 4     | 4     | 45  | 16    | 8     | 78  | 1     | 313   |
|    | 8:30 AM        | 37      | 50  | 13  | 2     | 24  | 7     | 6     | 48  | 19    | 12    | 78  | 5     | 301   |
|    | 8:45 AM        | 42      | 50  | 11  | 4     | 35  | 7     | 2     | 39  | 17    | 13    | 82  | 4     | 306   |
|    | VOLUMES        | 387     | 585 | 169 | 43    | 398 | 107   | 40    | 351 | 220   | 165   | 802 | 25    | 3,292 |
|    | APPROACH %     | 34%     | 51% | 15% | 8%    | 73% | 20%   | 7%    | 57% | 36%   | 17%   | 81% | 3%    |       |
| PM | APP/DEPART     | 1,141   | /   | 650 | 548   | /   | 783   | 611   | /   | 563   | 992   | /   | 1,296 | 0     |
|    | BEGIN PEAK HR  | 7:15 AM |     |     |       |     |       |       |     |       |       |     |       |       |
|    | VOLUMES        | 224     | 361 | 125 | 29    | 241 | 68    | 25    | 195 | 140   | 116   | 478 | 14    | 2,016 |
|    | APPROACH %     | 32%     | 51% | 18% | 9%    | 71% | 20%   | 7%    | 54% | 39%   | 19%   | 79% | 2%    |       |
|    | PEAK HR FACTOR | 0.853   |     |     | 0.837 |     |       | 0.857 |     |       | 0.854 |     |       | 0.857 |
|    | APP/DEPART     | 710     | /   | 400 | 338   | /   | 497   | 360   | /   | 349   | 608   | /   | 770   | 0     |
|    | 4:00 PM        | 26      | 61  | 21  | 3     | 58  | 12    | 15    | 87  | 55    | 21    | 58  | 5     | 422   |
|    | 4:15 PM        | 36      | 53  | 26  | 1     | 63  | 8     | 15    | 91  | 48    | 11    | 70  | 3     | 425   |
|    | 4:30 PM        | 37      | 61  | 34  | 3     | 61  | 4     | 15    | 94  | 42    | 20    | 69  | 3     | 443   |
|    | 4:45 PM        | 40      | 60  | 30  | 1     | 51  | 10    | 14    | 122 | 55    | 23    | 57  | 3     | 466   |
| PM | 5:00 PM        | 38      | 70  | 27  | 3     | 57  | 10    | 17    | 101 | 40    | 23    | 61  | 3     | 450   |
|    | 5:15 PM        | 25      | 68  | 21  | 8     | 70  | 7     | 17    | 138 | 74    | 19    | 91  | 2     | 540   |
|    | 5:30 PM        | 42      | 60  | 28  | 6     | 78  | 7     | 17    | 90  | 53    | 28    | 58  | 5     | 472   |
|    | 5:45 PM        | 37      | 65  | 28  | 5     | 90  | 5     | 17    | 84  | 58    | 16    | 68  | 4     | 477   |
|    | VOLUMES        | 281     | 498 | 215 | 30    | 528 | 63    | 127   | 807 | 425   | 161   | 532 | 28    | 3,695 |
|    | APPROACH %     | 28%     | 50% | 22% | 5%    | 85% | 10%   | 9%    | 59% | 31%   | 22%   | 74% | 4%    |       |
|    | APP/DEPART     | 994     | /   | 653 | 621   | /   | 1,114 | 1,359 | /   | 1,052 | 721   | /   | 876   | 0     |
|    | BEGIN PEAK HR  | 5:00 PM |     |     |       |     |       |       |     |       |       |     |       |       |
|    | VOLUMES        | 142     | 263 | 104 | 22    | 295 | 29    | 68    | 413 | 225   | 86    | 278 | 14    | 1,939 |
|    | APPROACH %     | 28%     | 52% | 20% | 6%    | 85% | 8%    | 10%   | 58% | 32%   | 23%   | 74% | 4%    |       |
| PM | PEAK HR FACTOR | 0.943   |     |     | 0.865 |     |       | 0.771 |     |       | 0.844 |     |       | 0.898 |
|    | APP/DEPART     | 509     | /   | 345 | 346   | /   | 606   | 706   | /   | 539   | 378   | /   | 449   | 0     |



# INTERSECTION TURNING MOVEMENT COUNTS

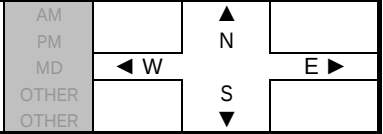
PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:  
8/23/18  
THURSDAY

LOCATION:  
NORTH & SOUTH: MORENO VALLEY  
EAST & WEST: NASON  
ALESSANDRO

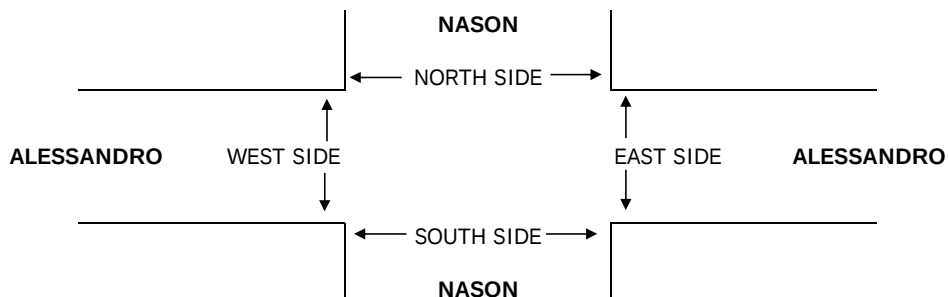
PROJECT #:  
LOCATION #: 4  
CONTROL: SIGNAL

NOTES:



|        | NORTHBOUND |         |         | SOUTHBOUND |         |         | EASTBOUND  |         |         | WESTBOUND  |         |         |       |
|--------|------------|---------|---------|------------|---------|---------|------------|---------|---------|------------|---------|---------|-------|
|        | NASON      |         |         | NASON      |         |         | ALESSANDRO |         |         | ALESSANDRO |         |         |       |
| LANES: | NL<br>1    | NT<br>2 | NR<br>0 | SL<br>1    | ST<br>2 | SR<br>1 | EL<br>1    | ET<br>1 | ER<br>1 | WL<br>1    | WT<br>1 | WR<br>1 | TOTAL |

|    |                |         |     |       |       |       |       |       |     |     |       |     |     |       |
|----|----------------|---------|-----|-------|-------|-------|-------|-------|-----|-----|-------|-----|-----|-------|
| AM | 7:00 AM        | 20      | 108 | 9     | 13    | 155   | 12    | 12    | 40  | 16  | 20    | 67  | 14  | 486   |
|    | 7:15 AM        | 16      | 88  | 3     | 9     | 131   | 12    | 11    | 34  | 17  | 16    | 46  | 15  | 398   |
|    | 7:30 AM        | 15      | 80  | 5     | 8     | 97    | 10    | 10    | 43  | 17  | 18    | 63  | 16  | 382   |
|    | 7:45 AM        | 9       | 88  | 4     | 4     | 92    | 9     | 14    | 29  | 9   | 15    | 70  | 18  | 361   |
|    | 8:00 AM        | 12      | 90  | 4     | 3     | 85    | 7     | 16    | 25  | 16  | 10    | 35  | 11  | 314   |
|    | 8:15 AM        | 12      | 87  | 4     | 4     | 74    | 10    | 19    | 31  | 10  | 10    | 38  | 10  | 309   |
|    | 8:30 AM        | 8       | 90  | 8     | 6     | 96    | 7     | 11    | 31  | 19  | 4     | 32  | 11  | 323   |
|    | 8:45 AM        | 15      | 101 | 8     | 10    | 93    | 12    | 12    | 29  | 15  | 4     | 52  | 10  | 361   |
|    | VOLUMES        | 107     | 732 | 45    | 57    | 823   | 79    | 105   | 262 | 119 | 97    | 403 | 105 | 2,934 |
|    | APPROACH %     | 12%     | 83% | 5%    | 6%    | 86%   | 8%    | 22%   | 54% | 24% | 16%   | 67% | 17% |       |
|    | APP/DEPART     | 884     | /   | 942   | 959   | /     | 1,039 | 486   | /   | 364 | 605   | /   | 589 | 0     |
| PM | BEGIN PEAK HR  | 7:00 AM |     |       |       |       |       |       |     |     |       |     |     |       |
|    | VOLUMES        | 60      | 364 | 21    | 34    | 475   | 43    | 47    | 146 | 59  | 69    | 246 | 63  | 1,627 |
|    | APPROACH %     | 13%     | 82% | 5%    | 6%    | 86%   | 8%    | 19%   | 58% | 23% | 18%   | 65% | 17% |       |
|    | PEAK HR FACTOR | 0.812   |     |       | 0.767 |       |       | 0.900 |     |     | 0.917 |     |     | 0.837 |
|    | APP/DEPART     | 445     | /   | 474   | 552   | /     | 603   | 252   | /   | 201 | 378   | /   | 349 | 0     |
|    | 4:00 PM        | 19      | 165 | 23    | 13    | 157   | 19    | 27    | 82  | 8   | 2     | 49  | 13  | 577   |
|    | 4:15 PM        | 15      | 131 | 14    | 24    | 150   | 18    | 23    | 92  | 13  | 9     | 65  | 18  | 572   |
|    | 4:30 PM        | 11      | 128 | 14    | 21    | 179   | 19    | 29    | 55  | 14  | 4     | 58  | 19  | 551   |
|    | 4:45 PM        | 16      | 125 | 12    | 27    | 174   | 18    | 25    | 64  | 17  | 6     | 56  | 16  | 556   |
|    | 5:00 PM        | 6       | 107 | 6     | 14    | 165   | 21    | 19    | 63  | 19  | 4     | 33  | 19  | 476   |
|    | 5:15 PM        | 11      | 107 | 8     | 8     | 142   | 15    | 19    | 51  | 8   | 7     | 40  | 13  | 429   |
|    | 5:30 PM        | 8       | 118 | 7     | 12    | 149   | 15    | 12    | 60  | 14  | 6     | 39  | 13  | 453   |
|    | 5:45 PM        | 10      | 105 | 5     | 16    | 155   | 13    | 15    | 50  | 11  | 15    | 40  | 15  | 450   |
|    | VOLUMES        | 96      | 986 | 89    | 135   | 1,271 | 138   | 169   | 517 | 104 | 53    | 380 | 126 | 4,064 |
|    | APPROACH %     | 8%      | 84% | 8%    | 9%    | 82%   | 9%    | 21%   | 65% | 13% | 9%    | 68% | 23% |       |
|    | APP/DEPART     | 1,171   | /   | 1,281 | 1,544 | /     | 1,428 | 790   | /   | 741 | 559   | /   | 614 | 0     |
|    | BEGIN PEAK HR  | 4:00 PM |     |       |       |       |       |       |     |     |       |     |     |       |
|    | VOLUMES        | 61      | 549 | 63    | 85    | 660   | 74    | 104   | 293 | 52  | 21    | 228 | 66  | 2,256 |
|    | APPROACH %     | 9%      | 82% | 9%    | 10%   | 81%   | 9%    | 23%   | 65% | 12% | 7%    | 72% | 21% |       |
|    | PEAK HR FACTOR | 0.813   |     |       | 0.935 |       |       | 0.877 |     |     | 0.856 |     |     | 0.977 |
|    | APP/DEPART     | 673     | /   | 719   | 819   | /     | 733   | 449   | /   | 441 | 315   | /   | 363 | 0     |



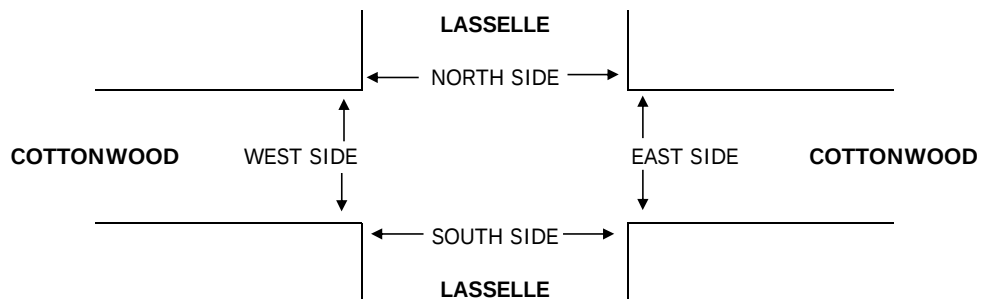
# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

|                                                   |                                                                                      |                                                                                                                                                                                                                                                               |
|---------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DATE:</b><br><b>8/23/18</b><br><b>THURSDAY</b> | <b>LOCATION:</b><br>NORTH & SOUTH: <b>LASSELLE</b><br>EAST & WEST: <b>COTTONWOOD</b> | <b>PROJECT #:</b><br><b>5</b><br><b>CONTROL:</b> <b>SIGNAL</b>                                                                                                                                                                                                |
| <b>NOTES:</b>                                     |                                                                                      | <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">             AM<br/>PM<br/>MD<br/>OTHER<br/>OTHER           </div> <div style="text-align: center;">             ▲<br/>N<br/>◀ W   E ▶<br/>S<br/>▼           </div> </div> |

|        | NORTHBOUND<br>LASSELLE |         |         | SOUTHBOUND<br>LASSELLE |         |         | EASTBOUND<br>COTTONWOOD |         |         | WESTBOUND<br>COTTONWOOD |         |         |       |
|--------|------------------------|---------|---------|------------------------|---------|---------|-------------------------|---------|---------|-------------------------|---------|---------|-------|
| LANES: | NL<br>1                | NT<br>1 | NR<br>0 | SL<br>1                | ST<br>1 | SR<br>1 | EL<br>1                 | ET<br>1 | ER<br>0 | WL<br>1                 | WT<br>2 | WR<br>0 | TOTAL |

|    |                |         |     |     |       |     |     |       |     |     |       |     |     |       |
|----|----------------|---------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|
| AM | 7:00 AM        | 14      | 58  | 6   | 1     | 46  | 4   | 1     | 26  | 6   | 5     | 40  | 3   | 210   |
|    | 7:15 AM        | 11      | 71  | 14  | 5     | 44  | 8   | 5     | 22  | 4   | 3     | 36  | 6   | 229   |
|    | 7:30 AM        | 15      | 78  | 17  | 5     | 65  | 23  | 7     | 77  | 12  | 9     | 62  | 7   | 377   |
|    | 7:45 AM        | 29      | 76  | 13  | 12    | 68  | 16  | 18    | 72  | 15  | 17    | 84  | 16  | 436   |
|    | 8:00 AM        | 17      | 65  | 10  | 4     | 70  | 17  | 10    | 45  | 11  | 13    | 86  | 9   | 357   |
|    | 8:15 AM        | 13      | 58  | 4   | 1     | 44  | 10  | 1     | 19  | 17  | 8     | 38  | 5   | 218   |
|    | 8:30 AM        | 7       | 45  | 2   | 3     | 27  | 5   | 2     | 8   | 9   | 2     | 23  | 2   | 135   |
|    | 8:45 AM        | 13      | 45  | 0   | 0     | 22  | 7   | 1     | 16  | 7   | 6     | 28  | 2   | 147   |
|    | VOLUMES        | 119     | 496 | 66  | 31    | 386 | 90  | 45    | 285 | 81  | 63    | 397 | 50  | 2,109 |
|    | APPROACH %     | 17%     | 73% | 10% | 6%    | 76% | 18% | 11%   | 69% | 20% | 12%   | 78% | 10% |       |
|    | APP/DEPART     | 681     | /   | 591 | 507   | /   | 530 | 411   | /   | 382 | 510   | /   | 606 | 0     |
| PM | BEGIN PEAK HR  | 7:15 AM |     |     | 26    | 247 | 64  | 40    | 216 | 42  | 42    | 268 | 38  | 1,399 |
|    | VOLUMES        | 72      | 290 | 54  | 8%    | 73% | 19% | 13%   | 72% | 14% | 12%   | 77% | 11% |       |
|    | APPROACH %     | 17%     | 70% | 13% |       |     |     |       |     |     |       |     |     |       |
|    | PEAK HR FACTOR | 0.881   |     |     | 0.878 |     |     | 0.710 |     |     | 0.744 |     |     | 0.802 |
|    | APP/DEPART     | 416     | /   | 368 | 337   | /   | 331 | 298   | /   | 296 | 348   | /   | 404 | 0     |
|    | 4:00 PM        | 15      | 56  | 9   | 4     | 55  | 3   | 7     | 30  | 20  | 6     | 22  | 3   | 230   |
|    | 4:15 PM        | 4       | 65  | 6   | 2     | 49  | 6   | 11    | 26  | 11  | 8     | 21  | 5   | 214   |
|    | 4:30 PM        | 6       | 60  | 8   | 2     | 51  | 11  | 5     | 30  | 15  | 7     | 36  | 5   | 236   |
|    | 4:45 PM        | 11      | 71  | 5   | 3     | 49  | 3   | 11    | 35  | 19  | 8     | 19  | 1   | 235   |
|    | 5:00 PM        | 5       | 58  | 4   | 2     | 66  | 7   | 5     | 30  | 10  | 5     | 31  | 4   | 227   |
|    | 5:15 PM        | 11      | 72  | 7   | 4     | 59  | 8   | 4     | 38  | 20  | 4     | 24  | 0   | 251   |
|    | 5:30 PM        | 12      | 76  | 5   | 3     | 49  | 5   | 2     | 35  | 18  | 6     | 33  | 1   | 245   |
|    | 5:45 PM        | 9       | 40  | 10  | 3     | 63  | 7   | 7     | 39  | 14  | 8     | 30  | 5   | 235   |
|    | VOLUMES        | 73      | 498 | 54  | 23    | 441 | 50  | 52    | 263 | 127 | 52    | 216 | 24  | 1,873 |
|    | APPROACH %     | 12%     | 80% | 9%  | 4%    | 86% | 10% | 12%   | 60% | 29% | 18%   | 74% | 8%  |       |
|    | APP/DEPART     | 625     | /   | 574 | 514   | /   | 620 | 442   | /   | 340 | 292   | /   | 339 | 0     |
|    | BEGIN PEAK HR  | 5:00 PM |     |     | 12    | 237 | 27  | 18    | 142 | 62  | 23    | 118 | 10  | 958   |
|    | VOLUMES        | 37      | 246 | 26  | 4%    | 86% | 10% | 8%    | 64% | 28% | 15%   | 78% | 7%  |       |
|    | APPROACH %     | 12%     | 80% | 8%  |       |     |     |       |     |     |       |     |     |       |
|    | PEAK HR FACTOR | 0.831   |     |     | 0.920 |     |     | 0.854 |     |     | 0.878 |     |     | 0.954 |
|    | APP/DEPART     | 309     | /   | 274 | 276   | /   | 322 | 222   | /   | 180 | 151   | /   | 182 | 0     |



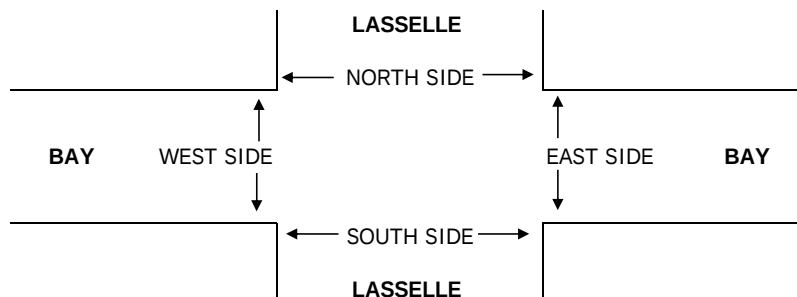
# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

|                                                   |                                                                               |                                                                                                                                                                                                                                                                |
|---------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DATE:</b><br><b>8/23/18</b><br><b>THURSDAY</b> | <b>LOCATION:</b><br>NORTH & SOUTH: <b>LASSELLE</b><br>EAST & WEST: <b>BAY</b> | <b>PROJECT #:</b><br><b>6</b><br><b>LOCATION #:</b><br><b>6</b><br><b>CONTROL:</b><br><b>SIGNAL</b>                                                                                                                                                            |
| <b>NOTES:</b>                                     |                                                                               | <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">             AM<br/>PM<br/>MD<br/>OTHER<br/>OTHER           </div> <div style="text-align: center;">             ▲<br/>N<br/>◀ W    E ▶<br/>S<br/>▼           </div> </div> |

|        | NORTHBOUND |         |         | SOUTHBOUND |         |         | EASTBOUND |         |         | WESTBOUND |         |         |       |
|--------|------------|---------|---------|------------|---------|---------|-----------|---------|---------|-----------|---------|---------|-------|
|        | LASSELLE   |         |         | LASSELLE   |         |         | BAY       |         |         | BAY       |         |         |       |
| LANES: | NL<br>1    | NT<br>2 | NR<br>0 | SL<br>1    | ST<br>2 | SR<br>0 | EL<br>0   | ET<br>1 | ER<br>0 | WL<br>0   | WT<br>1 | WR<br>0 | TOTAL |

|    |                |         |     |     |       |     |     |       |     |     |       |     |     |       |
|----|----------------|---------|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-------|
| AM | 7:00 AM        | 8       | 65  | 7   | 1     | 65  | 2   | 3     | 5   | 2   | 6     | 10  | 7   | 181   |
|    | 7:15 AM        | 0       | 90  | 6   | 9     | 79  | 0   | 4     | 8   | 0   | 9     | 18  | 10  | 233   |
|    | 7:30 AM        | 9       | 108 | 8   | 11    | 80  | 1   | 3     | 12  | 1   | 17    | 23  | 14  | 287   |
|    | 7:45 AM        | 2       | 87  | 16  | 7     | 84  | 1   | 6     | 21  | 4   | 22    | 20  | 19  | 289   |
|    | 8:00 AM        | 2       | 65  | 23  | 12    | 42  | 1   | 1     | 3   | 2   | 9     | 6   | 6   | 172   |
|    | 8:15 AM        | 1       | 63  | 7   | 8     | 55  | 1   | 0     | 2   | 0   | 2     | 2   | 5   | 146   |
|    | 8:30 AM        | 0       | 53  | 0   | 5     | 39  | 0   | 0     | 1   | 1   | 0     | 2   | 3   | 104   |
|    | 8:45 AM        | 0       | 56  | 2   | 2     | 33  | 0   | 0     | 1   | 1   | 4     | 4   | 9   | 112   |
|    | VOLUMES        | 22      | 587 | 69  | 55    | 477 | 6   | 17    | 53  | 11  | 69    | 85  | 73  | 1,524 |
|    | APPROACH %     | 3%      | 87% | 10% | 10%   | 89% | 1%  | 21%   | 65% | 14% | 30%   | 37% | 32% |       |
|    | APP/DEPART     | 678     | /   | 677 | 538   | /   | 557 | 81    | /   | 177 | 227   | /   | 113 | 0     |
| PM | BEGIN PEAK HR  | 7:00 AM |     |     | 28    | 308 | 4   | 16    | 46  | 7   | 54    | 71  | 50  | 990   |
|    | VOLUMES        | 19      | 350 | 37  | 8%    | 91% | 1%  | 23%   | 67% | 10% | 31%   | 41% | 29% |       |
|    | APPROACH %     | 5%      | 86% | 9%  |       |     |     |       |     |     |       |     |     |       |
|    | PEAK HR FACTOR | 0.812   |     |     | 0.924 |     |     | 0.556 |     |     | 0.717 |     |     | 0.856 |
|    | APP/DEPART     | 406     | /   | 416 | 340   | /   | 369 | 69    | /   | 111 | 175   | /   | 94  | 0     |
|    | 4:00 PM        | 0       | 80  | 3   | 5     | 85  | 3   | 1     | 7   | 0   | 5     | 1   | 2   | 192   |
|    | 4:15 PM        | 0       | 60  | 7   | 5     | 75  | 1   | 2     | 5   | 2   | 3     | 4   | 10  | 174   |
|    | 4:30 PM        | 0       | 59  | 17  | 7     | 70  | 0   | 0     | 4   | 3   | 2     | 5   | 6   | 173   |
|    | 4:45 PM        | 1       | 68  | 1   | 5     | 82  | 0   | 1     | 4   | 1   | 5     | 3   | 3   | 174   |
|    | 5:00 PM        | 0       | 60  | 3   | 6     | 77  | 0   | 1     | 3   | 0   | 3     | 1   | 2   | 156   |
|    | 5:15 PM        | 2       | 77  | 4   | 11    | 73  | 3   | 1     | 1   | 1   | 4     | 9   | 1   | 187   |
|    | 5:30 PM        | 1       | 73  | 5   | 2     | 87  | 2   | 3     | 10  | 1   | 4     | 5   | 6   | 199   |
|    | 5:45 PM        | 1       | 85  | 7   | 0     | 66  | 2   | 1     | 5   | 2   | 5     | 4   | 16  | 194   |
|    | VOLUMES        | 5       | 562 | 47  | 41    | 615 | 11  | 10    | 39  | 10  | 31    | 32  | 46  | 1,449 |
|    | APPROACH %     | 1%      | 92% | 8%  | 6%    | 92% | 2%  | 17%   | 66% | 17% | 28%   | 29% | 42% |       |
|    | APP/DEPART     | 614     | /   | 618 | 667   | /   | 656 | 59    | /   | 127 | 109   | /   | 48  | 0     |
|    | BEGIN PEAK HR  | 5:00 PM |     |     | 19    | 303 | 7   | 6     | 19  | 4   | 16    | 19  | 25  | 736   |
|    | VOLUMES        | 4       | 295 | 19  | 6%    | 92% | 2%  | 21%   | 66% | 14% | 27%   | 32% | 42% |       |
|    | APPROACH %     | 1%      | 93% | 6%  |       |     |     |       |     |     |       |     |     |       |
|    | PEAK HR FACTOR | 0.855   |     |     | 0.904 |     |     | 0.518 |     |     | 0.600 |     |     | 0.925 |
|    | APP/DEPART     | 318     | /   | 326 | 329   | /   | 323 | 29    | /   | 57  | 60    | /   | 30  | 0     |



# INTERSECTION TURNING MOVEMENT COUNTS

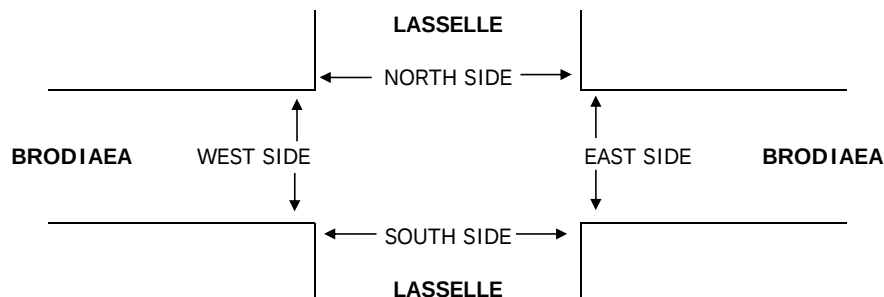
PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

|                                                   |                                                                                    |                                                                              |
|---------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| <b>DATE:</b><br><b>8/23/18</b><br><b>THURSDAY</b> | <b>LOCATION:</b><br>NORTH & SOUTH: <b>LASSELLE</b><br>EAST & WEST: <b>BRODIAEA</b> | <b>PROJECT #:</b><br><b>LOCATION #:</b> 7<br><b>CONTROL:</b> ONE WAY STOP EB |
|---------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------|

|        |       |                               |
|--------|-------|-------------------------------|
| NOTES: | AM    | ▲ N<br>◀ W      E ▶<br>S<br>▼ |
|        | PM    |                               |
|        | MD    |                               |
|        | OTHER |                               |

|        | NORTHBOUND<br>LASSELLE |         |         | SOUTHBOUND<br>LASSELLE |         |         | EASTBOUND<br>BRODIAEA |         |           | WESTBOUND<br>BRODIAEA |         |         |       |
|--------|------------------------|---------|---------|------------------------|---------|---------|-----------------------|---------|-----------|-----------------------|---------|---------|-------|
| LANES: | NL<br>1                | NT<br>2 | NR<br>X | SL<br>X                | ST<br>2 | SR<br>0 | EL<br>0.5             | ET<br>X | ER<br>0.5 | WL<br>X               | WT<br>X | WR<br>X | TOTAL |

|                |               |         |       |       |       |       |       |       |     |       |    |    |       |       |
|----------------|---------------|---------|-------|-------|-------|-------|-------|-------|-----|-------|----|----|-------|-------|
| AM             | 7:00 AM       | 0       | 129   |       |       | 88    | 1     | 3     |     | 3     |    |    |       | 224   |
|                | 7:15 AM       | 7       | 177   |       |       | 102   | 6     | 3     |     | 5     |    |    |       | 300   |
|                | 7:30 AM       | 11      | 141   |       |       | 142   | 13    | 6     |     | 10    |    |    |       | 323   |
|                | 7:45 AM       | 12      | 164   |       |       | 123   | 17    | 4     |     | 12    |    |    |       | 332   |
|                | 8:00 AM       | 5       | 144   |       |       | 95    | 4     | 6     |     | 10    |    |    |       | 264   |
|                | 8:15 AM       | 5       | 96    |       |       | 74    | 1     | 1     |     | 7     |    |    |       | 184   |
|                | 8:30 AM       | 2       | 86    |       |       | 60    | 1     | 0     |     | 6     |    |    |       | 155   |
|                | 8:45 AM       | 3       | 44    |       |       | 62    | 1     | 1     |     | 1     |    |    |       | 112   |
|                | VOLUMES       | 45      | 981   | 0     | 0     | 746   | 44    | 24    | 0   | 54    | 0  | 0  | 0     | 1,894 |
|                | APPROACH %    | 4%      | 96%   | 0%    | 0%    | 94%   | 6%    | 31%   | 0%  | 69%   | 0% | 0% | 0%    |       |
| APP/DEPART     | 1,026         | /       | 1,005 | 790   | /     | 800   | 78    | /     | 0   | 0     | /  | 89 | 0     |       |
| BEGIN PEAK HR  | 7:15 AM       |         |       |       |       |       |       |       |     |       |    |    |       |       |
| VOLUMES        | 35            | 626     | 0     | 0     | 462   | 40    | 19    | 0     | 37  | 0     | 0  | 0  | 1,219 |       |
| APPROACH %     | 5%            | 95%     | 0%    | 0%    | 92%   | 8%    | 34%   | 0%    | 66% | 0%    | 0% | 0% |       |       |
| PEAK HR FACTOR |               | 0.898   |       |       | 0.810 |       |       | 0.875 |     | 0.000 |    |    | 0.918 |       |
| APP/DEPART     | 661           | /       | 645   | 502   | /     | 499   | 56    | /     | 0   | 0     | /  | 75 | 0     |       |
| PM             | 4:00 PM       | 0       | 116   |       |       | 117   | 4     | 1     |     | 3     |    |    |       | 241   |
|                | 4:15 PM       | 0       | 112   |       |       | 118   | 3     | 1     |     | 1     |    |    |       | 235   |
|                | 4:30 PM       | 1       | 135   |       |       | 112   | 5     | 2     |     | 1     |    |    |       | 256   |
|                | 4:45 PM       | 0       | 123   |       |       | 121   | 6     | 2     |     | 2     |    |    |       | 254   |
|                | 5:00 PM       | 1       | 129   |       |       | 116   | 6     | 0     |     | 2     |    |    |       | 254   |
|                | 5:15 PM       | 1       | 120   |       |       | 128   | 3     | 2     |     | 6     |    |    |       | 260   |
|                | 5:30 PM       | 1       | 126   |       |       | 151   | 1     | 2     |     | 5     |    |    |       | 286   |
|                | 5:45 PM       | 2       | 139   |       |       | 162   | 1     | 9     |     | 0     |    |    |       | 313   |
|                | VOLUMES       | 6       | 1,000 | 0     | 0     | 1,025 | 29    | 19    | 0   | 20    | 0  | 0  | 0     | 2,099 |
|                | APPROACH %    | 1%      | 99%   | 0%    | 0%    | 97%   | 3%    | 49%   | 0%  | 51%   | 0% | 0% | 0%    |       |
|                | APP/DEPART    | 1,006   | /     | 1,019 | 1,054 | /     | 1,045 | 39    | /   | 0     | 0  | /  | 35    | 0     |
|                | BEGIN PEAK HR | 5:00 PM |       |       |       |       |       |       |     |       |    |    |       |       |
|                | VOLUMES       | 5       | 514   | 0     | 0     | 557   | 11    | 13    | 0   | 13    | 0  | 0  | 0     | 1,113 |
|                | APPROACH %    | 1%      | 99%   | 0%    | 0%    | 98%   | 2%    | 50%   | 0%  | 50%   | 0% | 0% | 0%    |       |
| PEAK HR FACTOR |               | 0.920   |       |       | 0.871 |       |       | 0.722 |     | 0.000 |    |    | 0.889 |       |
| APP/DEPART     | 519           | /       | 527   | 568   | /     | 570   | 26    | /     | 0   | 0     | /  | 16 | 0     |       |



# INTERSECTION TURNING MOVEMENT COUNTS

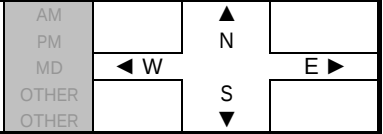
PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:  
8/23/18  
THURSDAY

LOCATION:  
NORTH & SOUTH: MORENO VALLEY  
EAST & WEST: LASSELLE  
CACTUS

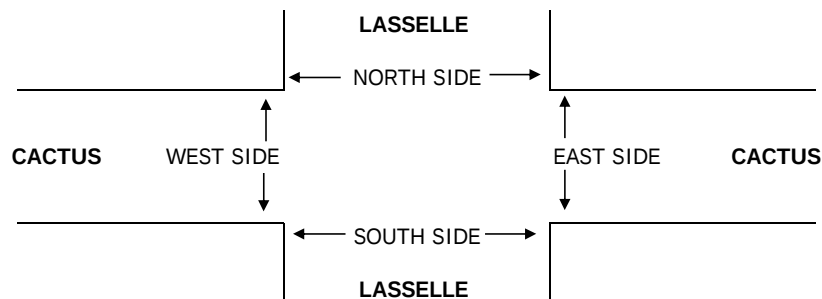
PROJECT #:  
LOCATION #: 8  
CONTROL: SIGNAL

NOTES:



|        | NORTHBOUND |         |         | SOUTHBOUND |         |         | EASTBOUND |         |         | WESTBOUND |         |         |       |
|--------|------------|---------|---------|------------|---------|---------|-----------|---------|---------|-----------|---------|---------|-------|
|        | LASSELLE   |         |         | LASSELLE   |         |         | CACTUS    |         |         | CACTUS    |         |         |       |
| LANES: | NL<br>1    | NT<br>2 | NR<br>1 | SL<br>1    | ST<br>2 | SR<br>0 | EL<br>1   | ET<br>2 | ER<br>0 | WL<br>1   | WT<br>2 | WR<br>1 | TOTAL |

|    |                |         |     |       |       |     |       |       |     |       |       |     |       |       |
|----|----------------|---------|-----|-------|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|
| AM | 7:00 AM        | 22      | 117 | 40    | 11    | 92  | 10    | 3     | 54  | 12    | 16    | 71  | 4     | 452   |
|    | 7:15 AM        | 33      | 129 | 51    | 7     | 73  | 12    | 12    | 63  | 16    | 44    | 94  | 4     | 538   |
|    | 7:30 AM        | 24      | 164 | 58    | 15    | 121 | 16    | 25    | 88  | 71    | 69    | 120 | 16    | 787   |
|    | 7:45 AM        | 56      | 139 | 91    | 11    | 133 | 16    | 20    | 117 | 40    | 71    | 133 | 8     | 835   |
|    | 8:00 AM        | 31      | 150 | 84    | 10    | 85  | 11    | 9     | 103 | 10    | 27    | 109 | 5     | 634   |
|    | 8:15 AM        | 13      | 93  | 31    | 20    | 71  | 8     | 2     | 95  | 14    | 13    | 73  | 8     | 441   |
|    | 8:30 AM        | 17      | 65  | 38    | 18    | 38  | 4     | 1     | 76  | 21    | 24    | 65  | 21    | 388   |
|    | 8:45 AM        | 15      | 77  | 33    | 9     | 49  | 4     | 2     | 75  | 9     | 25    | 73  | 23    | 394   |
|    | VOLUMES        | 211     | 934 | 426   | 101   | 662 | 81    | 74    | 671 | 193   | 289   | 738 | 89    | 4,469 |
|    | APPROACH %     | 13%     | 59% | 27%   | 12%   | 78% | 10%   | 8%    | 72% | 21%   | 26%   | 66% | 8%    |       |
| PM | APP/DEPART     | 1,571   | /   | 1,097 | 844   | /   | 1,144 | 938   | /   | 1,198 | 1,116 | /   | 1,030 | 0     |
|    | BEGIN PEAK HR  | 7:15 AM |     |       |       |     |       |       |     |       |       |     |       |       |
|    | VOLUMES        | 144     | 582 | 284   | 43    | 412 | 55    | 66    | 371 | 137   | 211   | 456 | 33    | 2,794 |
|    | APPROACH %     | 14%     | 58% | 28%   | 8%    | 81% | 11%   | 11%   | 65% | 24%   | 30%   | 65% | 5%    |       |
|    | PEAK HR FACTOR | 0.883   |     |       | 0.797 |     |       | 0.780 |     |       | 0.825 |     |       | 0.837 |
|    | APP/DEPART     | 1,010   | /   | 681   | 510   | /   | 760   | 574   | /   | 698   | 700   | /   | 655   | 0     |
|    | 4:00 PM        | 9       | 90  | 37    | 11    | 89  | 6     | 14    | 81  | 40    | 29    | 65  | 12    | 483   |
|    | 4:15 PM        | 26      | 103 | 31    | 7     | 111 | 6     | 13    | 67  | 40    | 29    | 61  | 4     | 498   |
|    | 4:30 PM        | 16      | 87  | 30    | 9     | 100 | 3     | 17    | 85  | 42    | 45    | 121 | 11    | 566   |
|    | 4:45 PM        | 21      | 109 | 30    | 5     | 104 | 5     | 11    | 95  | 31    | 38    | 84  | 12    | 545   |
| PM | 5:00 PM        | 14      | 105 | 30    | 11    | 87  | 6     | 5     | 83  | 31    | 40    | 95  | 12    | 519   |
|    | 5:15 PM        | 20      | 110 | 22    | 13    | 132 | 5     | 7     | 92  | 44    | 49    | 72  | 7     | 573   |
|    | 5:30 PM        | 15      | 103 | 36    | 10    | 119 | 11    | 12    | 86  | 39    | 34    | 68  | 13    | 546   |
|    | 5:45 PM        | 30      | 91  | 47    | 13    | 139 | 3     | 9     | 98  | 32    | 37    | 70  | 11    | 580   |
|    | VOLUMES        | 151     | 798 | 263   | 79    | 881 | 45    | 88    | 687 | 299   | 301   | 636 | 82    | 4,310 |
|    | APPROACH %     | 12%     | 66% | 22%   | 8%    | 88% | 4%    | 8%    | 64% | 28%   | 30%   | 62% | 8%    |       |
|    | APP/DEPART     | 1,212   | /   | 968   | 1,005 | /   | 1,481 | 1,074 | /   | 1,029 | 1,019 | /   | 832   | 0     |
|    | BEGIN PEAK HR  | 5:00 PM |     |       |       |     |       |       |     |       |       |     |       |       |
|    | VOLUMES        | 79      | 409 | 135   | 47    | 477 | 25    | 33    | 359 | 146   | 160   | 305 | 43    | 2,218 |
|    | APPROACH %     | 13%     | 66% | 22%   | 9%    | 87% | 5%    | 6%    | 67% | 27%   | 31%   | 60% | 8%    |       |
|    | PEAK HR FACTOR | 0.927   |     |       | 0.885 |     |       | 0.941 |     |       | 0.864 |     |       | 0.956 |
|    | APP/DEPART     | 623     | /   | 485   | 549   | /   | 783   | 538   | /   | 541   | 508   | /   | 409   | 0     |



## **APPENDIX C**

### **INTERNAL TRIP CAPTURE**

| NCHRP 684 Internal Trip Capture Estimation Tool |                                       |                      |                              |  |  |
|-------------------------------------------------|---------------------------------------|----------------------|------------------------------|--|--|
| <b>Project Name:</b>                            | New Commercial and Office Plaza       | <b>Organization:</b> | K2 Traffic Engineering, Inc. |  |  |
| <b>Project Location:</b>                        | NWC of Alessandro Blvd and Laselle St | <b>Performed By:</b> | E. Tan                       |  |  |
| <b>Scenario Description:</b>                    | Project Trip Generation               | <b>Date:</b>         | 2/22/2021                    |  |  |
| <b>Analysis Year:</b>                           |                                       | <b>Checked By:</b>   | Kay Hsu                      |  |  |
| <b>Analysis Period:</b>                         | AM Street Peak Hour                   | <b>Date:</b>         | 2/22/2021                    |  |  |

| Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate) |                                         |          |       |  |                                      |          |         |
|------------------------------------------------------------------------------|-----------------------------------------|----------|-------|--|--------------------------------------|----------|---------|
| Land Use                                                                     | Development Data (For Information Only) |          |       |  | Estimated Vehicle-Trips <sup>3</sup> |          |         |
|                                                                              | ITE LUCs <sup>1</sup>                   | Quantity | Units |  | Total                                | Entering | Exiting |
| Office                                                                       |                                         |          |       |  | 11                                   | 9        | 2       |
| Retail                                                                       |                                         |          |       |  | 452                                  | 227      | 225     |
| Restaurant                                                                   |                                         |          |       |  | 355                                  | 185      | 170     |
| Cinema/Entertainment                                                         |                                         |          |       |  | 0                                    |          |         |
| Residential                                                                  |                                         |          |       |  | 0                                    |          |         |
| Hotel                                                                        |                                         |          |       |  | 0                                    |          |         |
| All Other Land Uses <sup>2</sup>                                             |                                         |          |       |  | 60                                   | 33       | 27      |
|                                                                              |                                         |          |       |  | 878                                  | 454      | 424     |

| Table 2-A: Mode Split and Vehicle Occupancy Estimates |                        |           |                 |                        |           |                 |
|-------------------------------------------------------|------------------------|-----------|-----------------|------------------------|-----------|-----------------|
| Land Use                                              | Entering Trips         |           |                 | Exiting Trips          |           |                 |
|                                                       | Veh. Occ. <sup>4</sup> | % Transit | % Non-Motorized | Veh. Occ. <sup>4</sup> | % Transit | % Non-Motorized |
| Office                                                |                        |           |                 |                        |           |                 |
| Retail                                                |                        |           |                 |                        |           |                 |
| Restaurant                                            |                        |           |                 |                        |           |                 |
| Cinema/Entertainment                                  |                        |           |                 |                        |           |                 |
| Residential                                           |                        |           |                 |                        |           |                 |
| Hotel                                                 |                        |           |                 |                        |           |                 |
| All Other Land Uses <sup>2</sup>                      |                        |           |                 |                        |           |                 |

| Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance) |                  |        |            |                      |             |       |
|---------------------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                                             | Destination (To) |        |            |                      |             |       |
|                                                                           | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                                    |                  |        |            |                      |             |       |
| Retail                                                                    |                  |        |            |                      |             |       |
| Restaurant                                                                |                  |        |            |                      |             |       |
| Cinema/Entertainment                                                      |                  |        |            |                      |             |       |
| Residential                                                               |                  |        |            |                      |             |       |
| Hotel                                                                     |                  |        |            |                      |             |       |

| Table 4-A: Internal Person-Trip Origin-Destination Matrix* |                  |        |            |                      |             |       |
|------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                              | Destination (To) |        |            |                      |             |       |
|                                                            | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                     |                  | 0      | 1          | 0                    | 0           | 0     |
| Retail                                                     | 0                |        | 29         | 0                    | 0           | 0     |
| Restaurant                                                 | 1                | 18     |            | 0                    | 0           | 0     |
| Cinema/Entertainment                                       | 0                | 0      | 0          |                      | 0           | 0     |
| Residential                                                | 0                | 0      | 0          | 0                    |             | 0     |
| Hotel                                                      | 0                | 0      | 0          | 0                    | 0           |       |

| Table 5-A: Computations Summary           |       |          |         |
|-------------------------------------------|-------|----------|---------|
|                                           | Total | Entering | Exiting |
| All Person-Trips                          | 878   | 454      | 424     |
| Internal Capture Percentage               | 11%   | 11%      | 12%     |
| External Vehicle-Trips <sup>5</sup>       | 780   | 405      | 375     |
| External Transit-Trips <sup>6</sup>       | 0     | 0        | 0       |
| External Non-Motorized Trips <sup>6</sup> | 0     | 0        | 0       |

| Table 6-A: Internal Trip Capture Percentages by Land Use |                |               |
|----------------------------------------------------------|----------------|---------------|
| Land Use                                                 | Entering Trips | Exiting Trips |
| Office                                                   | 11%            | 50%           |
| Retail                                                   | 8%             | 13%           |
| Restaurant                                               | 16%            | 11%           |
| Cinema/Entertainment                                     | N/A            | N/A           |
| Residential                                              | N/A            | N/A           |
| Hotel                                                    | N/A            | N/A           |

<sup>1</sup>Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

<sup>2</sup>Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

<sup>3</sup>Enter trips assuming no transit or non-motorized trips (as assumed in *ITE Trip Generation Manual*).

<sup>4</sup>Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

<sup>5</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

<sup>6</sup>Person-Trips

\*Indicates computation that has been rounded to the nearest whole number.

|                         |                                 |
|-------------------------|---------------------------------|
| <b>Project Name:</b>    | New Commercial and Office Plaza |
| <b>Analysis Period:</b> | AM Street Peak Hour             |

| Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends |                               |               |               |                              |               |               |
|----------------------------------------------------------------|-------------------------------|---------------|---------------|------------------------------|---------------|---------------|
| Land Use                                                       | Table 7-A (D): Entering Trips |               |               | Table 7-A (O): Exiting Trips |               |               |
|                                                                | Veh. Occ.                     | Vehicle-Trips | Person-Trips* | Veh. Occ.                    | Vehicle-Trips | Person-Trips* |
| Office                                                         | 1.00                          | 9             | 9             | 1.00                         | 2             | 2             |
| Retail                                                         | 1.00                          | 227           | 227           | 1.00                         | 225           | 225           |
| Restaurant                                                     | 1.00                          | 185           | 185           | 1.00                         | 170           | 170           |
| Cinema/Entertainment                                           | 1.00                          | 0             | 0             | 1.00                         | 0             | 0             |
| Residential                                                    | 1.00                          | 0             | 0             | 1.00                         | 0             | 0             |
| Hotel                                                          | 1.00                          | 0             | 0             | 1.00                         | 0             | 0             |

| Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin) |                  |        |            |                      |             |       |
|------------------------------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                                                      | Destination (To) |        |            |                      |             |       |
|                                                                                    | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                                             |                  | 1      | 1          | 0                    | 0           | 0     |
| Retail                                                                             | 65               |        | 29         | 0                    | 32          | 0     |
| Restaurant                                                                         | 53               | 24     |            | 0                    | 7           | 5     |
| Cinema/Entertainment                                                               | 0                | 0      | 0          |                      | 0           | 0     |
| Residential                                                                        | 0                | 0      | 0          | 0                    |             | 0     |
| Hotel                                                                              | 0                | 0      | 0          | 0                    | 0           |       |

| Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination) |                  |        |            |                      |             |       |
|-----------------------------------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                                                           | Destination (To) |        |            |                      |             |       |
|                                                                                         | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                                                  |                  | 73     | 43         | 0                    | 0           | 0     |
| Retail                                                                                  | 0                |        | 93         | 0                    | 0           | 0     |
| Restaurant                                                                              | 1                | 18     |            | 0                    | 0           | 0     |
| Cinema/Entertainment                                                                    | 0                | 0      | 0          |                      | 0           | 0     |
| Residential                                                                             | 0                | 39     | 37         | 0                    |             | 0     |
| Hotel                                                                                   | 0                | 9      | 11         | 0                    | 0           |       |

| Table 9-A (D): Internal and External Trips Summary (Entering Trips) |                       |          |       |                         |                      |                            |
|---------------------------------------------------------------------|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Destination Land Use                                                | Person-Trip Estimates |          |       | External Trips by Mode* |                      |                            |
|                                                                     | Internal              | External | Total | Vehicles <sup>1</sup>   | Transit <sup>2</sup> | Non-Motorized <sup>2</sup> |
| Office                                                              | 1                     | 8        | 9     | 8                       | 0                    | 0                          |
| Retail                                                              | 18                    | 209      | 227   | 209                     | 0                    | 0                          |
| Restaurant                                                          | 30                    | 155      | 185   | 155                     | 0                    | 0                          |
| Cinema/Entertainment                                                | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Residential                                                         | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Hotel                                                               | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| All Other Land Uses <sup>3</sup>                                    | 0                     | 33       | 33    | 33                      | 0                    | 0                          |

| Table 9-A (O): Internal and External Trips Summary (Exiting Trips) |                       |          |       |                         |                      |                            |
|--------------------------------------------------------------------|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Origin Land Use                                                    | Person-Trip Estimates |          |       | External Trips by Mode* |                      |                            |
|                                                                    | Internal              | External | Total | Vehicles <sup>1</sup>   | Transit <sup>2</sup> | Non-Motorized <sup>2</sup> |
| Office                                                             | 1                     | 1        | 2     | 1                       | 0                    | 0                          |
| Retail                                                             | 29                    | 196      | 225   | 196                     | 0                    | 0                          |
| Restaurant                                                         | 19                    | 151      | 170   | 151                     | 0                    | 0                          |
| Cinema/Entertainment                                               | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Residential                                                        | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Hotel                                                              | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| All Other Land Uses <sup>3</sup>                                   | 0                     | 27       | 27    | 27                      | 0                    | 0                          |

<sup>1</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

<sup>2</sup>Person-Trips

<sup>3</sup>Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

\*Indicates computation that has been rounded to the nearest whole number.

| NCHRP 684 Internal Trip Capture Estimation Tool |                                       |                      |                              |  |  |
|-------------------------------------------------|---------------------------------------|----------------------|------------------------------|--|--|
| <b>Project Name:</b>                            | New Commercial and Office Plaza       | <b>Organization:</b> | K2 Traffic Engineering, Inc. |  |  |
| <b>Project Location:</b>                        | NWC of Alessandro Blvd and Laselle St | <b>Performed By:</b> | E. Tan                       |  |  |
| <b>Scenario Description:</b>                    | Project Trip Generation               | <b>Date:</b>         | 2/22/2021                    |  |  |
| <b>Analysis Year:</b>                           |                                       | <b>Checked By:</b>   | Kay Hsu                      |  |  |
| <b>Analysis Period:</b>                         | PM Street Peak Hour                   | <b>Date:</b>         | 2/22/2021                    |  |  |

| Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate) |                                         |          |       |                                      |          |         |
|------------------------------------------------------------------------------|-----------------------------------------|----------|-------|--------------------------------------|----------|---------|
| Land Use                                                                     | Development Data (For Information Only) |          |       | Estimated Vehicle-Trips <sup>3</sup> |          |         |
|                                                                              | ITE LUCs <sup>1</sup>                   | Quantity | Units | Total                                | Entering | Exiting |
| Office                                                                       |                                         |          |       | 12                                   | 2        | 10      |
| Retail                                                                       |                                         |          |       | 379                                  | 190      | 189     |
| Restaurant                                                                   |                                         |          |       | 304                                  | 167      | 137     |
| Cinema/Entertainment                                                         |                                         |          |       | 0                                    |          |         |
| Residential                                                                  |                                         |          |       | 0                                    |          |         |
| Hotel                                                                        |                                         |          |       | 0                                    |          |         |
| All Other Land Uses <sup>2</sup>                                             |                                         |          |       | 132                                  | 67       | 65      |
|                                                                              |                                         |          |       | 827                                  | 426      | 401     |

| Table 2-P: Mode Split and Vehicle Occupancy Estimates |                        |           |                 |                        |           |                 |
|-------------------------------------------------------|------------------------|-----------|-----------------|------------------------|-----------|-----------------|
| Land Use                                              | Entering Trips         |           |                 | Exiting Trips          |           |                 |
|                                                       | Veh. Occ. <sup>4</sup> | % Transit | % Non-Motorized | Veh. Occ. <sup>4</sup> | % Transit | % Non-Motorized |
| Office                                                |                        |           |                 |                        |           |                 |
| Retail                                                |                        |           |                 |                        |           |                 |
| Restaurant                                            |                        |           |                 |                        |           |                 |
| Cinema/Entertainment                                  |                        |           |                 |                        |           |                 |
| Residential                                           |                        |           |                 |                        |           |                 |
| Hotel                                                 |                        |           |                 |                        |           |                 |
| All Other Land Uses <sup>2</sup>                      |                        |           |                 |                        |           |                 |

| Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance) |                  |        |            |                      |             |       |
|---------------------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                                             | Destination (To) |        |            |                      |             |       |
|                                                                           | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                                    |                  |        |            |                      |             |       |
| Retail                                                                    |                  |        |            |                      |             |       |
| Restaurant                                                                |                  |        |            |                      |             |       |
| Cinema/Entertainment                                                      |                  |        |            |                      |             |       |
| Residential                                                               |                  |        |            |                      |             |       |
| Hotel                                                                     |                  |        |            |                      |             |       |

| Table 4-P: Internal Person-Trip Origin-Destination Matrix* |                  |        |            |                      |             |       |
|------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                              | Destination (To) |        |            |                      |             |       |
|                                                            | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                     |                  | 2      | 0          | 0                    | 0           | 0     |
| Retail                                                     | 1                |        | 48         | 0                    | 0           | 0     |
| Restaurant                                                 | 0                | 56     |            | 0                    | 0           | 0     |
| Cinema/Entertainment                                       | 0                | 0      | 0          |                      | 0           | 0     |
| Residential                                                | 0                | 0      | 0          | 0                    |             | 0     |
| Hotel                                                      | 0                | 0      | 0          | 0                    | 0           |       |

| Table 5-P: Computations Summary           |       |          |         |
|-------------------------------------------|-------|----------|---------|
|                                           | Total | Entering | Exiting |
| All Person-Trips                          | 827   | 426      | 401     |
| Internal Capture Percentage               | 26%   | 25%      | 27%     |
| External Vehicle-Trips <sup>5</sup>       | 613   | 319      | 294     |
| External Transit-Trips <sup>6</sup>       | 0     | 0        | 0       |
| External Non-Motorized Trips <sup>6</sup> | 0     | 0        | 0       |

| Table 6-P: Internal Trip Capture Percentages by Land Use |                |               |
|----------------------------------------------------------|----------------|---------------|
| Land Use                                                 | Entering Trips | Exiting Trips |
| Office                                                   | 50%            | 20%           |
| Retail                                                   | 31%            | 26%           |
| Restaurant                                               | 29%            | 41%           |
| Cinema/Entertainment                                     | N/A            | N/A           |
| Residential                                              | N/A            | N/A           |
| Hotel                                                    | N/A            | N/A           |

<sup>1</sup>Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

<sup>2</sup>Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

<sup>3</sup>Enter trips assuming no transit or non-motorized trips (as assumed in *ITE Trip Generation Manual*).

<sup>4</sup>Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

<sup>5</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

<sup>6</sup>Person-Trips

\*Indicates computation that has been rounded to the nearest whole number.

|                         |                                 |
|-------------------------|---------------------------------|
| <b>Project Name:</b>    | New Commercial and Office Plaza |
| <b>Analysis Period:</b> | PM Street Peak Hour             |

| Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends |                               |               |               |                              |               |               |
|----------------------------------------------------------------|-------------------------------|---------------|---------------|------------------------------|---------------|---------------|
| Land Use                                                       | Table 7-P (D): Entering Trips |               |               | Table 7-P (O): Exiting Trips |               |               |
|                                                                | Veh. Occ.                     | Vehicle-Trips | Person-Trips* | Veh. Occ.                    | Vehicle-Trips | Person-Trips* |
| Office                                                         | 1.00                          | 2             | 2             | 1.00                         | 10            | 10            |
| Retail                                                         | 1.00                          | 190           | 190           | 1.00                         | 189           | 189           |
| Restaurant                                                     | 1.00                          | 167           | 167           | 1.00                         | 137           | 137           |
| Cinema/Entertainment                                           | 1.00                          | 0             | 0             | 1.00                         | 0             | 0             |
| Residential                                                    | 1.00                          | 0             | 0             | 1.00                         | 0             | 0             |
| Hotel                                                          | 1.00                          | 0             | 0             | 1.00                         | 0             | 0             |

| Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin) |                  |        |            |                      |             |       |
|------------------------------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                                                      | Destination (To) |        |            |                      |             |       |
|                                                                                    | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                                             |                  | 2      | 0          | 0                    | 0           | 0     |
| Retail                                                                             | 4                |        | 55         | 8                    | 49          | 9     |
| Restaurant                                                                         | 4                | 56     |            | 11                   | 25          | 10    |
| Cinema/Entertainment                                                               | 0                | 0      | 0          |                      | 0           | 0     |
| Residential                                                                        | 0                | 0      | 0          | 0                    |             | 0     |
| Hotel                                                                              | 0                | 0      | 0          | 0                    | 0           |       |

| Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination) |                  |        |            |                      |             |       |
|-----------------------------------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                                                           | Destination (To) |        |            |                      |             |       |
|                                                                                         | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                                                  |                  | 15     | 3          | 0                    | 0           | 0     |
| Retail                                                                                  | 1                |        | 48         | 0                    | 0           | 0     |
| Restaurant                                                                              | 1                | 95     |            | 0                    | 0           | 0     |
| Cinema/Entertainment                                                                    | 0                | 8      | 5          |                      | 0           | 0     |
| Residential                                                                             | 1                | 19     | 23         | 0                    |             | 0     |
| Hotel                                                                                   | 0                | 4      | 8          | 0                    | 0           |       |

| Table 9-P (D): Internal and External Trips Summary (Entering Trips) |                       |          |       |                         |                      |                            |
|---------------------------------------------------------------------|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Destination Land Use                                                | Person-Trip Estimates |          |       | External Trips by Mode* |                      |                            |
|                                                                     | Internal              | External | Total | Vehicles <sup>1</sup>   | Transit <sup>2</sup> | Non-Motorized <sup>2</sup> |
| Office                                                              | 1                     | 1        | 2     | 1                       | 0                    | 0                          |
| Retail                                                              | 58                    | 132      | 190   | 132                     | 0                    | 0                          |
| Restaurant                                                          | 48                    | 119      | 167   | 119                     | 0                    | 0                          |
| Cinema/Entertainment                                                | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Residential                                                         | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Hotel                                                               | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| All Other Land Uses <sup>3</sup>                                    | 0                     | 67       | 67    | 67                      | 0                    | 0                          |

| Table 9-P (O): Internal and External Trips Summary (Exiting Trips) |                       |          |       |                         |                      |                            |
|--------------------------------------------------------------------|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Origin Land Use                                                    | Person-Trip Estimates |          |       | External Trips by Mode* |                      |                            |
|                                                                    | Internal              | External | Total | Vehicles <sup>1</sup>   | Transit <sup>2</sup> | Non-Motorized <sup>2</sup> |
| Office                                                             | 2                     | 8        | 10    | 8                       | 0                    | 0                          |
| Retail                                                             | 49                    | 140      | 189   | 140                     | 0                    | 0                          |
| Restaurant                                                         | 56                    | 81       | 137   | 81                      | 0                    | 0                          |
| Cinema/Entertainment                                               | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Residential                                                        | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Hotel                                                              | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| All Other Land Uses <sup>3</sup>                                   | 0                     | 65       | 65    | 65                      | 0                    | 0                          |

<sup>1</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

<sup>2</sup>Person-Trips

<sup>3</sup>Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

\*Indicates computation that has been rounded to the nearest whole number.

**APPENDIX D**  
**LEVEL OF SERVICE ANALYSIS**

# HCM 2010 Signalized Intersection Summary

## 1: Alessandro Blvd & Perris Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 99                                                                                | 282                                                                               | 92                                                                                | 140                                                                               | 713                                                                               | 94                                                                                | 234                                                                                | 755                                                                                 | 133                                                                                 | 151                                                                                 | 520                                                                                 | 245                                                                                 |
| Future Volume (veh/h)        | 99                                                                                | 282                                                                               | 92                                                                                | 140                                                                               | 713                                                                               | 94                                                                                | 234                                                                                | 755                                                                                 | 133                                                                                 | 151                                                                                 | 520                                                                                 | 245                                                                                 |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 109                                                                               | 310                                                                               | 101                                                                               | 154                                                                               | 784                                                                               | 103                                                                               | 257                                                                                | 830                                                                                 | 146                                                                                 | 166                                                                                 | 571                                                                                 | 269                                                                                 |
| Adj No. of Lanes             | 2                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                 | 3                                                                                 | 0                                                                                 | 1                                                                                  | 2                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                               | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 195                                                                               | 463                                                                               | 207                                                                               | 263                                                                               | 1012                                                                              | 132                                                                               | 241                                                                                | 909                                                                                 | 407                                                                                 | 266                                                                                 | 960                                                                                 | 429                                                                                 |
| Arrive On Green              | 0.06                                                                              | 0.13                                                                              | 0.13                                                                              | 0.15                                                                              | 0.22                                                                              | 0.22                                                                              | 0.14                                                                               | 0.26                                                                                | 0.26                                                                                | 0.15                                                                                | 0.27                                                                                | 0.27                                                                                |
| Sat Flow, veh/h              | 3442                                                                              | 3539                                                                              | 1583                                                                              | 1774                                                                              | 4554                                                                              | 594                                                                               | 1774                                                                               | 3539                                                                                | 1583                                                                                | 1774                                                                                | 3539                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 109                                                                               | 310                                                                               | 101                                                                               | 154                                                                               | 582                                                                               | 305                                                                               | 257                                                                                | 830                                                                                 | 146                                                                                 | 166                                                                                 | 571                                                                                 | 269                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1721                                                                              | 1770                                                                              | 1583                                                                              | 1774                                                                              | 1695                                                                              | 1758                                                                              | 1774                                                                               | 1770                                                                                | 1583                                                                                | 1774                                                                                | 1770                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 2.2                                                                               | 5.8                                                                               | 2.7                                                                               | 5.7                                                                               | 11.3                                                                              | 11.4                                                                              | 9.5                                                                                | 15.9                                                                                | 5.3                                                                                 | 6.1                                                                                 | 9.8                                                                                 | 10.4                                                                                |
| Cycle Q Clear(g_c), s        | 2.2                                                                               | 5.8                                                                               | 2.7                                                                               | 5.7                                                                               | 11.3                                                                              | 11.4                                                                              | 9.5                                                                                | 15.9                                                                                | 5.3                                                                                 | 6.1                                                                                 | 9.8                                                                                 | 10.4                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.34                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 195                                                                               | 463                                                                               | 207                                                                               | 263                                                                               | 753                                                                               | 391                                                                               | 241                                                                                | 909                                                                                 | 407                                                                                 | 266                                                                                 | 960                                                                                 | 429                                                                                 |
| V/C Ratio(X)                 | 0.56                                                                              | 0.67                                                                              | 0.49                                                                              | 0.59                                                                              | 0.77                                                                              | 0.78                                                                              | 1.07                                                                               | 0.91                                                                                | 0.36                                                                                | 0.62                                                                                | 0.59                                                                                | 0.63                                                                                |
| Avail Cap(c_a), veh/h        | 221                                                                               | 809                                                                               | 362                                                                               | 263                                                                               | 872                                                                               | 452                                                                               | 241                                                                                | 910                                                                                 | 407                                                                                 | 266                                                                                 | 960                                                                                 | 429                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.66                                                                              | 0.66                                                                              | 0.66                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 32.2                                                                              | 29.0                                                                              | 12.4                                                                              | 27.8                                                                              | 25.6                                                                              | 25.6                                                                              | 30.3                                                                               | 25.3                                                                                | 21.3                                                                                | 27.9                                                                                | 22.2                                                                                | 22.4                                                                                |
| Incr Delay (d2), s/veh       | 2.5                                                                               | 1.7                                                                               | 1.8                                                                               | 2.2                                                                               | 2.5                                                                               | 5.0                                                                               | 77.0                                                                               | 15.0                                                                                | 2.5                                                                                 | 4.5                                                                                 | 2.7                                                                                 | 6.8                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.1                                                                               | 2.9                                                                               | 1.8                                                                               | 2.9                                                                               | 5.5                                                                               | 6.0                                                                               | 9.8                                                                                | 9.6                                                                                 | 2.6                                                                                 | 3.3                                                                                 | 5.1                                                                                 | 5.4                                                                                 |
| LnGrp Delay(d),s/veh         | 34.7                                                                              | 30.7                                                                              | 14.2                                                                              | 30.1                                                                              | 28.1                                                                              | 30.6                                                                              | 107.2                                                                              | 40.3                                                                                | 23.8                                                                                | 32.4                                                                                | 24.9                                                                                | 29.2                                                                                |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | B                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 | F                                                                                  | D                                                                                   | C                                                                                   | C                                                                                   | C                                                                                   | C                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 520                                                                               |                                                                                   |                                                                                   | 1041                                                                              |                                                                                   |                                                                                    | 1233                                                                                |                                                                                     |                                                                                     | 1006                                                                                |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 28.3                                                                              |                                                                                   |                                                                                   | 29.1                                                                              |                                                                                   |                                                                                    | 52.3                                                                                |                                                                                     |                                                                                     | 27.3                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 16.0                                                                              | 23.5                                                                              | 15.9                                                                              | 14.7                                                                              | 15.0                                                                              | 24.5                                                                              | 9.5                                                                                | 21.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 7.5                                                                               | 18.0                                                                              | 6.5                                                                               | 16.0                                                                              | 9.5                                                                               | 16.0                                                                              | 4.5                                                                                | 18.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 8.1                                                                               | 17.9                                                                              | 7.7                                                                               | 7.8                                                                               | 11.5                                                                              | 12.4                                                                              | 4.2                                                                                | 13.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 1.3                                                                               | 0.0                                                                               | 1.6                                                                               | 0.0                                                                                | 2.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   | 36.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 2: Alessandro Blvd & Kitching St

02/22/2021

|                              |  |                                                                                    |  |  |                                                                                    |  |                                                                                       |  |  |  |                                                                                      |  |
|------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                                                                                                     | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |  |   |  |  |   |  |   |  |                                                                                     |  |   |                                                                                     |
| Traffic Volume (veh/h)       | 91                                                                                | 347                                                                                                                                                                 | 100                                                                               | 35                                                                                | 615                                                                                                                                                                 | 156                                                                               | 173                                                                                                                                                                     | 207                                                                                 | 43                                                                                  | 54                                                                                  | 143                                                                                                                                                                     | 125                                                                                 |
| Future Volume (veh/h)        | 91                                                                                | 347                                                                                                                                                                 | 100                                                                               | 35                                                                                | 615                                                                                                                                                                 | 156                                                                               | 173                                                                                                                                                                     | 207                                                                                 | 43                                                                                  | 54                                                                                  | 143                                                                                                                                                                     | 125                                                                                 |
| Number                       | 7                                                                                 | 4                                                                                                                                                                   | 14                                                                                | 3                                                                                 | 8                                                                                                                                                                   | 18                                                                                | 5                                                                                                                                                                       | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                              | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                                                                                                                    | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1900                                                                                |
| Adj Flow Rate, veh/h         | 102                                                                               | 390                                                                                                                                                                 | 112                                                                               | 39                                                                                | 691                                                                                                                                                                 | 175                                                                               | 194                                                                                                                                                                     | 233                                                                                 | 48                                                                                  | 61                                                                                  | 161                                                                                                                                                                     | 140                                                                                 |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                                                                                                   | 1                                                                                 | 1                                                                                 | 2                                                                                                                                                                   | 1                                                                                 | 2                                                                                                                                                                       | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 0                                                                                   |
| Peak Hour Factor             | 0.89                                                                              | 0.89                                                                                                                                                                | 0.89                                                                              | 0.89                                                                              | 0.89                                                                                                                                                                | 0.89                                                                              | 0.89                                                                                                                                                                    | 0.89                                                                                | 0.89                                                                                | 0.89                                                                                | 0.89                                                                                                                                                                    | 0.89                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                                                                                                       | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 129                                                                               | 542                                                                                                                                                                 | 635                                                                               | 269                                                                               | 821                                                                                                                                                                 | 438                                                                               | 852                                                                                                                                                                     | 505                                                                                 | 104                                                                                 | 79                                                                                  | 248                                                                                                                                                                     | 202                                                                                 |
| Arrive On Green              | 0.15                                                                              | 0.31                                                                                                                                                                | 0.31                                                                              | 0.15                                                                              | 0.23                                                                                                                                                                | 0.23                                                                              | 0.25                                                                                                                                                                    | 0.34                                                                                | 0.34                                                                                | 0.04                                                                                | 0.13                                                                                                                                                                    | 0.13                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 3539                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 3539                                                                                                                                                                | 1583                                                                              | 3442                                                                                                                                                                    | 1499                                                                                | 309                                                                                 | 1774                                                                                | 1857                                                                                                                                                                    | 1509                                                                                |
| Grp Volume(v), veh/h         | 102                                                                               | 390                                                                                                                                                                 | 112                                                                               | 39                                                                                | 691                                                                                                                                                                 | 175                                                                               | 194                                                                                                                                                                     | 0                                                                                   | 281                                                                                 | 61                                                                                  | 153                                                                                                                                                                     | 148                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 1770                                                                                                                                                                | 1583                                                                              | 1721                                                                                                                                                                    | 0                                                                                   | 1808                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1596                                                                                |
| Q Serve(g_s), s              | 3.9                                                                               | 6.9                                                                                                                                                                 | 0.0                                                                               | 1.3                                                                               | 13.0                                                                                                                                                                | 3.6                                                                               | 3.1                                                                                                                                                                     | 0.0                                                                                 | 8.5                                                                                 | 2.4                                                                                 | 5.7                                                                                                                                                                     | 6.2                                                                                 |
| Cycle Q Clear(g_c), s        | 3.9                                                                               | 6.9                                                                                                                                                                 | 0.0                                                                               | 1.3                                                                               | 13.0                                                                                                                                                                | 3.6                                                                               | 3.1                                                                                                                                                                     | 0.0                                                                                 | 8.5                                                                                 | 2.4                                                                                 | 5.7                                                                                                                                                                     | 6.2                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                                                                                                    |                                                                                     | 0.17                                                                                | 1.00                                                                                |                                                                                                                                                                         | 0.95                                                                                |
| Lane Grp Cap(c), veh/h       | 129                                                                               | 542                                                                                                                                                                 | 635                                                                               | 269                                                                               | 821                                                                                                                                                                 | 438                                                                               | 852                                                                                                                                                                     | 0                                                                                   | 608                                                                                 | 79                                                                                  | 236                                                                                                                                                                     | 213                                                                                 |
| V/C Ratio(X)                 | 0.79                                                                              | 0.72                                                                                                                                                                | 0.18                                                                              | 0.15                                                                              | 0.84                                                                                                                                                                | 0.40                                                                              | 0.23                                                                                                                                                                    | 0.00                                                                                | 0.46                                                                                | 0.77                                                                                | 0.65                                                                                                                                                                    | 0.69                                                                                |
| Avail Cap(c_a), veh/h        | 165                                                                               | 935                                                                                                                                                                 | 811                                                                               | 269                                                                               | 885                                                                                                                                                                 | 467                                                                               | 852                                                                                                                                                                     | 0                                                                                   | 608                                                                                 | 114                                                                                 | 468                                                                                                                                                                     | 422                                                                                 |
| HCM Platoon Ratio            | 2.00                                                                              | 2.00                                                                                                                                                                | 2.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)           | 0.82                                                                              | 0.82                                                                                                                                                                | 0.82                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                    | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 29.4                                                                              | 22.9                                                                                                                                                                | 10.9                                                                              | 25.8                                                                              | 25.7                                                                                                                                                                | 7.7                                                                               | 21.0                                                                                                                                                                    | 0.0                                                                                 | 18.2                                                                                | 33.1                                                                                | 28.8                                                                                                                                                                    | 29.0                                                                                |
| Incr Delay (d2), s/veh       | 15.0                                                                              | 1.5                                                                                                                                                                 | 0.1                                                                               | 0.2                                                                               | 7.0                                                                                                                                                                 | 0.6                                                                               | 0.1                                                                                                                                                                     | 0.0                                                                                 | 2.5                                                                                 | 17.6                                                                                | 12.9                                                                                                                                                                    | 17.1                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.4                                                                               | 3.4                                                                                                                                                                 | 1.1                                                                               | 0.7                                                                               | 7.1                                                                                                                                                                 | 2.0                                                                               | 1.5                                                                                                                                                                     | 0.0                                                                                 | 4.6                                                                                 | 1.6                                                                                 | 3.7                                                                                                                                                                     | 3.7                                                                                 |
| LnGrp Delay(d),s/veh         | 44.4                                                                              | 24.4                                                                                                                                                                | 11.0                                                                              | 26.0                                                                              | 32.6                                                                                                                                                                | 8.3                                                                               | 21.1                                                                                                                                                                    | 0.0                                                                                 | 20.8                                                                                | 50.7                                                                                | 41.7                                                                                                                                                                    | 46.1                                                                                |
| LnGrp LOS                    | D                                                                                 | C                                                                                                                                                                   | B                                                                                 | C                                                                                 | C                                                                                                                                                                   | A                                                                                 | C                                                                                                                                                                       |                                                                                     | C                                                                                   | D                                                                                   | D                                                                                                                                                                       | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 604                                                                                                                                                                 |                                                                                   |                                                                                   | 905                                                                                                                                                                 |                                                                                   |                                                                                                                                                                         | 475                                                                                 |                                                                                     |                                                                                     | 362                                                                                                                                                                     |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 25.3                                                                                                                                                                |                                                                                   |                                                                                   | 27.6                                                                                                                                                                |                                                                                   |                                                                                                                                                                         | 20.9                                                                                |                                                                                     |                                                                                     | 45.0                                                                                                                                                                    |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                                                                                                   |                                                                                   |                                                                                   | C                                                                                                                                                                   |                                                                                   |                                                                                                                                                                         | C                                                                                   |                                                                                     |                                                                                     | D                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                                                                                                       | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                                                                                                       | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.6                                                                               | 29.1                                                                                                                                                                | 16.1                                                                              | 16.2                                                                              | 22.8                                                                                                                                                                | 14.8                                                                              | 10.6                                                                                                                                                                    | 21.7                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                                                                                                                     | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 19.5                                                                                                                                                                | 5.5                                                                               | 18.5                                                                              | 5.5                                                                                                                                                                 | 18.5                                                                              | 6.5                                                                                                                                                                     | 17.5                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 4.4                                                                               | 10.5                                                                                                                                                                | 3.3                                                                               | 8.9                                                                               | 5.1                                                                                                                                                                 | 8.2                                                                               | 5.9                                                                                                                                                                     | 15.0                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.0                                                                                                                                                                 | 0.0                                                                               | 1.9                                                                               | 0.0                                                                                                                                                                 | 1.1                                                                               | 0.0                                                                                                                                                                     | 1.2                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                                                                                                     |                                                                                   | 28.4                                                                              |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                                                                                                     |                                                                                   | C                                                                                 |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 3: Lasselle St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 25                                                                                | 195                                                                               | 140                                                                               | 116                                                                               | 478                                                                               | 14                                                                                | 224                                                                                | 361                                                                                 | 125                                                                                 | 29                                                                                  | 241                                                                                 | 68                                                                                  |
| Future Volume (veh/h)        | 25                                                                                | 195                                                                               | 140                                                                               | 116                                                                               | 478                                                                               | 14                                                                                | 224                                                                                | 361                                                                                 | 125                                                                                 | 29                                                                                  | 241                                                                                 | 68                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 29                                                                                | 227                                                                               | 163                                                                               | 135                                                                               | 556                                                                               | 16                                                                                | 260                                                                                | 420                                                                                 | 145                                                                                 | 34                                                                                  | 280                                                                                 | 79                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                  | 1                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                               | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 87                                                                                | 328                                                                               | 245                                                                               | 282                                                                               | 532                                                                               | 468                                                                               | 334                                                                                | 715                                                                                 | 859                                                                                 | 93                                                                                  | 348                                                                                 | 98                                                                                  |
| Arrive On Green              | 0.05                                                                              | 0.18                                                                              | 0.15                                                                              | 0.16                                                                              | 0.29                                                                              | 0.26                                                                              | 0.38                                                                               | 0.77                                                                                | 0.77                                                                                | 0.02                                                                                | 0.08                                                                                | 0.07                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 1399                                                                                | 395                                                                                 |
| Grp Volume(v), veh/h         | 29                                                                                | 227                                                                               | 163                                                                               | 135                                                                               | 556                                                                               | 16                                                                                | 260                                                                                | 420                                                                                 | 145                                                                                 | 34                                                                                  | 0                                                                                   | 359                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 0                                                                                   | 1793                                                                                |
| Q Serve(g_s), s              | 1.1                                                                               | 8.0                                                                               | 6.8                                                                               | 4.9                                                                               | 20.0                                                                              | 0.5                                                                               | 9.1                                                                                | 6.7                                                                                 | 0.3                                                                                 | 1.3                                                                                 | 0.0                                                                                 | 13.8                                                                                |
| Cycle Q Clear(g_c), s        | 1.1                                                                               | 8.0                                                                               | 6.8                                                                               | 4.9                                                                               | 20.0                                                                              | 0.5                                                                               | 9.1                                                                                | 6.7                                                                                 | 0.3                                                                                 | 1.3                                                                                 | 0.0                                                                                 | 13.8                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.22                                                                                |
| Lane Grp Cap(c), veh/h       | 87                                                                                | 328                                                                               | 245                                                                               | 282                                                                               | 532                                                                               | 468                                                                               | 334                                                                                | 715                                                                                 | 859                                                                                 | 93                                                                                  | 0                                                                                   | 446                                                                                 |
| V/C Ratio(X)                 | 0.33                                                                              | 0.69                                                                              | 0.67                                                                              | 0.48                                                                              | 1.04                                                                              | 0.03                                                                              | 0.78                                                                               | 0.59                                                                                | 0.17                                                                                | 0.36                                                                                | 0.00                                                                                | 0.81                                                                                |
| Avail Cap(c_a), veh/h        | 152                                                                               | 479                                                                               | 373                                                                               | 282                                                                               | 532                                                                               | 468                                                                               | 334                                                                                | 715                                                                                 | 859                                                                                 | 152                                                                                 | 0                                                                                   | 461                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                               | 2.00                                                                                | 2.00                                                                                | 0.33                                                                                | 0.33                                                                                | 0.33                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 32.2                                                                              | 27.1                                                                              | 27.9                                                                              | 26.8                                                                              | 25.0                                                                              | 17.6                                                                              | 20.6                                                                               | 5.8                                                                                 | 0.7                                                                                 | 33.2                                                                                | 0.0                                                                                 | 30.5                                                                                |
| Incr Delay (d2), s/veh       | 2.2                                                                               | 2.6                                                                               | 3.1                                                                               | 1.1                                                                               | 47.8                                                                              | 0.0                                                                               | 11.2                                                                               | 3.5                                                                                 | 0.4                                                                                 | 2.4                                                                                 | 0.0                                                                                 | 14.4                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.6                                                                               | 4.3                                                                               | 3.2                                                                               | 2.4                                                                               | 17.3                                                                              | 0.2                                                                               | 5.4                                                                                | 3.9                                                                                 | 0.3                                                                                 | 0.7                                                                                 | 0.0                                                                                 | 8.6                                                                                 |
| LnGrp Delay(d),s/veh         | 34.4                                                                              | 29.7                                                                              | 31.0                                                                              | 27.9                                                                              | 72.8                                                                              | 17.6                                                                              | 31.7                                                                               | 9.3                                                                                 | 1.1                                                                                 | 35.6                                                                                | 0.0                                                                                 | 44.9                                                                                |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 | F                                                                                 | B                                                                                 | C                                                                                  | A                                                                                   | A                                                                                   | D                                                                                   |                                                                                     | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 419                                                                               |                                                                                   |                                                                                   | 707                                                                               |                                                                                   |                                                                                    | 825                                                                                 |                                                                                     |                                                                                     | 393                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 30.5                                                                              |                                                                                   |                                                                                   | 63.0                                                                              |                                                                                   |                                                                                    | 14.9                                                                                |                                                                                     |                                                                                     | 44.1                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                    | B                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.7                                                                               | 30.9                                                                              | 15.1                                                                              | 16.3                                                                              | 17.2                                                                              | 21.4                                                                              | 7.4                                                                                | 24.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 20.5                                                                              | 6.5                                                                               | 16.5                                                                              | 8.5                                                                               | 16.5                                                                              | 4.5                                                                                | 18.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.3                                                                               | 8.7                                                                               | 6.9                                                                               | 10.0                                                                              | 11.1                                                                              | 15.8                                                                              | 3.1                                                                                | 22.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.8                                                                               | 0.0                                                                               | 0.8                                                                               | 0.0                                                                               | 0.1                                                                               | 0.0                                                                                | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 37.1                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 4: Nason St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 47                                                                                | 146                                                                               | 59                                                                                | 69                                                                                | 246                                                                               | 63                                                                                | 60                                                                                 | 364                                                                                 | 21                                                                                  | 34                                                                                  | 475                                                                                 | 43                                                                                  |
| Future Volume (veh/h)        | 47                                                                                | 146                                                                               | 59                                                                                | 69                                                                                | 246                                                                               | 63                                                                                | 60                                                                                 | 364                                                                                 | 21                                                                                  | 34                                                                                  | 475                                                                                 | 43                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 56                                                                                | 174                                                                               | 70                                                                                | 82                                                                                | 293                                                                               | 75                                                                                | 71                                                                                 | 433                                                                                 | 25                                                                                  | 40                                                                                  | 565                                                                                 | 51                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                  | 2                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                               | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 83                                                                                | 347                                                                               | 295                                                                               | 104                                                                               | 369                                                                               | 314                                                                               | 95                                                                                 | 1114                                                                                | 64                                                                                  | 66                                                                                  | 1100                                                                                | 492                                                                                 |
| Arrive On Green              | 0.05                                                                              | 0.19                                                                              | 0.19                                                                              | 0.06                                                                              | 0.20                                                                              | 0.20                                                                              | 0.05                                                                               | 0.33                                                                                | 0.33                                                                                | 0.04                                                                                | 0.31                                                                                | 0.31                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 3402                                                                                | 196                                                                                 | 1774                                                                                | 3539                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 56                                                                                | 174                                                                               | 70                                                                                | 82                                                                                | 293                                                                               | 75                                                                                | 71                                                                                 | 225                                                                                 | 233                                                                                 | 40                                                                                  | 565                                                                                 | 51                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1770                                                                                | 1828                                                                                | 1774                                                                                | 1770                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 1.7                                                                               | 4.7                                                                               | 2.1                                                                               | 2.6                                                                               | 8.4                                                                               | 2.2                                                                               | 2.2                                                                                | 5.5                                                                                 | 5.5                                                                                 | 1.3                                                                                 | 7.4                                                                                 | 1.3                                                                                 |
| Cycle Q Clear(g_c), s        | 1.7                                                                               | 4.7                                                                               | 2.1                                                                               | 2.6                                                                               | 8.4                                                                               | 2.2                                                                               | 2.2                                                                                | 5.5                                                                                 | 5.5                                                                                 | 1.3                                                                                 | 7.4                                                                                 | 1.3                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.11                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 83                                                                                | 347                                                                               | 295                                                                               | 104                                                                               | 369                                                                               | 314                                                                               | 95                                                                                 | 579                                                                                 | 598                                                                                 | 66                                                                                  | 1100                                                                                | 492                                                                                 |
| V/C Ratio(X)                 | 0.68                                                                              | 0.50                                                                              | 0.24                                                                              | 0.79                                                                              | 0.79                                                                              | 0.24                                                                              | 0.75                                                                               | 0.39                                                                                | 0.39                                                                                | 0.61                                                                                | 0.51                                                                                | 0.10                                                                                |
| Avail Cap(c_a), veh/h        | 142                                                                               | 546                                                                               | 464                                                                               | 142                                                                               | 546                                                                               | 464                                                                               | 142                                                                                | 579                                                                                 | 598                                                                                 | 142                                                                                 | 1100                                                                                | 492                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 26.4                                                                              | 20.6                                                                              | 19.5                                                                              | 26.1                                                                              | 21.5                                                                              | 19.0                                                                              | 26.3                                                                               | 14.6                                                                                | 14.6                                                                                | 26.7                                                                                | 15.9                                                                                | 13.8                                                                                |
| Incr Delay (d2), s/veh       | 9.3                                                                               | 1.1                                                                               | 0.4                                                                               | 18.3                                                                              | 4.9                                                                               | 0.4                                                                               | 11.0                                                                               | 2.0                                                                                 | 1.9                                                                                 | 8.7                                                                                 | 1.7                                                                                 | 0.4                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.1                                                                               | 2.5                                                                               | 1.0                                                                               | 1.8                                                                               | 4.8                                                                               | 1.0                                                                               | 1.4                                                                                | 3.0                                                                                 | 3.1                                                                                 | 0.8                                                                                 | 3.8                                                                                 | 0.6                                                                                 |
| LnGrp Delay(d),s/veh         | 35.7                                                                              | 21.7                                                                              | 19.9                                                                              | 44.5                                                                              | 26.4                                                                              | 19.4                                                                              | 37.3                                                                               | 16.5                                                                                | 16.5                                                                                | 35.4                                                                                | 17.6                                                                                | 14.2                                                                                |
| LnGrp LOS                    | D                                                                                 | C                                                                                 | B                                                                                 | D                                                                                 | C                                                                                 | B                                                                                 | D                                                                                  | B                                                                                   | B                                                                                   | D                                                                                   | B                                                                                   | B                                                                                   |
| Approach Vol, veh/h          | 300                                                                               |                                                                                   |                                                                                   |                                                                                   | 450                                                                               |                                                                                   |                                                                                    |                                                                                     | 529                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 23.9                                                                              |                                                                                   |                                                                                   |                                                                                   | 28.5                                                                              |                                                                                   |                                                                                    |                                                                                     | 19.3                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.6                                                                               | 23.9                                                                              | 8.8                                                                               | 16.0                                                                              | 8.5                                                                               | 23.0                                                                              | 8.1                                                                                | 16.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 17.5                                                                              | 4.5                                                                               | 16.5                                                                              | 4.5                                                                               | 17.5                                                                              | 4.5                                                                                | 16.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.3                                                                               | 7.5                                                                               | 4.6                                                                               | 6.7                                                                               | 4.2                                                                               | 9.4                                                                               | 3.7                                                                                | 10.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.2                                                                               | 0.0                                                                               | 0.6                                                                               | 0.0                                                                               | 1.8                                                                               | 0.0                                                                                | 0.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          | 21.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 5: Lassell St & Cottonwood Ave

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 40                                                                                | 216                                                                               | 42                                                                                | 42                                                                                | 268                                                                               | 38                                                                                | 72                                                                                 | 290                                                                                 | 54                                                                                  | 26                                                                                  | 247                                                                                 | 64                                                                                  |
| Future Volume (veh/h)        | 40                                                                                | 216                                                                               | 42                                                                                | 42                                                                                | 268                                                                               | 38                                                                                | 72                                                                                 | 290                                                                                 | 54                                                                                  | 26                                                                                  | 247                                                                                 | 64                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 50                                                                                | 270                                                                               | 52                                                                                | 52                                                                                | 335                                                                               | 48                                                                                | 90                                                                                 | 362                                                                                 | 68                                                                                  | 32                                                                                  | 309                                                                                 | 80                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                 | 1                                                                                  | 1                                                                                   | 0                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                               | 0.80                                                                                | 0.80                                                                                | 0.80                                                                                | 0.80                                                                                | 0.80                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 71                                                                                | 313                                                                               | 60                                                                                | 73                                                                                | 644                                                                               | 92                                                                                | 115                                                                                | 412                                                                                 | 77                                                                                  | 299                                                                                 | 696                                                                                 | 592                                                                                 |
| Arrive On Green              | 0.04                                                                              | 0.21                                                                              | 0.21                                                                              | 0.04                                                                              | 0.21                                                                              | 0.21                                                                              | 0.06                                                                               | 0.27                                                                                | 0.27                                                                                | 0.17                                                                                | 0.37                                                                                | 0.37                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1519                                                                              | 292                                                                               | 1774                                                                              | 3112                                                                              | 442                                                                               | 1774                                                                               | 1526                                                                                | 287                                                                                 | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 50                                                                                | 0                                                                                 | 322                                                                               | 52                                                                                | 189                                                                               | 194                                                                               | 90                                                                                 | 0                                                                                   | 430                                                                                 | 32                                                                                  | 309                                                                                 | 80                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 0                                                                                 | 1811                                                                              | 1774                                                                              | 1770                                                                              | 1785                                                                              | 1774                                                                               | 0                                                                                   | 1812                                                                                | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 1.9                                                                               | 0.0                                                                               | 12.0                                                                              | 2.0                                                                               | 6.6                                                                               | 6.8                                                                               | 3.5                                                                                | 0.0                                                                                 | 15.9                                                                                | 1.1                                                                                 | 8.7                                                                                 | 2.3                                                                                 |
| Cycle Q Clear(g_c), s        | 1.9                                                                               | 0.0                                                                               | 12.0                                                                              | 2.0                                                                               | 6.6                                                                               | 6.8                                                                               | 3.5                                                                                | 0.0                                                                                 | 15.9                                                                                | 1.1                                                                                 | 8.7                                                                                 | 2.3                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.16                                                                              | 1.00                                                                              |                                                                                   | 0.25                                                                              | 1.00                                                                               |                                                                                     | 0.16                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 71                                                                                | 0                                                                                 | 373                                                                               | 73                                                                                | 366                                                                               | 369                                                                               | 115                                                                                | 0                                                                                   | 489                                                                                 | 299                                                                                 | 696                                                                                 | 592                                                                                 |
| V/C Ratio(X)                 | 0.71                                                                              | 0.00                                                                              | 0.86                                                                              | 0.72                                                                              | 0.52                                                                              | 0.52                                                                              | 0.78                                                                               | 0.00                                                                                | 0.88                                                                                | 0.11                                                                                | 0.44                                                                                | 0.14                                                                                |
| Avail Cap(c_a), veh/h        | 114                                                                               | 0                                                                                 | 427                                                                               | 114                                                                               | 417                                                                               | 421                                                                               | 139                                                                                | 0                                                                                   | 582                                                                                 | 299                                                                                 | 696                                                                                 | 592                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 33.2                                                                              | 0.0                                                                               | 26.8                                                                              | 33.2                                                                              | 24.6                                                                              | 24.7                                                                              | 32.2                                                                               | 0.0                                                                                 | 24.5                                                                                | 24.6                                                                                | 16.5                                                                                | 14.5                                                                                |
| Incr Delay (d2), s/veh       | 12.0                                                                              | 0.0                                                                               | 15.0                                                                              | 12.4                                                                              | 1.1                                                                               | 1.2                                                                               | 20.6                                                                               | 0.0                                                                                 | 19.6                                                                                | 0.2                                                                                 | 2.0                                                                                 | 0.5                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.2                                                                               | 0.0                                                                               | 7.5                                                                               | 1.2                                                                               | 3.4                                                                               | 3.5                                                                               | 2.4                                                                                | 0.0                                                                                 | 10.6                                                                                | 0.5                                                                                 | 4.9                                                                                 | 1.1                                                                                 |
| LnGrp Delay(d),s/veh         | 45.2                                                                              | 0.0                                                                               | 41.8                                                                              | 45.5                                                                              | 25.8                                                                              | 25.8                                                                              | 52.8                                                                               | 0.0                                                                                 | 44.1                                                                                | 24.8                                                                                | 18.5                                                                                | 14.9                                                                                |
| LnGrp LOS                    | D                                                                                 |                                                                                   | D                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | D                                                                                  |                                                                                     | D                                                                                   | C                                                                                   | B                                                                                   | B                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 372                                                                               |                                                                                   |                                                                                   | 435                                                                               |                                                                                   |                                                                                    | 520                                                                                 |                                                                                     |                                                                                     | 421                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 42.3                                                                              |                                                                                   |                                                                                   | 28.2                                                                              |                                                                                   |                                                                                    | 45.6                                                                                |                                                                                     |                                                                                     | 18.3                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | D                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 17.3                                                                              | 24.4                                                                              | 8.4                                                                               | 19.9                                                                              | 10.0                                                                              | 31.7                                                                              | 8.3                                                                                | 20.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 22.5                                                                              | 4.5                                                                               | 16.5                                                                              | 5.5                                                                               | 21.5                                                                              | 4.5                                                                                | 16.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.1                                                                               | 17.9                                                                              | 4.0                                                                               | 14.0                                                                              | 5.5                                                                               | 10.7                                                                              | 3.9                                                                                | 8.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.0                                                                               | 0.0                                                                               | 0.4                                                                               | 0.0                                                                               | 1.4                                                                               | 0.0                                                                                | 1.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 34.0                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 6: Lassell St & Bay Ave

02/22/2021

|                              |  |  |  |  |  |  |   |  |  |  |                                                                                      |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |   |                                                                                     |
| Traffic Volume (veh/h)       | 16                                                                                | 46                                                                                | 7                                                                                 | 54                                                                                | 71                                                                                | 50                                                                                | 19                                                                                  | 350                                                                                 | 37                                                                                  | 28                                                                                  | 308                                                                                                                                                                     | 4                                                                                   |
| Future Volume (veh/h)        | 16                                                                                | 46                                                                                | 7                                                                                 | 54                                                                                | 71                                                                                | 50                                                                                | 19                                                                                  | 350                                                                                 | 37                                                                                  | 28                                                                                  | 308                                                                                                                                                                     | 4                                                                                   |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                   | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                                | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1900                                                                                |
| Adj Flow Rate, veh/h         | 19                                                                                | 53                                                                                | 8                                                                                 | 63                                                                                | 83                                                                                | 58                                                                                | 22                                                                                  | 407                                                                                 | 43                                                                                  | 33                                                                                  | 358                                                                                                                                                                     | 5                                                                                   |
| Adj No. of Lanes             | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                   | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 0                                                                                   |
| Peak Hour Factor             | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                                                                                                    | 0.86                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 99                                                                                | 214                                                                               | 28                                                                                | 129                                                                               | 120                                                                               | 72                                                                                | 40                                                                                  | 959                                                                                 | 101                                                                                 | 54                                                                                  | 2097                                                                                                                                                                    | 29                                                                                  |
| Arrive On Green              | 0.16                                                                              | 0.16                                                                              | 0.16                                                                              | 0.16                                                                              | 0.16                                                                              | 0.16                                                                              | 0.04                                                                                | 1.00                                                                                | 1.00                                                                                | 0.03                                                                                | 0.59                                                                                                                                                                    | 0.59                                                                                |
| Sat Flow, veh/h              | 230                                                                               | 1380                                                                              | 179                                                                               | 401                                                                               | 772                                                                               | 466                                                                               | 1774                                                                                | 1657                                                                                | 175                                                                                 | 1774                                                                                | 3574                                                                                                                                                                    | 50                                                                                  |
| Grp Volume(v), veh/h         | 80                                                                                | 0                                                                                 | 0                                                                                 | 204                                                                               | 0                                                                                 | 0                                                                                 | 22                                                                                  | 0                                                                                   | 450                                                                                 | 33                                                                                  | 177                                                                                                                                                                     | 186                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1789                                                                              | 0                                                                                 | 0                                                                                 | 1639                                                                              | 0                                                                                 | 0                                                                                 | 1774                                                                                | 0                                                                                   | 1832                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1854                                                                                |
| Q Serve(g_s), s              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 5.6                                                                               | 0.0                                                                               | 0.0                                                                               | 0.9                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 1.3                                                                                 | 3.2                                                                                                                                                                     | 3.2                                                                                 |
| Cycle Q Clear(g_c), s        | 2.7                                                                               | 0.0                                                                               | 0.0                                                                               | 8.3                                                                               | 0.0                                                                               | 0.0                                                                               | 0.9                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 1.3                                                                                 | 3.2                                                                                                                                                                     | 3.2                                                                                 |
| Prop In Lane                 | 0.24                                                                              |                                                                                   | 0.10                                                                              | 0.31                                                                              |                                                                                   | 0.28                                                                              | 1.00                                                                                |                                                                                     | 0.10                                                                                | 1.00                                                                                |                                                                                                                                                                         | 0.03                                                                                |
| Lane Grp Cap(c), veh/h       | 341                                                                               | 0                                                                                 | 0                                                                                 | 322                                                                               | 0                                                                                 | 0                                                                                 | 40                                                                                  | 0                                                                                   | 1060                                                                                | 54                                                                                  | 1038                                                                                                                                                                    | 1088                                                                                |
| V/C Ratio(X)                 | 0.23                                                                              | 0.00                                                                              | 0.00                                                                              | 0.63                                                                              | 0.00                                                                              | 0.00                                                                              | 0.55                                                                                | 0.00                                                                                | 0.42                                                                                | 0.61                                                                                | 0.17                                                                                                                                                                    | 0.17                                                                                |
| Avail Cap(c_a), veh/h        | 497                                                                               | 0                                                                                 | 0                                                                                 | 472                                                                               | 0                                                                                 | 0                                                                                 | 114                                                                                 | 0                                                                                   | 1060                                                                                | 139                                                                                 | 1038                                                                                                                                                                    | 1088                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                                | 2.00                                                                                | 2.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 26.1                                                                              | 0.0                                                                               | 0.0                                                                               | 28.4                                                                              | 0.0                                                                               | 0.0                                                                               | 33.1                                                                                | 0.0                                                                                 | 0.0                                                                                 | 33.5                                                                                | 6.6                                                                                                                                                                     | 6.6                                                                                 |
| Incr Delay (d2), s/veh       | 0.3                                                                               | 0.0                                                                               | 0.0                                                                               | 2.1                                                                               | 0.0                                                                               | 0.0                                                                               | 11.5                                                                                | 0.0                                                                                 | 1.2                                                                                 | 10.7                                                                                | 0.4                                                                                                                                                                     | 0.3                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.4                                                                               | 0.0                                                                               | 0.0                                                                               | 4.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.5                                                                                 | 0.0                                                                                 | 0.4                                                                                 | 0.8                                                                                 | 1.7                                                                                                                                                                     | 1.8                                                                                 |
| LnGrp Delay(d),s/veh         | 26.5                                                                              | 0.0                                                                               | 0.0                                                                               | 30.5                                                                              | 0.0                                                                               | 0.0                                                                               | 44.6                                                                                | 0.0                                                                                 | 1.2                                                                                 | 44.2                                                                                | 7.0                                                                                                                                                                     | 7.0                                                                                 |
| LnGrp LOS                    | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | D                                                                                   |                                                                                     | A                                                                                   | D                                                                                   | A                                                                                                                                                                       | A                                                                                   |
| Approach Vol, veh/h          | 80                                                                                |                                                                                   |                                                                                   | 204                                                                               |                                                                                   |                                                                                   | 472                                                                                 |                                                                                     |                                                                                     | 396                                                                                 |                                                                                                                                                                         |                                                                                     |
| Approach Delay, s/veh        | 26.5                                                                              |                                                                                   |                                                                                   | 30.5                                                                              |                                                                                   |                                                                                   | 3.3                                                                                 |                                                                                     |                                                                                     | 10.1                                                                                |                                                                                                                                                                         |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                                                                                                         |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.6                                                                               | 46.0                                                                              |                                                                                   | 16.4                                                                              | 7.1                                                                               | 46.6                                                                              |                                                                                     | 16.4                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               |                                                                                   | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               |                                                                                     | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 30.5                                                                              |                                                                                   | 17.5                                                                              | 4.5                                                                               | 31.5                                                                              |                                                                                     | 17.5                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.3                                                                               | 2.0                                                                               |                                                                                   | 4.7                                                                               | 2.9                                                                               | 5.2                                                                               |                                                                                     | 10.3                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 2.7                                                                               |                                                                                   | 0.2                                                                               | 0.0                                                                               | 1.9                                                                               |                                                                                     | 0.6                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          | 12.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

**Intersection**

Int Delay, s/veh 0.9

| Movement                 | EBL                                                                               | EBR  | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |  |      |  |  |  |      |
| Traffic Vol, veh/h       | 19                                                                                | 37   | 35                                                                                | 626                                                                               | 462                                                                               | 40   |
| Future Vol, veh/h        | 19                                                                                | 37   | 35                                                                                | 626                                                                               | 462                                                                               | 40   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -    | 200                                                                               | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 92                                                                                | 92   | 92                                                                                | 92                                                                                | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 21                                                                                | 40   | 38                                                                                | 680                                                                               | 502                                                                               | 43   |

| Major/Minor          | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 940    | 273    | 545    |
| Stage 1              | 524    | -      | -      |
| Stage 2              | 416    | -      | -      |
| Critical Hdwy        | 6.84   | 6.94   | 4.14   |
| Critical Hdwy Stg 1  | 5.84   | -      | -      |
| Critical Hdwy Stg 2  | 5.84   | -      | -      |
| Follow-up Hdwy       | 3.52   | 3.32   | 2.22   |
| Pot Cap-1 Maneuver   | 262    | 725    | 1020   |
| Stage 1              | 559    | -      | -      |
| Stage 2              | 634    | -      | -      |
| Platoon blocked, %   |        |        |        |
| Mov Cap-1 Maneuver   | 252    | 725    | 1020   |
| Mov Cap-2 Maneuver   | 252    | -      | -      |
| Stage 1              | 538    | -      | -      |
| Stage 2              | 634    | -      | -      |

| Approach             | EB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 14.4 | 0.5 | 0  |
| HCM LOS              | B    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 1020  | -   | 443   | -   | -   |
| HCM Lane V/C Ratio    | 0.037 | -   | 0.137 | -   | -   |
| HCM Control Delay (s) | 8.7   | -   | 14.4  | -   | -   |
| HCM Lane LOS          | A     | -   | B     | -   | -   |
| HCM 95th %tile Q(veh) | 0.1   | -   | 0.5   | -   | -   |

# HCM 2010 Signalized Intersection Summary

## 8: Lassell St & Catcus Ave

02/22/2021

|                              |  |                                                                                    |  |  |                                                                                    |  |   |                                                                                      |  |  |                                                                                      |  |
|------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |  |   |                                                                                   |  |   |  |  |   |  |  |   |  |
| Traffic Volume (veh/h)       | 66                                                                                | 371                                                                                                                                                                 | 137                                                                               | 211                                                                               | 456                                                                                                                                                                 | 33                                                                                | 144                                                                                 | 582                                                                                                                                                                     | 284                                                                                 | 43                                                                                  | 412                                                                                                                                                                     | 55                                                                                  |
| Future Volume (veh/h)        | 66                                                                                | 371                                                                                                                                                                 | 137                                                                               | 211                                                                               | 456                                                                                                                                                                 | 33                                                                                | 144                                                                                 | 582                                                                                                                                                                     | 284                                                                                 | 43                                                                                  | 412                                                                                                                                                                     | 55                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                                                                                                   | 14                                                                                | 3                                                                                 | 8                                                                                                                                                                   | 18                                                                                | 5                                                                                   | 2                                                                                                                                                                       | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                                                                                                                | 1900                                                                              | 1863                                                                              | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                                | 1863                                                                                                                                                                    | 1863                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1900                                                                                |
| Adj Flow Rate, veh/h         | 79                                                                                | 442                                                                                                                                                                 | 163                                                                               | 251                                                                               | 543                                                                                                                                                                 | 39                                                                                | 171                                                                                 | 693                                                                                                                                                                     | 0                                                                                   | 51                                                                                  | 490                                                                                                                                                                     | 65                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                                                                                                   | 0                                                                                 | 1                                                                                 | 2                                                                                                                                                                   | 1                                                                                 | 1                                                                                   | 2                                                                                                                                                                       | 1                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 0                                                                                   |
| Peak Hour Factor             | 0.84                                                                              | 0.84                                                                                                                                                                | 0.84                                                                              | 0.84                                                                              | 0.84                                                                                                                                                                | 0.84                                                                              | 0.84                                                                                | 0.84                                                                                                                                                                    | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                                                                                                    | 0.84                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 298                                                                               | 572                                                                                                                                                                 | 209                                                                               | 279                                                                               | 759                                                                                                                                                                 | 340                                                                               | 332                                                                                 | 1159                                                                                                                                                                    | 518                                                                                 | 110                                                                                 | 635                                                                                                                                                                     | 84                                                                                  |
| Arrive On Green              | 0.17                                                                              | 0.23                                                                                                                                                                | 0.20                                                                              | 0.16                                                                              | 0.21                                                                                                                                                                | 0.21                                                                              | 0.19                                                                                | 0.33                                                                                                                                                                    | 0.00                                                                                | 0.12                                                                                | 0.40                                                                                                                                                                    | 0.36                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 2540                                                                                                                                                                | 928                                                                               | 1774                                                                              | 3539                                                                                                                                                                | 1583                                                                              | 1774                                                                                | 3539                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 3144                                                                                                                                                                    | 415                                                                                 |
| Grp Volume(v), veh/h         | 79                                                                                | 307                                                                                                                                                                 | 298                                                                               | 251                                                                               | 543                                                                                                                                                                 | 39                                                                                | 171                                                                                 | 693                                                                                                                                                                     | 0                                                                                   | 51                                                                                  | 275                                                                                                                                                                     | 280                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                                                                                                                | 1699                                                                              | 1774                                                                              | 1770                                                                                                                                                                | 1583                                                                              | 1774                                                                                | 1770                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1789                                                                                |
| Q Serve(g_s), s              | 2.7                                                                               | 11.4                                                                                                                                                                | 11.6                                                                              | 9.7                                                                               | 10.0                                                                                                                                                                | 1.0                                                                               | 6.1                                                                                 | 11.5                                                                                                                                                                    | 0.0                                                                                 | 1.9                                                                                 | 9.4                                                                                                                                                                     | 9.6                                                                                 |
| Cycle Q Clear(g_c), s        | 2.7                                                                               | 11.4                                                                                                                                                                | 11.6                                                                              | 9.7                                                                               | 10.0                                                                                                                                                                | 1.0                                                                               | 6.1                                                                                 | 11.5                                                                                                                                                                    | 0.0                                                                                 | 1.9                                                                                 | 9.4                                                                                                                                                                     | 9.6                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                                                                                                     | 0.55                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 0.23                                                                                |
| Lane Grp Cap(c), veh/h       | 298                                                                               | 398                                                                                                                                                                 | 382                                                                               | 279                                                                               | 759                                                                                                                                                                 | 340                                                                               | 332                                                                                 | 1159                                                                                                                                                                    | 518                                                                                 | 110                                                                                 | 357                                                                                                                                                                     | 361                                                                                 |
| V/C Ratio(X)                 | 0.27                                                                              | 0.77                                                                                                                                                                | 0.78                                                                              | 0.90                                                                              | 0.72                                                                                                                                                                | 0.11                                                                              | 0.51                                                                                | 0.60                                                                                                                                                                    | 0.00                                                                                | 0.46                                                                                | 0.77                                                                                                                                                                    | 0.77                                                                                |
| Avail Cap(c_a), veh/h        | 298                                                                               | 442                                                                                                                                                                 | 425                                                                               | 279                                                                               | 1036                                                                                                                                                                | 464                                                                               | 332                                                                                 | 1159                                                                                                                                                                    | 518                                                                                 | 152                                                                                 | 468                                                                                                                                                                     | 473                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 2.00                                                                                | 2.00                                                                                                                                                                    | 2.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                                                                                                    | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 25.4                                                                              | 25.4                                                                                                                                                                | 25.9                                                                              | 29.0                                                                              | 25.5                                                                                                                                                                | 11.5                                                                              | 25.6                                                                                | 19.7                                                                                                                                                                    | 0.0                                                                                 | 29.6                                                                                | 19.5                                                                                                                                                                    | 19.8                                                                                |
| Incr Delay (d2), s/veh       | 0.5                                                                               | 7.3                                                                                                                                                                 | 8.2                                                                               | 29.6                                                                              | 1.5                                                                                                                                                                 | 0.1                                                                               | 1.4                                                                                 | 2.3                                                                                                                                                                     | 0.0                                                                                 | 3.0                                                                                 | 14.7                                                                                                                                                                    | 14.9                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.4                                                                               | 6.4                                                                                                                                                                 | 6.3                                                                               | 7.0                                                                               | 5.0                                                                                                                                                                 | 0.6                                                                               | 3.1                                                                                 | 5.9                                                                                                                                                                     | 0.0                                                                                 | 1.0                                                                                 | 5.9                                                                                                                                                                     | 6.2                                                                                 |
| LnGrp Delay(d),s/veh         | 25.8                                                                              | 32.8                                                                                                                                                                | 34.1                                                                              | 58.6                                                                              | 27.0                                                                                                                                                                | 11.7                                                                              | 27.0                                                                                | 22.0                                                                                                                                                                    | 0.0                                                                                 | 32.6                                                                                | 34.2                                                                                                                                                                    | 34.8                                                                                |
| LnGrp LOS                    | C                                                                                 | C                                                                                                                                                                   | C                                                                                 | E                                                                                 | C                                                                                                                                                                   | B                                                                                 | C                                                                                   | C                                                                                                                                                                       |                                                                                     | C                                                                                   | C                                                                                                                                                                       | C                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 684                                                                                                                                                                 |                                                                                   |                                                                                   | 833                                                                                                                                                                 |                                                                                   |                                                                                     | 864                                                                                                                                                                     |                                                                                     |                                                                                     | 606                                                                                                                                                                     |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 32.6                                                                                                                                                                |                                                                                   |                                                                                   | 35.8                                                                                                                                                                |                                                                                   |                                                                                     | 23.0                                                                                                                                                                    |                                                                                     |                                                                                     | 34.3                                                                                                                                                                    |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                                                                                                   |                                                                                   |                                                                                   | D                                                                                                                                                                   |                                                                                   |                                                                                     | C                                                                                                                                                                       |                                                                                     |                                                                                     | C                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                   | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                   | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.3                                                                               | 26.9                                                                                                                                                                | 15.0                                                                              | 19.8                                                                              | 17.1                                                                                                                                                                | 18.1                                                                              | 15.7                                                                                | 19.0                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                                 | 5.5                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 18.0                                                                                                                                                                | 9.5                                                                               | 16.0                                                                              | 5.5                                                                                                                                                                 | 17.0                                                                              | 6.5                                                                                 | 19.0                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.9                                                                               | 13.5                                                                                                                                                                | 11.7                                                                              | 13.6                                                                              | 8.1                                                                                                                                                                 | 11.6                                                                              | 4.7                                                                                 | 12.0                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.4                                                                                                                                                                 | 0.0                                                                               | 0.7                                                                               | 0.0                                                                                                                                                                 | 1.1                                                                               | 0.0                                                                                 | 1.5                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                                                                                                     |                                                                                   | 31.0                                                                              |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                                                                                                     |                                                                                   | C                                                                                 |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 1: Alessandro Blvd & Perris Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 99                                                                                | 298                                                                               | 92                                                                                | 151                                                                               | 728                                                                               | 105                                                                               | 234                                                                                | 755                                                                                 | 145                                                                                 | 163                                                                                 | 520                                                                                 | 245                                                                                 |
| Future Volume (veh/h)        | 99                                                                                | 298                                                                               | 92                                                                                | 151                                                                               | 728                                                                               | 105                                                                               | 234                                                                                | 755                                                                                 | 145                                                                                 | 163                                                                                 | 520                                                                                 | 245                                                                                 |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 109                                                                               | 327                                                                               | 101                                                                               | 166                                                                               | 800                                                                               | 115                                                                               | 257                                                                                | 830                                                                                 | 159                                                                                 | 179                                                                                 | 571                                                                                 | 269                                                                                 |
| Adj No. of Lanes             | 2                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                 | 3                                                                                 | 0                                                                                 | 1                                                                                  | 2                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                               | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 195                                                                               | 481                                                                               | 215                                                                               | 261                                                                               | 1019                                                                              | 146                                                                               | 241                                                                                | 909                                                                                 | 407                                                                                 | 259                                                                                 | 944                                                                                 | 423                                                                                 |
| Arrive On Green              | 0.06                                                                              | 0.14                                                                              | 0.14                                                                              | 0.15                                                                              | 0.23                                                                              | 0.23                                                                              | 0.14                                                                               | 0.26                                                                                | 0.26                                                                                | 0.15                                                                                | 0.27                                                                                | 0.27                                                                                |
| Sat Flow, veh/h              | 3442                                                                              | 3539                                                                              | 1583                                                                              | 1774                                                                              | 4497                                                                              | 642                                                                               | 1774                                                                               | 3539                                                                                | 1583                                                                                | 1774                                                                                | 3539                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 109                                                                               | 327                                                                               | 101                                                                               | 166                                                                               | 602                                                                               | 313                                                                               | 257                                                                                | 830                                                                                 | 159                                                                                 | 179                                                                                 | 571                                                                                 | 269                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1721                                                                              | 1770                                                                              | 1583                                                                              | 1774                                                                              | 1695                                                                              | 1749                                                                              | 1774                                                                               | 1770                                                                                | 1583                                                                                | 1774                                                                                | 1770                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 2.2                                                                               | 6.2                                                                               | 2.7                                                                               | 6.2                                                                               | 11.7                                                                              | 11.8                                                                              | 9.5                                                                                | 15.9                                                                                | 5.8                                                                                 | 6.7                                                                                 | 9.9                                                                                 | 10.5                                                                                |
| Cycle Q Clear(g_c), s        | 2.2                                                                               | 6.2                                                                               | 2.7                                                                               | 6.2                                                                               | 11.7                                                                              | 11.8                                                                              | 9.5                                                                                | 15.9                                                                                | 5.8                                                                                 | 6.7                                                                                 | 9.9                                                                                 | 10.5                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.37                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 195                                                                               | 481                                                                               | 215                                                                               | 261                                                                               | 768                                                                               | 396                                                                               | 241                                                                                | 909                                                                                 | 407                                                                                 | 259                                                                                 | 944                                                                                 | 423                                                                                 |
| V/C Ratio(X)                 | 0.56                                                                              | 0.68                                                                              | 0.47                                                                              | 0.64                                                                              | 0.78                                                                              | 0.79                                                                              | 1.07                                                                               | 0.91                                                                                | 0.39                                                                                | 0.69                                                                                | 0.60                                                                                | 0.64                                                                                |
| Avail Cap(c_a), veh/h        | 221                                                                               | 809                                                                               | 362                                                                               | 261                                                                               | 872                                                                               | 450                                                                               | 241                                                                                | 910                                                                                 | 407                                                                                 | 259                                                                                 | 944                                                                                 | 423                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 32.2                                                                              | 28.8                                                                              | 12.2                                                                              | 28.1                                                                              | 25.5                                                                              | 25.5                                                                              | 30.3                                                                               | 25.3                                                                                | 21.5                                                                                | 28.4                                                                                | 22.4                                                                                | 22.7                                                                                |
| Incr Delay (d2), s/veh       | 2.5                                                                               | 1.7                                                                               | 1.6                                                                               | 3.2                                                                               | 2.7                                                                               | 5.4                                                                               | 77.0                                                                               | 15.0                                                                                | 2.8                                                                                 | 7.7                                                                                 | 2.9                                                                                 | 7.2                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.1                                                                               | 3.1                                                                               | 1.8                                                                               | 3.2                                                                               | 5.7                                                                               | 6.2                                                                               | 9.8                                                                                | 9.6                                                                                 | 2.8                                                                                 | 3.8                                                                                 | 5.2                                                                                 | 5.4                                                                                 |
| LnGrp Delay(d),s/veh         | 34.7                                                                              | 30.5                                                                              | 13.8                                                                              | 31.3                                                                              | 28.1                                                                              | 30.9                                                                              | 107.2                                                                              | 40.3                                                                                | 24.3                                                                                | 36.1                                                                                | 25.3                                                                                | 29.8                                                                                |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | B                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 | F                                                                                  | D                                                                                   | C                                                                                   | D                                                                                   | C                                                                                   | C                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 537                                                                               |                                                                                   |                                                                                   | 1081                                                                              |                                                                                   |                                                                                    | 1246                                                                                |                                                                                     |                                                                                     | 1019                                                                                |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 28.2                                                                              |                                                                                   |                                                                                   | 29.4                                                                              |                                                                                   |                                                                                    | 52.1                                                                                |                                                                                     |                                                                                     | 28.4                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 15.7                                                                              | 23.5                                                                              | 15.8                                                                              | 15.0                                                                              | 15.0                                                                              | 24.2                                                                              | 9.5                                                                                | 21.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 7.5                                                                               | 18.0                                                                              | 6.5                                                                               | 16.0                                                                              | 9.5                                                                               | 16.0                                                                              | 4.5                                                                                | 18.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 8.7                                                                               | 17.9                                                                              | 8.2                                                                               | 8.2                                                                               | 11.5                                                                              | 12.5                                                                              | 4.2                                                                                | 13.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 1.4                                                                               | 0.0                                                                               | 1.5                                                                               | 0.0                                                                                | 2.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 36.2                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## HCM 2010 Signalized Intersection Summary

### 2: Alessandro Blvd & Kitching St

02/22/2021

|                              |  |                                                                                    |  |  |                                                                                    |  |                                                                                      |  |  |  |                                                                                      |  |
|------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                                                                                                    | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |  |   |  |  |   |  |   |  |                                                                                     |  |   |                                                                                     |
| Traffic Volume (veh/h)       | 91                                                                                | 388                                                                                                                                                                 | 100                                                                               | 44                                                                                | 652                                                                                                                                                                 | 165                                                                               | 173                                                                                                                                                                    | 207                                                                                 | 53                                                                                  | 64                                                                                  | 143                                                                                                                                                                     | 125                                                                                 |
| Future Volume (veh/h)        | 91                                                                                | 388                                                                                                                                                                 | 100                                                                               | 44                                                                                | 652                                                                                                                                                                 | 165                                                                               | 173                                                                                                                                                                    | 207                                                                                 | 53                                                                                  | 64                                                                                  | 143                                                                                                                                                                     | 125                                                                                 |
| Number                       | 7                                                                                 | 4                                                                                                                                                                   | 14                                                                                | 3                                                                                 | 8                                                                                                                                                                   | 18                                                                                | 5                                                                                                                                                                      | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                                                                                                      | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                                                                                                   |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                              | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                                                                                                                   | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1900                                                                                |
| Adj Flow Rate, veh/h         | 102                                                                               | 436                                                                                                                                                                 | 112                                                                               | 49                                                                                | 733                                                                                                                                                                 | 185                                                                               | 194                                                                                                                                                                    | 233                                                                                 | 60                                                                                  | 72                                                                                  | 161                                                                                                                                                                     | 140                                                                                 |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                                                                                                   | 1                                                                                 | 1                                                                                 | 2                                                                                                                                                                   | 1                                                                                 | 2                                                                                                                                                                      | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 0                                                                                   |
| Peak Hour Factor             | 0.89                                                                              | 0.89                                                                                                                                                                | 0.89                                                                              | 0.89                                                                              | 0.89                                                                                                                                                                | 0.89                                                                              | 0.89                                                                                                                                                                   | 0.89                                                                                | 0.89                                                                                | 0.89                                                                                | 0.89                                                                                                                                                                    | 0.89                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                                                                                                      | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 129                                                                               | 587                                                                                                                                                                 | 643                                                                               | 259                                                                               | 847                                                                                                                                                                 | 461                                                                               | 827                                                                                                                                                                    | 460                                                                                 | 119                                                                                 | 92                                                                                  | 248                                                                                                                                                                     | 202                                                                                 |
| Arrive On Green              | 0.15                                                                              | 0.33                                                                                                                                                                | 0.33                                                                              | 0.15                                                                              | 0.24                                                                                                                                                                | 0.24                                                                              | 0.24                                                                                                                                                                   | 0.32                                                                                | 0.32                                                                                | 0.05                                                                                | 0.13                                                                                                                                                                    | 0.13                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 3539                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 3539                                                                                                                                                                | 1583                                                                              | 3442                                                                                                                                                                   | 1430                                                                                | 368                                                                                 | 1774                                                                                | 1857                                                                                                                                                                    | 1509                                                                                |
| Grp Volume(v), veh/h         | 102                                                                               | 436                                                                                                                                                                 | 112                                                                               | 49                                                                                | 733                                                                                                                                                                 | 185                                                                               | 194                                                                                                                                                                    | 0                                                                                   | 293                                                                                 | 72                                                                                  | 153                                                                                                                                                                     | 148                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 1770                                                                                                                                                                | 1583                                                                              | 1721                                                                                                                                                                   | 0                                                                                   | 1798                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1596                                                                                |
| Q Serve(g_s), s              | 3.9                                                                               | 7.6                                                                                                                                                                 | 0.0                                                                               | 1.7                                                                               | 13.9                                                                                                                                                                | 3.7                                                                               | 3.2                                                                                                                                                                    | 0.0                                                                                 | 9.2                                                                                 | 2.8                                                                                 | 5.7                                                                                                                                                                     | 6.2                                                                                 |
| Cycle Q Clear(g_c), s        | 3.9                                                                               | 7.6                                                                                                                                                                 | 0.0                                                                               | 1.7                                                                               | 13.9                                                                                                                                                                | 3.7                                                                               | 3.2                                                                                                                                                                    | 0.0                                                                                 | 9.2                                                                                 | 2.8                                                                                 | 5.7                                                                                                                                                                     | 6.2                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                                                                                                   |                                                                                     | 0.20                                                                                | 1.00                                                                                |                                                                                                                                                                         | 0.95                                                                                |
| Lane Grp Cap(c), veh/h       | 129                                                                               | 587                                                                                                                                                                 | 643                                                                               | 259                                                                               | 847                                                                                                                                                                 | 461                                                                               | 827                                                                                                                                                                    | 0                                                                                   | 579                                                                                 | 92                                                                                  | 236                                                                                                                                                                     | 213                                                                                 |
| V/C Ratio(X)                 | 0.79                                                                              | 0.74                                                                                                                                                                | 0.17                                                                              | 0.19                                                                              | 0.87                                                                                                                                                                | 0.40                                                                              | 0.23                                                                                                                                                                   | 0.00                                                                                | 0.51                                                                                | 0.78                                                                                | 0.65                                                                                                                                                                    | 0.69                                                                                |
| Avail Cap(c_a), veh/h        | 165                                                                               | 935                                                                                                                                                                 | 799                                                                               | 259                                                                               | 885                                                                                                                                                                 | 478                                                                               | 827                                                                                                                                                                    | 0                                                                                   | 579                                                                                 | 114                                                                                 | 468                                                                                                                                                                     | 422                                                                                 |
| HCM Platoon Ratio            | 2.00                                                                              | 2.00                                                                                                                                                                | 2.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)           | 0.79                                                                              | 0.79                                                                                                                                                                | 0.79                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                   | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 29.4                                                                              | 22.1                                                                                                                                                                | 10.5                                                                              | 26.2                                                                              | 25.5                                                                                                                                                                | 7.3                                                                               | 21.4                                                                                                                                                                   | 0.0                                                                                 | 19.2                                                                                | 32.8                                                                                | 28.8                                                                                                                                                                    | 29.0                                                                                |
| Incr Delay (d2), s/veh       | 14.5                                                                              | 1.5                                                                                                                                                                 | 0.1                                                                               | 0.3                                                                               | 8.7                                                                                                                                                                 | 0.6                                                                               | 0.1                                                                                                                                                                    | 0.0                                                                                 | 3.1                                                                                 | 24.1                                                                                | 12.9                                                                                                                                                                    | 17.1                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                                                                                                    | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.4                                                                               | 3.8                                                                                                                                                                 | 1.1                                                                               | 0.9                                                                               | 7.7                                                                                                                                                                 | 2.0                                                                               | 1.5                                                                                                                                                                    | 0.0                                                                                 | 5.1                                                                                 | 2.0                                                                                 | 3.7                                                                                                                                                                     | 3.7                                                                                 |
| LnGrp Delay(d),s/veh         | 43.9                                                                              | 23.5                                                                                                                                                                | 10.6                                                                              | 26.6                                                                              | 34.3                                                                                                                                                                | 7.8                                                                               | 21.6                                                                                                                                                                   | 0.0                                                                                 | 22.4                                                                                | 56.9                                                                                | 41.7                                                                                                                                                                    | 46.1                                                                                |
| LnGrp LOS                    | D                                                                                 | C                                                                                                                                                                   | B                                                                                 | C                                                                                 | C                                                                                                                                                                   | A                                                                                 | C                                                                                                                                                                      |                                                                                     | C                                                                                   | E                                                                                   | D                                                                                                                                                                       | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 650                                                                                                                                                                 |                                                                                   |                                                                                   | 967                                                                                                                                                                 |                                                                                   |                                                                                                                                                                        | 487                                                                                 |                                                                                     |                                                                                     | 373                                                                                                                                                                     |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 24.5                                                                                                                                                                |                                                                                   |                                                                                   | 28.8                                                                                                                                                                |                                                                                   |                                                                                                                                                                        | 22.0                                                                                |                                                                                     |                                                                                     | 46.4                                                                                                                                                                    |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                                                                                                   |                                                                                   |                                                                                   | C                                                                                                                                                                   |                                                                                   |                                                                                                                                                                        | C                                                                                   |                                                                                     |                                                                                     | D                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                                                                                                      | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                                                                                                      | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 9.1                                                                               | 28.0                                                                                                                                                                | 15.7                                                                              | 17.1                                                                              | 22.3                                                                                                                                                                | 14.8                                                                              | 10.6                                                                                                                                                                   | 22.3                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                                                                                                                    | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 19.5                                                                                                                                                                | 5.5                                                                               | 18.5                                                                              | 5.5                                                                                                                                                                 | 18.5                                                                              | 6.5                                                                                                                                                                    | 17.5                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 4.8                                                                               | 11.2                                                                                                                                                                | 3.7                                                                               | 9.6                                                                               | 5.2                                                                                                                                                                 | 8.2                                                                               | 5.9                                                                                                                                                                    | 15.9                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.0                                                                                                                                                                 | 0.0                                                                               | 2.0                                                                               | 0.0                                                                                                                                                                 | 1.1                                                                               | 0.0                                                                                                                                                                    | 0.8                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                        |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                                                                                                     |                                                                                   | 29.0                                                                              |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                        |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                                                                                                     |                                                                                   | C                                                                                 |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                        |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 3: Lasselle St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 154                                                                               | 195                                                                               | 140                                                                               | 116                                                                               | 543                                                                               | 36                                                                                | 267                                                                                | 404                                                                                 | 125                                                                                 | 110                                                                                 | 322                                                                                 | 68                                                                                  |
| Future Volume (veh/h)        | 154                                                                               | 195                                                                               | 140                                                                               | 116                                                                               | 543                                                                               | 36                                                                                | 267                                                                                | 404                                                                                 | 125                                                                                 | 110                                                                                 | 322                                                                                 | 68                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 179                                                                               | 227                                                                               | 163                                                                               | 135                                                                               | 631                                                                               | 42                                                                                | 310                                                                                | 470                                                                                 | 145                                                                                 | 128                                                                                 | 374                                                                                 | 79                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                  | 1                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                               | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 152                                                                               | 328                                                                               | 245                                                                               | 346                                                                               | 532                                                                               | 520                                                                               | 374                                                                                | 585                                                                                 | 807                                                                                 | 152                                                                                 | 552                                                                                 | 115                                                                                 |
| Arrive On Green              | 0.09                                                                              | 0.18                                                                              | 0.15                                                                              | 0.20                                                                              | 0.29                                                                              | 0.26                                                                              | 0.42                                                                               | 0.63                                                                                | 0.63                                                                                | 0.03                                                                                | 0.06                                                                                | 0.06                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 2915                                                                                | 610                                                                                 |
| Grp Volume(v), veh/h         | 179                                                                               | 227                                                                               | 163                                                                               | 135                                                                               | 631                                                                               | 42                                                                                | 310                                                                                | 470                                                                                 | 145                                                                                 | 128                                                                                 | 226                                                                                 | 227                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 1770                                                                                | 1755                                                                                |
| Q Serve(g_s), s              | 6.0                                                                               | 8.0                                                                               | 6.8                                                                               | 4.6                                                                               | 20.0                                                                              | 1.3                                                                               | 10.9                                                                               | 13.2                                                                                | 0.5                                                                                 | 5.0                                                                                 | 8.7                                                                                 | 8.9                                                                                 |
| Cycle Q Clear(g_c), s        | 6.0                                                                               | 8.0                                                                               | 6.8                                                                               | 4.6                                                                               | 20.0                                                                              | 1.3                                                                               | 10.9                                                                               | 13.2                                                                                | 0.5                                                                                 | 5.0                                                                                 | 8.7                                                                                 | 8.9                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.35                                                                                |
| Lane Grp Cap(c), veh/h       | 152                                                                               | 328                                                                               | 245                                                                               | 346                                                                               | 532                                                                               | 520                                                                               | 374                                                                                | 585                                                                                 | 807                                                                                 | 152                                                                                 | 335                                                                                 | 332                                                                                 |
| V/C Ratio(X)                 | 1.18                                                                              | 0.69                                                                              | 0.67                                                                              | 0.39                                                                              | 1.19                                                                              | 0.08                                                                              | 0.83                                                                               | 0.80                                                                                | 0.18                                                                                | 0.84                                                                                | 0.67                                                                                | 0.68                                                                                |
| Avail Cap(c_a), veh/h        | 152                                                                               | 479                                                                               | 373                                                                               | 346                                                                               | 532                                                                               | 520                                                                               | 374                                                                                | 585                                                                                 | 807                                                                                 | 152                                                                                 | 455                                                                                 | 451                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                               | 2.00                                                                                | 2.00                                                                                | 0.33                                                                                | 0.33                                                                                | 0.33                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.76                                                                              | 0.76                                                                              | 0.76                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 32.0                                                                              | 27.1                                                                              | 27.9                                                                              | 24.5                                                                              | 25.0                                                                              | 16.2                                                                              | 19.1                                                                               | 11.4                                                                                | 1.2                                                                                 | 33.5                                                                                | 30.7                                                                                | 30.8                                                                                |
| Incr Delay (d2), s/veh       | 128.5                                                                             | 2.6                                                                               | 3.1                                                                               | 0.5                                                                               | 97.7                                                                              | 0.1                                                                               | 14.5                                                                               | 11.1                                                                                | 0.5                                                                                 | 32.5                                                                                | 10.3                                                                                | 10.9                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 8.3                                                                               | 4.3                                                                               | 3.2                                                                               | 2.3                                                                               | 24.6                                                                              | 0.6                                                                               | 6.7                                                                                | 8.3                                                                                 | 0.5                                                                                 | 3.9                                                                                 | 5.2                                                                                 | 5.3                                                                                 |
| LnGrp Delay(d),s/veh         | 160.5                                                                             | 29.7                                                                              | 31.0                                                                              | 25.1                                                                              | 122.7                                                                             | 16.3                                                                              | 33.6                                                                               | 22.5                                                                                | 1.7                                                                                 | 66.0                                                                                | 41.0                                                                                | 41.7                                                                                |
| LnGrp LOS                    | F                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 | F                                                                                 | B                                                                                 | C                                                                                  | C                                                                                   | A                                                                                   | E                                                                                   | D                                                                                   | D                                                                                   |
| Approach Vol, veh/h          | 569                                                                               |                                                                                   |                                                                                   |                                                                                   | 808                                                                               |                                                                                   |                                                                                    |                                                                                     | 925                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 71.2                                                                              |                                                                                   |                                                                                   |                                                                                   | 100.8                                                                             |                                                                                   |                                                                                    |                                                                                     | 23.0                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                 | E                                                                                 |                                                                                   |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                    |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 10.0                                                                              | 26.0                                                                              | 17.7                                                                              | 16.3                                                                              | 18.7                                                                              | 17.3                                                                              | 10.0                                                                               | 24.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 20.5                                                                              | 6.5                                                                               | 16.5                                                                              | 8.5                                                                               | 16.5                                                                              | 4.5                                                                                | 18.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 7.0                                                                               | 15.2                                                                              | 6.6                                                                               | 10.0                                                                              | 12.9                                                                              | 10.9                                                                              | 8.0                                                                                | 22.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.2                                                                               | 0.0                                                                               | 0.8                                                                               | 0.0                                                                               | 0.9                                                                               | 0.0                                                                                | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          | 59.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 | E                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 4: Nason St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 58                                                                                | 161                                                                               | 70                                                                                | 69                                                                                | 262                                                                               | 63                                                                                | 72                                                                                 | 364                                                                                 | 21                                                                                  | 34                                                                                  | 475                                                                                 | 55                                                                                  |
| Future Volume (veh/h)        | 58                                                                                | 161                                                                               | 70                                                                                | 69                                                                                | 262                                                                               | 63                                                                                | 72                                                                                 | 364                                                                                 | 21                                                                                  | 34                                                                                  | 475                                                                                 | 55                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 69                                                                                | 192                                                                               | 83                                                                                | 82                                                                                | 312                                                                               | 75                                                                                | 86                                                                                 | 433                                                                                 | 25                                                                                  | 40                                                                                  | 565                                                                                 | 65                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                  | 2                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                               | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 92                                                                                | 371                                                                               | 316                                                                               | 104                                                                               | 384                                                                               | 326                                                                               | 109                                                                                | 1110                                                                                | 64                                                                                  | 65                                                                                  | 1067                                                                                | 477                                                                                 |
| Arrive On Green              | 0.05                                                                              | 0.20                                                                              | 0.20                                                                              | 0.06                                                                              | 0.21                                                                              | 0.21                                                                              | 0.06                                                                               | 0.33                                                                                | 0.33                                                                                | 0.04                                                                                | 0.30                                                                                | 0.30                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 3402                                                                                | 196                                                                                 | 1774                                                                                | 3539                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 69                                                                                | 192                                                                               | 83                                                                                | 82                                                                                | 312                                                                               | 75                                                                                | 86                                                                                 | 225                                                                                 | 233                                                                                 | 40                                                                                  | 565                                                                                 | 65                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1770                                                                                | 1828                                                                                | 1774                                                                                | 1770                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 2.2                                                                               | 5.3                                                                               | 2.6                                                                               | 2.6                                                                               | 9.3                                                                               | 2.3                                                                               | 2.8                                                                                | 5.7                                                                                 | 5.7                                                                                 | 1.3                                                                                 | 7.7                                                                                 | 1.7                                                                                 |
| Cycle Q Clear(g_c), s        | 2.2                                                                               | 5.3                                                                               | 2.6                                                                               | 2.6                                                                               | 9.3                                                                               | 2.3                                                                               | 2.8                                                                                | 5.7                                                                                 | 5.7                                                                                 | 1.3                                                                                 | 7.7                                                                                 | 1.7                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.11                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 92                                                                                | 371                                                                               | 316                                                                               | 104                                                                               | 384                                                                               | 326                                                                               | 109                                                                                | 577                                                                                 | 596                                                                                 | 65                                                                                  | 1067                                                                                | 477                                                                                 |
| V/C Ratio(X)                 | 0.75                                                                              | 0.52                                                                              | 0.26                                                                              | 0.79                                                                              | 0.81                                                                              | 0.23                                                                              | 0.79                                                                               | 0.39                                                                                | 0.39                                                                                | 0.61                                                                                | 0.53                                                                                | 0.14                                                                                |
| Avail Cap(c_a), veh/h        | 137                                                                               | 529                                                                               | 450                                                                               | 137                                                                               | 529                                                                               | 450                                                                               | 137                                                                                | 577                                                                                 | 596                                                                                 | 137                                                                                 | 1067                                                                                | 477                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 27.1                                                                              | 20.8                                                                              | 19.6                                                                              | 27.0                                                                              | 22.0                                                                              | 19.2                                                                              | 26.9                                                                               | 15.1                                                                                | 15.1                                                                                | 27.6                                                                                | 16.9                                                                                | 14.8                                                                                |
| Incr Delay (d2), s/veh       | 11.5                                                                              | 1.1                                                                               | 0.4                                                                               | 19.5                                                                              | 6.7                                                                               | 0.4                                                                               | 20.5                                                                               | 2.0                                                                                 | 1.9                                                                                 | 8.9                                                                                 | 1.9                                                                                 | 0.6                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.4                                                                               | 2.8                                                                               | 1.2                                                                               | 1.9                                                                               | 5.5                                                                               | 1.0                                                                               | 2.0                                                                                | 3.1                                                                                 | 3.2                                                                                 | 0.8                                                                                 | 4.0                                                                                 | 0.8                                                                                 |
| LnGrp Delay(d),s/veh         | 38.6                                                                              | 21.9                                                                              | 20.1                                                                              | 46.5                                                                              | 28.7                                                                              | 19.6                                                                              | 47.4                                                                               | 17.1                                                                                | 17.0                                                                                | 36.5                                                                                | 18.8                                                                                | 15.4                                                                                |
| LnGrp LOS                    | D                                                                                 | C                                                                                 | C                                                                                 | D                                                                                 | C                                                                                 | B                                                                                 | D                                                                                  | B                                                                                   | B                                                                                   | D                                                                                   | B                                                                                   | B                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 344                                                                               |                                                                                   |                                                                                   | 469                                                                               |                                                                                   |                                                                                    | 544                                                                                 |                                                                                     |                                                                                     | 670                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 24.8                                                                              |                                                                                   |                                                                                   | 30.3                                                                              |                                                                                   |                                                                                    | 21.9                                                                                |                                                                                     |                                                                                     | 19.5                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.6                                                                               | 24.4                                                                              | 8.9                                                                               | 17.1                                                                              | 9.1                                                                               | 23.0                                                                              | 8.5                                                                                | 17.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 17.5                                                                              | 4.5                                                                               | 16.5                                                                              | 4.5                                                                               | 17.5                                                                              | 4.5                                                                                | 16.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.3                                                                               | 7.7                                                                               | 4.6                                                                               | 7.3                                                                               | 4.8                                                                               | 9.7                                                                               | 4.2                                                                                | 11.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.2                                                                               | 0.0                                                                               | 0.6                                                                               | 0.0                                                                               | 1.8                                                                               | 0.0                                                                                | 0.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   | 23.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 5: Lassell St & Cottonwood Ave

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 40                                                                                | 216                                                                               | 54                                                                                | 54                                                                                | 268                                                                               | 38                                                                                | 83                                                                                 | 305                                                                                 | 65                                                                                  | 26                                                                                  | 263                                                                                 | 64                                                                                  |
| Future Volume (veh/h)        | 40                                                                                | 216                                                                               | 54                                                                                | 54                                                                                | 268                                                                               | 38                                                                                | 83                                                                                 | 305                                                                                 | 65                                                                                  | 26                                                                                  | 263                                                                                 | 64                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 50                                                                                | 270                                                                               | 68                                                                                | 68                                                                                | 335                                                                               | 48                                                                                | 104                                                                                | 381                                                                                 | 81                                                                                  | 32                                                                                  | 329                                                                                 | 80                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                 | 1                                                                                  | 1                                                                                   | 0                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                               | 0.80                                                                                | 0.80                                                                                | 0.80                                                                                | 0.80                                                                                | 0.80                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 71                                                                                | 309                                                                               | 78                                                                                | 87                                                                                | 696                                                                               | 99                                                                                | 133                                                                                | 426                                                                                 | 91                                                                                  | 242                                                                                 | 647                                                                                 | 550                                                                                 |
| Arrive On Green              | 0.04                                                                              | 0.21                                                                              | 0.21                                                                              | 0.05                                                                              | 0.22                                                                              | 0.22                                                                              | 0.07                                                                               | 0.29                                                                                | 0.29                                                                                | 0.14                                                                                | 0.35                                                                                | 0.35                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1437                                                                              | 362                                                                               | 1774                                                                              | 3112                                                                              | 442                                                                               | 1774                                                                               | 1490                                                                                | 317                                                                                 | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 50                                                                                | 0                                                                                 | 338                                                                               | 68                                                                                | 189                                                                               | 194                                                                               | 104                                                                                | 0                                                                                   | 462                                                                                 | 32                                                                                  | 329                                                                                 | 80                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 0                                                                                 | 1799                                                                              | 1774                                                                              | 1770                                                                              | 1785                                                                              | 1774                                                                               | 0                                                                                   | 1807                                                                                | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 1.9                                                                               | 0.0                                                                               | 12.7                                                                              | 2.7                                                                               | 6.5                                                                               | 6.6                                                                               | 4.0                                                                                | 0.0                                                                                 | 17.2                                                                                | 1.1                                                                                 | 9.8                                                                                 | 2.4                                                                                 |
| Cycle Q Clear(g_c), s        | 1.9                                                                               | 0.0                                                                               | 12.7                                                                              | 2.7                                                                               | 6.5                                                                               | 6.6                                                                               | 4.0                                                                                | 0.0                                                                                 | 17.2                                                                                | 1.1                                                                                 | 9.8                                                                                 | 2.4                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.20                                                                              | 1.00                                                                              |                                                                                   | 0.25                                                                              | 1.00                                                                               |                                                                                     | 0.18                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 71                                                                                | 0                                                                                 | 387                                                                               | 87                                                                                | 396                                                                               | 399                                                                               | 133                                                                                | 0                                                                                   | 517                                                                                 | 242                                                                                 | 647                                                                                 | 550                                                                                 |
| V/C Ratio(X)                 | 0.71                                                                              | 0.00                                                                              | 0.87                                                                              | 0.79                                                                              | 0.48                                                                              | 0.49                                                                              | 0.78                                                                               | 0.00                                                                                | 0.89                                                                                | 0.13                                                                                | 0.51                                                                                | 0.15                                                                                |
| Avail Cap(c_a), veh/h        | 114                                                                               | 0                                                                                 | 424                                                                               | 114                                                                               | 417                                                                               | 421                                                                               | 139                                                                                | 0                                                                                   | 581                                                                                 | 242                                                                                 | 647                                                                                 | 550                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 33.2                                                                              | 0.0                                                                               | 26.6                                                                              | 32.9                                                                              | 23.6                                                                              | 23.7                                                                              | 31.8                                                                               | 0.0                                                                                 | 24.0                                                                                | 26.6                                                                                | 18.1                                                                                | 15.7                                                                                |
| Incr Delay (d2), s/veh       | 12.0                                                                              | 0.0                                                                               | 17.0                                                                              | 22.7                                                                              | 0.9                                                                               | 0.9                                                                               | 23.8                                                                               | 0.0                                                                                 | 20.6                                                                                | 0.2                                                                                 | 2.8                                                                                 | 0.6                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.2                                                                               | 0.0                                                                               | 8.1                                                                               | 1.8                                                                               | 3.3                                                                               | 3.3                                                                               | 2.8                                                                                | 0.0                                                                                 | 11.4                                                                                | 0.6                                                                                 | 5.5                                                                                 | 1.1                                                                                 |
| LnGrp Delay(d),s/veh         | 45.2                                                                              | 0.0                                                                               | 43.6                                                                              | 55.6                                                                              | 24.5                                                                              | 24.6                                                                              | 55.6                                                                               | 0.0                                                                                 | 44.6                                                                                | 26.8                                                                                | 21.0                                                                                | 16.3                                                                                |
| LnGrp LOS                    | D                                                                                 |                                                                                   | D                                                                                 | E                                                                                 | C                                                                                 | C                                                                                 | E                                                                                  |                                                                                     | D                                                                                   | C                                                                                   | C                                                                                   | B                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 388                                                                               |                                                                                   |                                                                                   | 451                                                                               |                                                                                   |                                                                                    | 566                                                                                 |                                                                                     |                                                                                     | 441                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 43.8                                                                              |                                                                                   |                                                                                   | 29.2                                                                              |                                                                                   |                                                                                    | 46.6                                                                                |                                                                                     |                                                                                     | 20.5                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 15.0                                                                              | 25.5                                                                              | 8.9                                                                               | 20.5                                                                              | 10.7                                                                              | 29.8                                                                              | 8.3                                                                                | 21.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 22.5                                                                              | 4.5                                                                               | 16.5                                                                              | 5.5                                                                               | 21.5                                                                              | 4.5                                                                                | 16.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.1                                                                               | 19.2                                                                              | 4.7                                                                               | 14.7                                                                              | 6.0                                                                               | 11.8                                                                              | 3.9                                                                                | 8.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.8                                                                               | 0.0                                                                               | 0.3                                                                               | 0.0                                                                               | 1.4                                                                               | 0.0                                                                                | 1.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 35.5                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 6: Lassell St & Bay Ave

02/22/2021

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 16                                                                                | 46                                                                                | 17                                                                                | 64                                                                                | 71                                                                                | 50                                                                                | 28                                                                                  | 387                                                                                 | 46                                                                                  | 28                                                                                  | 349                                                                                 | 4                                                                                   |
| Future Volume (veh/h)        | 16                                                                                | 46                                                                                | 17                                                                                | 64                                                                                | 71                                                                                | 50                                                                                | 28                                                                                  | 387                                                                                 | 46                                                                                  | 28                                                                                  | 349                                                                                 | 4                                                                                   |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                   | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                                | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 19                                                                                | 53                                                                                | 20                                                                                | 74                                                                                | 83                                                                                | 58                                                                                | 33                                                                                  | 450                                                                                 | 53                                                                                  | 33                                                                                  | 406                                                                                 | 5                                                                                   |
| Adj No. of Lanes             | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                   | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 94                                                                                | 193                                                                               | 62                                                                                | 144                                                                               | 118                                                                               | 71                                                                                | 54                                                                                  | 935                                                                                 | 110                                                                                 | 54                                                                                  | 2047                                                                                | 25                                                                                  |
| Arrive On Green              | 0.16                                                                              | 0.16                                                                              | 0.16                                                                              | 0.16                                                                              | 0.16                                                                              | 0.16                                                                              | 0.06                                                                                | 1.00                                                                                | 1.00                                                                                | 0.03                                                                                | 0.57                                                                                | 0.57                                                                                |
| Sat Flow, veh/h              | 198                                                                               | 1190                                                                              | 385                                                                               | 462                                                                               | 730                                                                               | 440                                                                               | 1774                                                                                | 1636                                                                                | 193                                                                                 | 1774                                                                                | 3581                                                                                | 44                                                                                  |
| Grp Volume(v), veh/h         | 92                                                                                | 0                                                                                 | 0                                                                                 | 215                                                                               | 0                                                                                 | 0                                                                                 | 33                                                                                  | 0                                                                                   | 503                                                                                 | 33                                                                                  | 201                                                                                 | 210                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1773                                                                              | 0                                                                                 | 0                                                                                 | 1632                                                                              | 0                                                                                 | 0                                                                                 | 1774                                                                                | 0                                                                                   | 1829                                                                                | 1774                                                                                | 1770                                                                                | 1855                                                                                |
| Q Serve(g_s), s              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 5.6                                                                               | 0.0                                                                               | 0.0                                                                               | 1.3                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 1.3                                                                                 | 3.8                                                                                 | 3.8                                                                                 |
| Cycle Q Clear(g_c), s        | 3.2                                                                               | 0.0                                                                               | 0.0                                                                               | 8.8                                                                               | 0.0                                                                               | 0.0                                                                               | 1.3                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 1.3                                                                                 | 3.8                                                                                 | 3.8                                                                                 |
| Prop In Lane                 | 0.21                                                                              |                                                                                   | 0.22                                                                              | 0.34                                                                              |                                                                                   | 0.27                                                                              | 1.00                                                                                |                                                                                     | 0.11                                                                                | 1.00                                                                                |                                                                                     | 0.02                                                                                |
| Lane Grp Cap(c), veh/h       | 349                                                                               | 0                                                                                 | 0                                                                                 | 334                                                                               | 0                                                                                 | 0                                                                                 | 54                                                                                  | 0                                                                                   | 1046                                                                                | 54                                                                                  | 1012                                                                                | 1061                                                                                |
| V/C Ratio(X)                 | 0.26                                                                              | 0.00                                                                              | 0.00                                                                              | 0.64                                                                              | 0.00                                                                              | 0.00                                                                              | 0.61                                                                                | 0.00                                                                                | 0.48                                                                                | 0.61                                                                                | 0.20                                                                                | 0.20                                                                                |
| Avail Cap(c_a), veh/h        | 493                                                                               | 0                                                                                 | 0                                                                                 | 471                                                                               | 0                                                                                 | 0                                                                                 | 114                                                                                 | 0                                                                                   | 1046                                                                                | 139                                                                                 | 1012                                                                                | 1061                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                                | 2.00                                                                                | 2.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 25.9                                                                              | 0.0                                                                               | 0.0                                                                               | 28.1                                                                              | 0.0                                                                               | 0.0                                                                               | 32.5                                                                                | 0.0                                                                                 | 0.0                                                                                 | 33.5                                                                                | 7.2                                                                                 | 7.2                                                                                 |
| Incr Delay (d2), s/veh       | 0.4                                                                               | 0.0                                                                               | 0.0                                                                               | 2.1                                                                               | 0.0                                                                               | 0.0                                                                               | 10.7                                                                                | 0.0                                                                                 | 1.6                                                                                 | 10.7                                                                                | 0.4                                                                                 | 0.4                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.6                                                                               | 0.0                                                                               | 0.0                                                                               | 4.2                                                                               | 0.0                                                                               | 0.0                                                                               | 0.8                                                                                 | 0.0                                                                                 | 0.5                                                                                 | 0.8                                                                                 | 2.0                                                                                 | 2.1                                                                                 |
| LnGrp Delay(d),s/veh         | 26.3                                                                              | 0.0                                                                               | 0.0                                                                               | 30.2                                                                              | 0.0                                                                               | 0.0                                                                               | 43.1                                                                                | 0.0                                                                                 | 1.6                                                                                 | 44.2                                                                                | 7.7                                                                                 | 7.7                                                                                 |
| LnGrp LOS                    | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | D                                                                                   |                                                                                     | A                                                                                   | D                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 92                                                                                |                                                                                   |                                                                                   | 215                                                                               |                                                                                   |                                                                                     | 536                                                                                 |                                                                                     |                                                                                     | 444                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 26.3                                                                              |                                                                                   |                                                                                   | 30.2                                                                              |                                                                                   |                                                                                     | 4.1                                                                                 |                                                                                     |                                                                                     | 10.4                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.6                                                                               | 45.5                                                                              |                                                                                   | 16.8                                                                              | 7.6                                                                               | 45.5                                                                              |                                                                                     | 16.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               |                                                                                   | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               |                                                                                     | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 30.5                                                                              |                                                                                   | 17.5                                                                              | 4.5                                                                               | 31.5                                                                              |                                                                                     | 17.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.3                                                                               | 2.0                                                                               |                                                                                   | 5.2                                                                               | 3.3                                                                               | 5.8                                                                               |                                                                                     | 10.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 3.1                                                                               |                                                                                   | 0.3                                                                               | 0.0                                                                               | 2.1                                                                               |                                                                                     | 0.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 12.2                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

**Intersection**

Int Delay, s/veh 1.1

| Movement                 | EBL                                                                               | EBR  | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |  |      |  |  |  |      |
| Traffic Vol, veh/h       | 29                                                                                | 37   | 35                                                                                | 657                                                                               | 490                                                                               | 49   |
| Future Vol, veh/h        | 29                                                                                | 37   | 35                                                                                | 657                                                                               | 490                                                                               | 49   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -    | 200                                                                               | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 92                                                                                | 92   | 92                                                                                | 92                                                                                | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 32                                                                                | 40   | 38                                                                                | 714                                                                               | 533                                                                               | 53   |

| Major/Minor          | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 993    | 293    | 586    |
| Stage 1              | 560    | -      | -      |
| Stage 2              | 433    | -      | -      |
| Critical Hdwy        | 6.84   | 6.94   | 4.14   |
| Critical Hdwy Stg 1  | 5.84   | -      | -      |
| Critical Hdwy Stg 2  | 5.84   | -      | -      |
| Follow-up Hdwy       | 3.52   | 3.32   | 2.22   |
| Pot Cap-1 Maneuver   | 242    | 703    | 985    |
| Stage 1              | 535    | -      | -      |
| Stage 2              | 621    | -      | -      |
| Platoon blocked, %   |        |        |        |
| Mov Cap-1 Maneuver   | 233    | 703    | 985    |
| Mov Cap-2 Maneuver   | 233    | -      | -      |
| Stage 1              | 514    | -      | -      |
| Stage 2              | 621    | -      | -      |

| Approach             | EB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 16.9 | 0.4 | 0  |
| HCM LOS              | C    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 985   | -   | 373   | -   | -   |
| HCM Lane V/C Ratio    | 0.039 | -   | 0.192 | -   | -   |
| HCM Control Delay (s) | 8.8   | -   | 16.9  | -   | -   |
| HCM Lane LOS          | A     | -   | C     | -   | -   |
| HCM 95th %tile Q(veh) | 0.1   | -   | 0.7   | -   | -   |

# HCM 2010 Signalized Intersection Summary

## 8: Lassell St & Catcus Ave

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 76                                                                                | 371                                                                               | 137                                                                               | 211                                                                               | 456                                                                               | 43                                                                                | 144                                                                                | 592                                                                                 | 284                                                                                 | 52                                                                                  | 421                                                                                 | 64                                                                                  |
| Future Volume (veh/h)        | 76                                                                                | 371                                                                               | 137                                                                               | 211                                                                               | 456                                                                               | 43                                                                                | 144                                                                                | 592                                                                                 | 284                                                                                 | 52                                                                                  | 421                                                                                 | 64                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 90                                                                                | 442                                                                               | 163                                                                               | 251                                                                               | 543                                                                               | 51                                                                                | 171                                                                                | 705                                                                                 | 0                                                                                   | 62                                                                                  | 501                                                                                 | 76                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                  | 2                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                               | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 297                                                                               | 572                                                                               | 209                                                                               | 279                                                                               | 761                                                                               | 340                                                                               | 322                                                                                | 1142                                                                                | 511                                                                                 | 118                                                                                 | 641                                                                                 | 97                                                                                  |
| Arrive On Green              | 0.17                                                                              | 0.23                                                                              | 0.20                                                                              | 0.16                                                                              | 0.21                                                                              | 0.21                                                                              | 0.18                                                                               | 0.32                                                                                | 0.00                                                                                | 0.13                                                                                | 0.42                                                                                | 0.37                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 2540                                                                              | 928                                                                               | 1774                                                                              | 3539                                                                              | 1583                                                                              | 1774                                                                               | 3539                                                                                | 1583                                                                                | 1774                                                                                | 3084                                                                                | 466                                                                                 |
| Grp Volume(v), veh/h         | 90                                                                                | 307                                                                               | 298                                                                               | 251                                                                               | 543                                                                               | 51                                                                                | 171                                                                                | 705                                                                                 | 0                                                                                   | 62                                                                                  | 287                                                                                 | 290                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                              | 1699                                                                              | 1774                                                                              | 1770                                                                              | 1583                                                                              | 1774                                                                               | 1770                                                                                | 1583                                                                                | 1774                                                                                | 1770                                                                                | 1781                                                                                |
| Q Serve(g_s), s              | 3.1                                                                               | 11.4                                                                              | 11.6                                                                              | 9.7                                                                               | 10.0                                                                              | 1.3                                                                               | 6.1                                                                                | 11.8                                                                                | 0.0                                                                                 | 2.3                                                                                 | 9.8                                                                                 | 10.0                                                                                |
| Cycle Q Clear(g_c), s        | 3.1                                                                               | 11.4                                                                              | 11.6                                                                              | 9.7                                                                               | 10.0                                                                              | 1.3                                                                               | 6.1                                                                                | 11.8                                                                                | 0.0                                                                                 | 2.3                                                                                 | 9.8                                                                                 | 10.0                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.55                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.26                                                                                |
| Lane Grp Cap(c), veh/h       | 297                                                                               | 398                                                                               | 382                                                                               | 279                                                                               | 761                                                                               | 340                                                                               | 322                                                                                | 1142                                                                                | 511                                                                                 | 118                                                                                 | 368                                                                                 | 370                                                                                 |
| V/C Ratio(X)                 | 0.30                                                                              | 0.77                                                                              | 0.78                                                                              | 0.90                                                                              | 0.71                                                                              | 0.15                                                                              | 0.53                                                                               | 0.62                                                                                | 0.00                                                                                | 0.53                                                                                | 0.78                                                                                | 0.79                                                                                |
| Avail Cap(c_a), veh/h        | 297                                                                               | 442                                                                               | 425                                                                               | 279                                                                               | 1036                                                                              | 464                                                                               | 322                                                                                | 1142                                                                                | 511                                                                                 | 152                                                                                 | 468                                                                                 | 471                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 2.00                                                                                | 2.00                                                                                | 2.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 25.6                                                                              | 25.4                                                                              | 25.9                                                                              | 29.0                                                                              | 25.5                                                                              | 11.4                                                                              | 25.9                                                                               | 20.0                                                                                | 0.0                                                                                 | 29.3                                                                                | 19.1                                                                                | 19.5                                                                                |
| Incr Delay (d2), s/veh       | 0.6                                                                               | 7.3                                                                               | 8.2                                                                               | 29.6                                                                              | 1.5                                                                               | 0.2                                                                               | 1.7                                                                                | 2.5                                                                                 | 0.0                                                                                 | 3.6                                                                                 | 15.0                                                                                | 15.4                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.6                                                                               | 6.4                                                                               | 6.3                                                                               | 7.0                                                                               | 5.0                                                                               | 0.8                                                                               | 3.1                                                                                | 6.2                                                                                 | 0.0                                                                                 | 1.2                                                                                 | 6.1                                                                                 | 6.4                                                                                 |
| LnGrp Delay(d),s/veh         | 26.1                                                                              | 32.8                                                                              | 34.1                                                                              | 58.6                                                                              | 27.0                                                                              | 11.6                                                                              | 27.6                                                                               | 22.6                                                                                | 0.0                                                                                 | 32.9                                                                                | 34.1                                                                                | 34.8                                                                                |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | E                                                                                 | C                                                                                 | B                                                                                 | C                                                                                  | C                                                                                   |                                                                                     | C                                                                                   | C                                                                                   | C                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 695                                                                               |                                                                                   |                                                                                   | 845                                                                               |                                                                                   |                                                                                    | 876                                                                                 |                                                                                     |                                                                                     | 639                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 32.5                                                                              |                                                                                   |                                                                                   | 35.4                                                                              |                                                                                   |                                                                                    | 23.5                                                                                |                                                                                     |                                                                                     | 34.3                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.7                                                                               | 26.6                                                                              | 15.0                                                                              | 19.8                                                                              | 16.7                                                                              | 18.5                                                                              | 15.7                                                                               | 19.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 18.0                                                                              | 9.5                                                                               | 16.0                                                                              | 5.5                                                                               | 17.0                                                                              | 6.5                                                                                | 19.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 4.3                                                                               | 13.8                                                                              | 11.7                                                                              | 13.6                                                                              | 8.1                                                                               | 12.0                                                                              | 5.1                                                                                | 12.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.3                                                                               | 0.0                                                                               | 0.7                                                                               | 0.0                                                                               | 1.1                                                                               | 0.0                                                                                | 1.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 31.1                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

HCM 2010 TWSC  
9: Alessandro Blvd & Driveway A

02/22/2021

Intersection

Int Delay, s/veh 0.5

| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      |      | ↑    | ↑    |      |      | ↑    |
| Traffic Vol, veh/h       | 0    | 360  | 770  | 22   | 0    | 40   |
| Future Vol, veh/h        | 0    | 360  | 770  | 22   | 0    | 40   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 0    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 0    | 391  | 837  | 24   | 0    | 43   |

| Major/Minor          | Major1 | Major2 | Minor2    |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | -      | 0      | - 0 - 849 |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |
| Critical Hdwy        | -      | -      | - - 6.22  |
| Critical Hdwy Stg 1  | -      | -      | - - -     |
| Critical Hdwy Stg 2  | -      | -      | - - -     |
| Follow-up Hdwy       | -      | -      | - - 3.318 |
| Pot Cap-1 Maneuver   | 0      | -      | - 0 361   |
| Stage 1              | 0      | -      | - 0 -     |
| Stage 2              | 0      | -      | - 0 -     |
| Platoon blocked, %   | -      | -      | -         |
| Mov Cap-1 Maneuver   | -      | -      | - - 361   |
| Mov Cap-2 Maneuver   | -      | -      | - - -     |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |

| Approach             | EB | WB | SB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 0  | 16.3 |
| HCM LOS              |    |    | C    |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h)      | -   | -   | -   | 361   |
| HCM Lane V/C Ratio    | -   | -   | -   | 0.12  |
| HCM Control Delay (s) | -   | -   | -   | 16.3  |
| HCM Lane LOS          | -   | -   | -   | C     |
| HCM 95th %tile Q(veh) | -   | -   | -   | 0.4   |

HCM 2010 TWSC  
10: Alessandro Blvd & Driveway B

02/22/2021

Intersection

Int Delay, s/veh 1.2

| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      |      | ↑    | ↑    |      |      | ↑    |
| Traffic Vol, veh/h       | 0    | 360  | 770  | 172  | 0    | 81   |
| Future Vol, veh/h        | 0    | 360  | 770  | 172  | 0    | 81   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 0    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 0    | 391  | 837  | 187  | 0    | 88   |

| Major/Minor          | Major1 | Major2 | Minor2    |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | -      | 0      | - 0 - 931 |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |
| Critical Hdwy        | -      | -      | - - 6.22  |
| Critical Hdwy Stg 1  | -      | -      | - - -     |
| Critical Hdwy Stg 2  | -      | -      | - - -     |
| Follow-up Hdwy       | -      | -      | - - 3.318 |
| Pot Cap-1 Maneuver   | 0      | -      | - - 0 324 |
| Stage 1              | 0      | -      | - - 0 -   |
| Stage 2              | 0      | -      | - - 0 -   |
| Platoon blocked, %   | -      | -      | -         |
| Mov Cap-1 Maneuver   | -      | -      | - - 324   |
| Mov Cap-2 Maneuver   | -      | -      | - - -     |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |

| Approach             | EB | WB | SB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 0  | 20.2 |
| HCM LOS              |    |    | C    |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h)      | -   | -   | -   | 324   |
| HCM Lane V/C Ratio    | -   | -   | -   | 0.272 |
| HCM Control Delay (s) | -   | -   | -   | 20.2  |
| HCM Lane LOS          | -   | -   | -   | C     |
| HCM 95th %tile Q(veh) | -   | -   | -   | 1.1   |

HCM 2010 TWSC  
11: Lasselle St/Lassell St & Driveway C

02/22/2021

Intersection

Int Delay, s/veh 7.6

| Movement                 | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations      |  |  |  |  |  |  |
| Traffic Vol, veh/h       | 121                                                                               | 161                                                                               | 108                                                                               | 400                                                                               | 338                                                                               | 129                                                                               |
| Future Vol, veh/h        | 121                                                                               | 161                                                                               | 108                                                                               | 400                                                                               | 338                                                                               | 129                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Stop                                                                              | Stop                                                                              | Free                                                                              | Free                                                                              | Free                                                                              | Free                                                                              |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | None                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | 0                                                                                 | 0                                                                                 | 80                                                                                | -                                                                                 | -                                                                                 | -                                                                                 |
| Veh in Median Storage, # | 0                                                                                 | -                                                                                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | 0                                                                                 | -                                                                                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 132                                                                               | 175                                                                               | 117                                                                               | 435                                                                               | 367                                                                               | 140                                                                               |

| Major/Minor          | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 1106   | 254    | 507    |
| Stage 1              | 437    | -      | -      |
| Stage 2              | 669    | -      | -      |
| Critical Hdwy        | 6.63   | 6.93   | 4.13   |
| Critical Hdwy Stg 1  | 5.83   | -      | -      |
| Critical Hdwy Stg 2  | 5.43   | -      | -      |
| Follow-up Hdwy       | 3.519  | 3.319  | 2.219  |
| Pot Cap-1 Maneuver   | 218    | 746    | 1056   |
| Stage 1              | 619    | -      | -      |
| Stage 2              | 508    | -      | -      |
| Platoon blocked, %   |        |        |        |
| Mov Cap-1 Maneuver   | 194    | 746    | 1056   |
| Mov Cap-2 Maneuver   | 194    | -      | -      |
| Stage 1              | 550    | -      | -      |
| Stage 2              | 508    | -      | -      |

| Approach             | EB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 30.3 | 1.9 | 0  |
| HCM LOS              | D    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | EBLn2 | SBT | SBR |
|-----------------------|-------|-----|-------|-------|-----|-----|
| Capacity (veh/h)      | 1056  | -   | 194   | 746   | -   | -   |
| HCM Lane V/C Ratio    | 0.111 | -   | 0.678 | 0.235 | -   | -   |
| HCM Control Delay (s) | 8.8   | -   | 55.6  | 11.3  | -   | -   |
| HCM Lane LOS          | A     | -   | F     | B     | -   | -   |
| HCM 95th %tile Q(veh) | 0.4   | -   | 4.1   | 0.9   | -   | -   |

# HCM 2010 Signalized Intersection Summary

## 1: Alessandro Blvd & Perris Blvd

02/22/2021

|                              |                                                                                    |                                                                                    |  |  |                                                                                                                                                                      |  |  |                                                                                      |  |  |                                                                                      |  |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                                                                                                                 | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |   |   |  |  |    |                                                                                   |  |   |  |  |   |  |
| Traffic Volume (veh/h)       | 114                                                                                                                                                                 | 324                                                                                                                                                                 | 106                                                                               | 161                                                                               | 819                                                                                                                                                                                                                                                   | 108                                                                               | 269                                                                                | 867                                                                                                                                                                     | 153                                                                                 | 173                                                                                 | 597                                                                                                                                                                     | 281                                                                                 |
| Future Volume (veh/h)        | 114                                                                                                                                                                 | 324                                                                                                                                                                 | 106                                                                               | 161                                                                               | 819                                                                                                                                                                                                                                                   | 108                                                                               | 269                                                                                | 867                                                                                                                                                                     | 153                                                                                 | 173                                                                                 | 597                                                                                                                                                                     | 281                                                                                 |
| Number                       | 7                                                                                                                                                                   | 4                                                                                                                                                                   | 14                                                                                | 3                                                                                 | 8                                                                                                                                                                                                                                                     | 18                                                                                | 5                                                                                  | 2                                                                                                                                                                       | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                                                                                                   | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                  | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                                                                                                       | 1.00                                                                              | 1.00                                                                               |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                                                                                                                | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                              | 1863                                                                                                                                                                                                                                                  | 1900                                                                              | 1863                                                                               | 1863                                                                                                                                                                    | 1863                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1863                                                                                |
| Adj Flow Rate, veh/h         | 125                                                                                                                                                                 | 356                                                                                                                                                                 | 116                                                                               | 177                                                                               | 900                                                                                                                                                                                                                                                   | 119                                                                               | 296                                                                                | 953                                                                                                                                                                     | 168                                                                                 | 190                                                                                 | 656                                                                                                                                                                     | 309                                                                                 |
| Adj No. of Lanes             | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 1                                                                                 | 1                                                                                 | 3                                                                                                                                                                                                                                                     | 0                                                                                 | 1                                                                                  | 2                                                                                                                                                                       | 1                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 1                                                                                   |
| Peak Hour Factor             | 0.91                                                                                                                                                                | 0.91                                                                                                                                                                | 0.91                                                                              | 0.91                                                                              | 0.91                                                                                                                                                                                                                                                  | 0.91                                                                              | 0.91                                                                               | 0.91                                                                                                                                                                    | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                                                                                                    | 0.91                                                                                |
| Percent Heavy Veh, %         | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                                                                                                     | 2                                                                                 | 2                                                                                  | 2                                                                                                                                                                       | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 194                                                                                                                                                                 | 487                                                                                                                                                                 | 218                                                                               | 272                                                                               | 1068                                                                                                                                                                                                                                                  | 141                                                                               | 360                                                                                | 1043                                                                                                                                                                    | 467                                                                                 | 247                                                                                 | 818                                                                                                                                                                     | 366                                                                                 |
| Arrive On Green              | 0.06                                                                                                                                                                | 0.14                                                                                                                                                                | 0.14                                                                              | 0.15                                                                              | 0.23                                                                                                                                                                                                                                                  | 0.23                                                                              | 0.20                                                                               | 0.29                                                                                                                                                                    | 0.29                                                                                | 0.14                                                                                | 0.23                                                                                                                                                                    | 0.23                                                                                |
| Sat Flow, veh/h              | 3442                                                                                                                                                                | 3539                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 4548                                                                                                                                                                                                                                                  | 599                                                                               | 1774                                                                               | 3539                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 3539                                                                                                                                                                    | 1583                                                                                |
| Grp Volume(v), veh/h         | 125                                                                                                                                                                 | 356                                                                                                                                                                 | 116                                                                               | 177                                                                               | 670                                                                                                                                                                                                                                                   | 349                                                                               | 296                                                                                | 953                                                                                                                                                                     | 168                                                                                 | 190                                                                                 | 656                                                                                                                                                                     | 309                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1721                                                                                                                                                                | 1770                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 1695                                                                                                                                                                                                                                                  | 1757                                                                              | 1774                                                                               | 1770                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1583                                                                                |
| Q Serve(g_s), s              | 2.8                                                                                                                                                                 | 7.7                                                                                                                                                                 | 5.5                                                                               | 7.5                                                                               | 15.1                                                                                                                                                                                                                                                  | 15.2                                                                              | 12.8                                                                               | 20.8                                                                                                                                                                    | 6.7                                                                                 | 8.3                                                                                 | 14.0                                                                                                                                                                    | 14.9                                                                                |
| Cycle Q Clear(g_c), s        | 2.8                                                                                                                                                                 | 7.7                                                                                                                                                                 | 5.5                                                                               | 7.5                                                                               | 15.1                                                                                                                                                                                                                                                  | 15.2                                                                              | 12.8                                                                               | 20.8                                                                                                                                                                    | 6.7                                                                                 | 8.3                                                                                 | 14.0                                                                                                                                                                    | 14.9                                                                                |
| Prop In Lane                 | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                                                                                                       | 0.34                                                                              | 1.00                                                                               |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 194                                                                                                                                                                 | 487                                                                                                                                                                 | 218                                                                               | 272                                                                               | 796                                                                                                                                                                                                                                                   | 413                                                                               | 360                                                                                | 1043                                                                                                                                                                    | 467                                                                                 | 247                                                                                 | 818                                                                                                                                                                     | 366                                                                                 |
| V/C Ratio(X)                 | 0.65                                                                                                                                                                | 0.73                                                                                                                                                                | 0.53                                                                              | 0.65                                                                              | 0.84                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.82                                                                               | 0.91                                                                                                                                                                    | 0.36                                                                                | 0.77                                                                                | 0.80                                                                                                                                                                    | 0.84                                                                                |
| Avail Cap(c_a), veh/h        | 194                                                                                                                                                                 | 708                                                                                                                                                                 | 317                                                                               | 272                                                                               | 848                                                                                                                                                                                                                                                   | 439                                                                               | 360                                                                                | 1062                                                                                                                                                                    | 475                                                                                 | 247                                                                                 | 885                                                                                                                                                                     | 396                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 0.61                                                                              | 0.61                                                                                                                                                                                                                                                  | 0.61                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 37.0                                                                                                                                                                | 33.1                                                                                                                                                                | 32.1                                                                              | 31.9                                                                              | 29.2                                                                                                                                                                                                                                                  | 29.2                                                                              | 30.5                                                                               | 27.2                                                                                                                                                                    | 22.3                                                                                | 33.2                                                                                | 29.0                                                                                                                                                                    | 29.4                                                                                |
| Incr Delay (d2), s/veh       | 7.2                                                                                                                                                                 | 2.2                                                                                                                                                                 | 2.0                                                                               | 3.3                                                                               | 4.6                                                                                                                                                                                                                                                   | 8.7                                                                               | 14.2                                                                               | 13.5                                                                                                                                                                    | 2.2                                                                                 | 13.7                                                                                | 8.2                                                                                                                                                                     | 20.7                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.5                                                                                                                                                                 | 3.9                                                                                                                                                                 | 2.5                                                                               | 3.9                                                                               | 7.6                                                                                                                                                                                                                                                   | 8.4                                                                               | 7.7                                                                                | 12.0                                                                                                                                                                    | 3.2                                                                                 | 5.0                                                                                 | 7.8                                                                                                                                                                     | 8.6                                                                                 |
| LnGrp Delay(d),s/veh         | 44.2                                                                                                                                                                | 35.2                                                                                                                                                                | 34.1                                                                              | 35.2                                                                              | 33.8                                                                                                                                                                                                                                                  | 38.0                                                                              | 44.7                                                                               | 40.7                                                                                                                                                                    | 24.4                                                                                | 46.9                                                                                | 37.2                                                                                                                                                                    | 50.1                                                                                |
| LnGrp LOS                    | D                                                                                                                                                                   | D                                                                                                                                                                   | C                                                                                 | D                                                                                 | C                                                                                                                                                                                                                                                     | D                                                                                 | D                                                                                  | D                                                                                                                                                                       | C                                                                                   | D                                                                                   | D                                                                                                                                                                       | D                                                                                   |
| Approach Vol, veh/h          | 597                                                                                                                                                                 |                                                                                                                                                                     |                                                                                   |                                                                                   | 1196                                                                                                                                                                                                                                                  |                                                                                   |                                                                                    |                                                                                                                                                                         | 1417                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Approach Delay, s/veh        | 36.9                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   | 35.2                                                                                                                                                                                                                                                  |                                                                                   |                                                                                    |                                                                                                                                                                         | 39.6                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Approach LOS                 | D                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   | D                                                                                                                                                                                                                                                     |                                                                                   |                                                                                    |                                                                                                                                                                         | D                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Timer                        | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                                                                                                     | 6                                                                                 | 7                                                                                  | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                                                                                                     | 6                                                                                 | 7                                                                                  | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 16.6                                                                                                                                                                | 29.1                                                                                                                                                                | 17.8                                                                              | 16.5                                                                              | 21.7                                                                                                                                                                                                                                                  | 24.0                                                                              | 10.0                                                                               | 24.3                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                                                                                                                 | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                                                                                                                                                                                   | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 9.5                                                                                                                                                                 | 24.0                                                                                                                                                                | 8.5                                                                               | 16.0                                                                              | 13.5                                                                                                                                                                                                                                                  | 20.0                                                                              | 4.5                                                                                | 20.0                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 10.3                                                                                                                                                                | 22.8                                                                                                                                                                | 9.5                                                                               | 9.7                                                                               | 14.8                                                                                                                                                                                                                                                  | 16.9                                                                              | 4.8                                                                                | 17.2                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                                                                                                                 | 0.8                                                                                                                                                                 | 0.0                                                                               | 1.3                                                                               | 0.0                                                                                                                                                                                                                                                   | 1.6                                                                               | 0.0                                                                                | 1.6                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          | 38.7                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 | D                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 2: Alessandro Blvd & Kitching St

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 105                                                                               | 399                                                                               | 115                                                                               | 40                                                                                | 706                                                                               | 179                                                                               | 199                                                                                | 238                                                                                 | 49                                                                                  | 62                                                                                  | 164                                                                                 | 144                                                                                 |
| Future Volume (veh/h)        | 105                                                                               | 399                                                                               | 115                                                                               | 40                                                                                | 706                                                                               | 179                                                                               | 199                                                                                | 238                                                                                 | 49                                                                                  | 62                                                                                  | 164                                                                                 | 144                                                                                 |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 118                                                                               | 448                                                                               | 129                                                                               | 45                                                                                | 793                                                                               | 201                                                                               | 224                                                                                | 267                                                                                 | 55                                                                                  | 70                                                                                  | 184                                                                                 | 162                                                                                 |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 1                                                                                 | 2                                                                                  | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.89                                                                              | 0.89                                                                              | 0.89                                                                              | 0.89                                                                              | 0.89                                                                              | 0.89                                                                              | 0.89                                                                               | 0.89                                                                                | 0.89                                                                                | 0.89                                                                                | 0.89                                                                                | 0.89                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 147                                                                               | 602                                                                               | 647                                                                               | 308                                                                               | 923                                                                               | 493                                                                               | 820                                                                                | 496                                                                                 | 102                                                                                 | 90                                                                                  | 263                                                                                 | 218                                                                                 |
| Arrive On Green              | 0.17                                                                              | 0.34                                                                              | 0.34                                                                              | 0.17                                                                              | 0.26                                                                              | 0.26                                                                              | 0.24                                                                               | 0.33                                                                                | 0.33                                                                                | 0.05                                                                                | 0.14                                                                                | 0.14                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 3539                                                                              | 1583                                                                              | 1774                                                                              | 3539                                                                              | 1583                                                                              | 3442                                                                               | 1499                                                                                | 309                                                                                 | 1774                                                                                | 1838                                                                                | 1525                                                                                |
| Grp Volume(v), veh/h         | 118                                                                               | 448                                                                               | 129                                                                               | 45                                                                                | 793                                                                               | 201                                                                               | 224                                                                                | 0                                                                                   | 322                                                                                 | 70                                                                                  | 177                                                                                 | 169                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                              | 1583                                                                              | 1774                                                                              | 1770                                                                              | 1583                                                                              | 1721                                                                               | 0                                                                                   | 1808                                                                                | 1774                                                                                | 1770                                                                                | 1594                                                                                |
| Q Serve(g_s), s              | 5.1                                                                               | 8.9                                                                               | 0.0                                                                               | 1.7                                                                               | 17.1                                                                              | 4.6                                                                               | 4.2                                                                                | 0.0                                                                                 | 11.6                                                                                | 3.1                                                                                 | 7.6                                                                                 | 8.1                                                                                 |
| Cycle Q Clear(g_c), s        | 5.1                                                                               | 8.9                                                                               | 0.0                                                                               | 1.7                                                                               | 17.1                                                                              | 4.6                                                                               | 4.2                                                                                | 0.0                                                                                 | 11.6                                                                                | 3.1                                                                                 | 7.6                                                                                 | 8.1                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.17                                                                                | 1.00                                                                                |                                                                                     | 0.96                                                                                |
| Lane Grp Cap(c), veh/h       | 147                                                                               | 602                                                                               | 647                                                                               | 308                                                                               | 923                                                                               | 493                                                                               | 820                                                                                | 0                                                                                   | 598                                                                                 | 90                                                                                  | 253                                                                                 | 228                                                                                 |
| V/C Ratio(X)                 | 0.80                                                                              | 0.74                                                                              | 0.20                                                                              | 0.15                                                                              | 0.86                                                                              | 0.41                                                                              | 0.27                                                                               | 0.00                                                                                | 0.54                                                                                | 0.78                                                                                | 0.70                                                                                | 0.74                                                                                |
| Avail Cap(c_a), veh/h        | 188                                                                               | 1128                                                                              | 882                                                                               | 308                                                                               | 995                                                                               | 525                                                                               | 820                                                                                | 0                                                                                   | 598                                                                                 | 122                                                                                 | 431                                                                                 | 388                                                                                 |
| HCM Platoon Ratio            | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 0.76                                                                              | 0.76                                                                              | 0.76                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 32.7                                                                              | 24.9                                                                              | 11.9                                                                              | 28.0                                                                              | 28.2                                                                              | 8.4                                                                               | 24.8                                                                               | 0.0                                                                                 | 21.8                                                                                | 37.5                                                                                | 32.6                                                                                | 32.9                                                                                |
| Incr Delay (d2), s/veh       | 13.6                                                                              | 1.4                                                                               | 0.1                                                                               | 0.2                                                                               | 7.2                                                                               | 0.5                                                                               | 0.2                                                                                | 0.0                                                                                 | 3.5                                                                                 | 19.8                                                                                | 14.9                                                                                | 19.6                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.0                                                                               | 4.5                                                                               | 1.4                                                                               | 0.9                                                                               | 9.3                                                                               | 2.4                                                                               | 2.0                                                                                | 0.0                                                                                 | 6.3                                                                                 | 2.0                                                                                 | 4.8                                                                                 | 4.8                                                                                 |
| LnGrp Delay(d),s/veh         | 46.3                                                                              | 26.3                                                                              | 12.0                                                                              | 28.2                                                                              | 35.4                                                                              | 8.9                                                                               | 25.0                                                                               | 0.0                                                                                 | 25.3                                                                                | 57.3                                                                                | 47.5                                                                                | 52.5                                                                                |
| LnGrp LOS                    | D                                                                                 | C                                                                                 | B                                                                                 | C                                                                                 | D                                                                                 | A                                                                                 | C                                                                                  |                                                                                     | C                                                                                   | E                                                                                   | D                                                                                   | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 695                                                                               |                                                                                   |                                                                                   | 1039                                                                              |                                                                                   |                                                                                    | 546                                                                                 |                                                                                     |                                                                                     | 416                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 27.0                                                                              |                                                                                   |                                                                                   | 30.0                                                                              |                                                                                   |                                                                                    | 25.2                                                                                |                                                                                     |                                                                                     | 51.2                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 9.5                                                                               | 32.0                                                                              | 19.4                                                                              | 19.1                                                                              | 24.6                                                                              | 16.9                                                                              | 12.1                                                                               | 26.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 21.5                                                                              | 5.5                                                                               | 25.5                                                                              | 7.5                                                                               | 19.5                                                                              | 8.5                                                                                | 22.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 5.1                                                                               | 13.6                                                                              | 3.7                                                                               | 10.9                                                                              | 6.2                                                                               | 10.1                                                                              | 7.1                                                                                | 19.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.1                                                                               | 0.0                                                                               | 2.7                                                                               | 0.1                                                                               | 1.3                                                                               | 0.0                                                                                | 1.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 31.5                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 3: Lasselle St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 29                                                                                | 224                                                                               | 161                                                                               | 133                                                                               | 549                                                                               | 16                                                                                | 257                                                                                | 415                                                                                 | 144                                                                                 | 33                                                                                  | 277                                                                                 | 78                                                                                  |
| Future Volume (veh/h)        | 29                                                                                | 224                                                                               | 161                                                                               | 133                                                                               | 549                                                                               | 16                                                                                | 257                                                                                | 415                                                                                 | 144                                                                                 | 33                                                                                  | 277                                                                                 | 78                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 34                                                                                | 260                                                                               | 187                                                                               | 155                                                                               | 638                                                                               | 19                                                                                | 299                                                                                | 483                                                                                 | 167                                                                                 | 38                                                                                  | 322                                                                                 | 91                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                  | 1                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                               | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 86                                                                                | 349                                                                               | 267                                                                               | 353                                                                               | 629                                                                               | 678                                                                               | 335                                                                                | 532                                                                                 | 767                                                                                 | 228                                                                                 | 315                                                                                 | 89                                                                                  |
| Arrive On Green              | 0.05                                                                              | 0.19                                                                              | 0.17                                                                              | 0.20                                                                              | 0.34                                                                              | 0.32                                                                              | 0.38                                                                               | 0.57                                                                                | 0.57                                                                                | 0.17                                                                                | 0.30                                                                                | 0.27                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 1398                                                                                | 395                                                                                 |
| Grp Volume(v), veh/h         | 34                                                                                | 260                                                                               | 187                                                                               | 155                                                                               | 638                                                                               | 19                                                                                | 299                                                                                | 483                                                                                 | 167                                                                                 | 38                                                                                  | 0                                                                                   | 413                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 0                                                                                   | 1793                                                                                |
| Q Serve(g_s), s              | 1.5                                                                               | 10.5                                                                              | 8.9                                                                               | 6.1                                                                               | 27.0                                                                              | 0.0                                                                               | 12.7                                                                               | 18.5                                                                                | 0.0                                                                                 | 1.5                                                                                 | 0.0                                                                                 | 18.0                                                                                |
| Cycle Q Clear(g_c), s        | 1.5                                                                               | 10.5                                                                              | 8.9                                                                               | 6.1                                                                               | 27.0                                                                              | 0.0                                                                               | 12.7                                                                               | 18.5                                                                                | 0.0                                                                                 | 1.5                                                                                 | 0.0                                                                                 | 18.0                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.22                                                                                |
| Lane Grp Cap(c), veh/h       | 86                                                                                | 349                                                                               | 267                                                                               | 353                                                                               | 629                                                                               | 678                                                                               | 335                                                                                | 532                                                                                 | 767                                                                                 | 228                                                                                 | 0                                                                                   | 403                                                                                 |
| V/C Ratio(X)                 | 0.39                                                                              | 0.75                                                                              | 0.70                                                                              | 0.44                                                                              | 1.01                                                                              | 0.03                                                                              | 0.89                                                                               | 0.91                                                                                | 0.22                                                                                | 0.17                                                                                | 0.00                                                                                | 1.02                                                                                |
| Avail Cap(c_a), veh/h        | 133                                                                               | 466                                                                               | 366                                                                               | 353                                                                               | 629                                                                               | 678                                                                               | 335                                                                                | 582                                                                                 | 810                                                                                 | 228                                                                                 | 0                                                                                   | 403                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                               | 2.00                                                                                | 2.00                                                                                | 1.33                                                                                | 1.33                                                                                | 1.33                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.79                                                                              | 0.79                                                                              | 0.79                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 36.9                                                                              | 30.7                                                                              | 31.4                                                                              | 28.1                                                                              | 26.5                                                                              | 13.2                                                                              | 24.1                                                                               | 16.2                                                                                | 6.8                                                                                 | 29.5                                                                                | 0.0                                                                                 | 28.2                                                                                |
| Incr Delay (d2), s/veh       | 2.9                                                                               | 4.5                                                                               | 3.6                                                                               | 0.7                                                                               | 35.7                                                                              | 0.0                                                                               | 24.5                                                                               | 21.9                                                                                | 0.7                                                                                 | 0.3                                                                                 | 0.0                                                                                 | 51.0                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.8                                                                               | 5.9                                                                               | 4.1                                                                               | 3.1                                                                               | 20.0                                                                              | 0.2                                                                               | 8.4                                                                                | 12.3                                                                                | 1.3                                                                                 | 0.7                                                                                 | 0.0                                                                                 | 14.5                                                                                |
| LnGrp Delay(d),s/veh         | 39.8                                                                              | 35.2                                                                              | 35.0                                                                              | 28.8                                                                              | 62.2                                                                              | 13.2                                                                              | 48.6                                                                               | 38.1                                                                                | 7.5                                                                                 | 29.9                                                                                | 0.0                                                                                 | 79.2                                                                                |
| LnGrp LOS                    | D                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | F                                                                                 | B                                                                                 | D                                                                                  | D                                                                                   | A                                                                                   | C                                                                                   |                                                                                     | F                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 481                                                                               |                                                                                   |                                                                                   | 812                                                                               |                                                                                   |                                                                                    | 949                                                                                 |                                                                                     |                                                                                     | 451                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 35.4                                                                              |                                                                                   |                                                                                   | 54.7                                                                              |                                                                                   |                                                                                    | 36.0                                                                                |                                                                                     |                                                                                     | 75.1                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                    | D                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 14.3                                                                              | 26.8                                                                              | 19.9                                                                              | 19.0                                                                              | 19.1                                                                              | 22.0                                                                              | 7.9                                                                                | 31.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 23.5                                                                              | 11.5                                                                              | 18.5                                                                              | 11.5                                                                              | 16.5                                                                              | 4.5                                                                                | 25.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.5                                                                               | 20.5                                                                              | 8.1                                                                               | 12.5                                                                              | 14.7                                                                              | 20.0                                                                              | 3.5                                                                                | 29.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.9                                                                               | 0.1                                                                               | 0.9                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   | 48.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 4: Nason St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 54                                                                                | 168                                                                               | 68                                                                                | 79                                                                                | 283                                                                               | 72                                                                                | 69                                                                                 | 418                                                                                 | 24                                                                                  | 39                                                                                  | 546                                                                                 | 49                                                                                  |
| Future Volume (veh/h)        | 54                                                                                | 168                                                                               | 68                                                                                | 79                                                                                | 283                                                                               | 72                                                                                | 69                                                                                 | 418                                                                                 | 24                                                                                  | 39                                                                                  | 546                                                                                 | 49                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 64                                                                                | 200                                                                               | 81                                                                                | 94                                                                                | 337                                                                               | 86                                                                                | 82                                                                                 | 498                                                                                 | 29                                                                                  | 46                                                                                  | 650                                                                                 | 58                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                  | 2                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                               | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 89                                                                                | 376                                                                               | 320                                                                               | 120                                                                               | 409                                                                               | 348                                                                               | 104                                                                                | 1057                                                                                | 61                                                                                  | 72                                                                                  | 1036                                                                                | 464                                                                                 |
| Arrive On Green              | 0.05                                                                              | 0.20                                                                              | 0.20                                                                              | 0.07                                                                              | 0.22                                                                              | 0.22                                                                              | 0.06                                                                               | 0.31                                                                                | 0.31                                                                                | 0.04                                                                                | 0.29                                                                                | 0.29                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 3400                                                                                | 198                                                                                 | 1774                                                                                | 3539                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 64                                                                                | 200                                                                               | 81                                                                                | 94                                                                                | 337                                                                               | 86                                                                                | 82                                                                                 | 259                                                                                 | 268                                                                                 | 46                                                                                  | 650                                                                                 | 58                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1770                                                                                | 1828                                                                                | 1774                                                                                | 1770                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 2.1                                                                               | 5.6                                                                               | 2.5                                                                               | 3.0                                                                               | 10.0                                                                              | 2.6                                                                               | 2.6                                                                                | 6.9                                                                                 | 6.9                                                                                 | 1.5                                                                                 | 9.2                                                                                 | 1.6                                                                                 |
| Cycle Q Clear(g_c), s        | 2.1                                                                               | 5.6                                                                               | 2.5                                                                               | 3.0                                                                               | 10.0                                                                              | 2.6                                                                               | 2.6                                                                                | 6.9                                                                                 | 6.9                                                                                 | 1.5                                                                                 | 9.2                                                                                 | 1.6                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.11                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 89                                                                                | 376                                                                               | 320                                                                               | 120                                                                               | 409                                                                               | 348                                                                               | 104                                                                                | 550                                                                                 | 568                                                                                 | 72                                                                                  | 1036                                                                                | 464                                                                                 |
| V/C Ratio(X)                 | 0.72                                                                              | 0.53                                                                              | 0.25                                                                              | 0.78                                                                              | 0.82                                                                              | 0.25                                                                              | 0.79                                                                               | 0.47                                                                                | 0.47                                                                                | 0.64                                                                                | 0.63                                                                                | 0.13                                                                                |
| Avail Cap(c_a), veh/h        | 137                                                                               | 513                                                                               | 436                                                                               | 168                                                                               | 545                                                                               | 464                                                                               | 137                                                                                | 550                                                                                 | 568                                                                                 | 137                                                                                 | 1036                                                                                | 464                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 27.2                                                                              | 20.7                                                                              | 19.5                                                                              | 26.6                                                                              | 21.6                                                                              | 18.7                                                                              | 27.0                                                                               | 16.1                                                                                | 16.2                                                                                | 27.4                                                                                | 17.8                                                                                | 15.1                                                                                |
| Incr Delay (d2), s/veh       | 10.6                                                                              | 1.2                                                                               | 0.4                                                                               | 14.5                                                                              | 7.5                                                                               | 0.4                                                                               | 19.5                                                                               | 2.9                                                                                 | 2.8                                                                                 | 9.0                                                                                 | 2.9                                                                                 | 0.6                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.3                                                                               | 3.0                                                                               | 1.1                                                                               | 2.0                                                                               | 6.0                                                                               | 1.2                                                                               | 1.9                                                                                | 3.7                                                                                 | 3.9                                                                                 | 0.9                                                                                 | 4.9                                                                                 | 0.7                                                                                 |
| LnGrp Delay(d),s/veh         | 37.8                                                                              | 21.9                                                                              | 19.9                                                                              | 41.1                                                                              | 29.1                                                                              | 19.1                                                                              | 46.5                                                                               | 19.0                                                                                | 19.0                                                                                | 36.5                                                                                | 20.7                                                                                | 15.6                                                                                |
| LnGrp LOS                    | D                                                                                 | C                                                                                 | B                                                                                 | D                                                                                 | C                                                                                 | B                                                                                 | D                                                                                  | B                                                                                   | B                                                                                   | D                                                                                   | C                                                                                   | B                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 345                                                                               |                                                                                   |                                                                                   | 517                                                                               |                                                                                   |                                                                                    | 609                                                                                 |                                                                                     |                                                                                     | 754                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 24.4                                                                              |                                                                                   |                                                                                   | 29.6                                                                              |                                                                                   |                                                                                    | 22.7                                                                                |                                                                                     |                                                                                     | 21.2                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.9                                                                               | 23.6                                                                              | 9.4                                                                               | 17.2                                                                              | 8.9                                                                               | 22.5                                                                              | 8.4                                                                                | 18.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 17.0                                                                              | 5.5                                                                               | 16.0                                                                              | 4.5                                                                               | 17.0                                                                              | 4.5                                                                                | 17.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.5                                                                               | 8.9                                                                               | 5.0                                                                               | 7.6                                                                               | 4.6                                                                               | 11.2                                                                              | 4.1                                                                                | 12.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.3                                                                               | 0.0                                                                               | 0.6                                                                               | 0.0                                                                               | 1.7                                                                               | 0.0                                                                                | 0.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 24.1                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 5: Lassell St & Cottonwood Ave

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 46                                                                                | 248                                                                               | 48                                                                                | 48                                                                                | 308                                                                               | 44                                                                                | 83                                                                                 | 333                                                                                 | 62                                                                                  | 30                                                                                  | 284                                                                                 | 74                                                                                  |
| Future Volume (veh/h)        | 46                                                                                | 248                                                                               | 48                                                                                | 48                                                                                | 308                                                                               | 44                                                                                | 83                                                                                 | 333                                                                                 | 62                                                                                  | 30                                                                                  | 284                                                                                 | 74                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 58                                                                                | 310                                                                               | 60                                                                                | 60                                                                                | 385                                                                               | 55                                                                                | 104                                                                                | 416                                                                                 | 78                                                                                  | 38                                                                                  | 355                                                                                 | 92                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                 | 1                                                                                  | 1                                                                                   | 0                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                               | 0.80                                                                                | 0.80                                                                                | 0.80                                                                                | 0.80                                                                                | 0.80                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 74                                                                                | 348                                                                               | 67                                                                                | 76                                                                                | 718                                                                               | 102                                                                               | 132                                                                                | 463                                                                                 | 87                                                                                  | 265                                                                                 | 704                                                                                 | 598                                                                                 |
| Arrive On Green              | 0.04                                                                              | 0.23                                                                              | 0.23                                                                              | 0.04                                                                              | 0.23                                                                              | 0.23                                                                              | 0.07                                                                               | 0.30                                                                                | 0.30                                                                                | 0.15                                                                                | 0.38                                                                                | 0.38                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1517                                                                              | 294                                                                               | 1774                                                                              | 3113                                                                              | 442                                                                               | 1774                                                                               | 1526                                                                                | 286                                                                                 | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 58                                                                                | 0                                                                                 | 370                                                                               | 60                                                                                | 218                                                                               | 222                                                                               | 104                                                                                | 0                                                                                   | 494                                                                                 | 38                                                                                  | 355                                                                                 | 92                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 0                                                                                 | 1811                                                                              | 1774                                                                              | 1770                                                                              | 1785                                                                              | 1774                                                                               | 0                                                                                   | 1812                                                                                | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 2.6                                                                               | 0.0                                                                               | 15.8                                                                              | 2.7                                                                               | 8.6                                                                               | 8.8                                                                               | 4.6                                                                                | 0.0                                                                                 | 20.9                                                                                | 1.5                                                                                 | 11.7                                                                                | 3.1                                                                                 |
| Cycle Q Clear(g_c), s        | 2.6                                                                               | 0.0                                                                               | 15.8                                                                              | 2.7                                                                               | 8.6                                                                               | 8.8                                                                               | 4.6                                                                                | 0.0                                                                                 | 20.9                                                                                | 1.5                                                                                 | 11.7                                                                                | 3.1                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.16                                                                              | 1.00                                                                              |                                                                                   | 0.25                                                                              | 1.00                                                                               |                                                                                     | 0.16                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 74                                                                                | 0                                                                                 | 415                                                                               | 76                                                                                | 408                                                                               | 412                                                                               | 132                                                                                | 0                                                                                   | 550                                                                                 | 265                                                                                 | 704                                                                                 | 598                                                                                 |
| V/C Ratio(X)                 | 0.78                                                                              | 0.00                                                                              | 0.89                                                                              | 0.79                                                                              | 0.53                                                                              | 0.54                                                                              | 0.79                                                                               | 0.00                                                                                | 0.90                                                                                | 0.14                                                                                | 0.50                                                                                | 0.15                                                                                |
| Avail Cap(c_a), veh/h        | 144                                                                               | 0                                                                                 | 464                                                                               | 100                                                                               | 409                                                                               | 413                                                                               | 166                                                                                | 0                                                                                   | 646                                                                                 | 265                                                                                 | 704                                                                                 | 598                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 38.0                                                                              | 0.0                                                                               | 29.9                                                                              | 37.9                                                                              | 27.0                                                                              | 27.0                                                                              | 36.4                                                                               | 0.0                                                                                 | 26.7                                                                                | 29.6                                                                                | 19.1                                                                                | 16.4                                                                                |
| Incr Delay (d2), s/veh       | 16.3                                                                              | 0.0                                                                               | 17.7                                                                              | 25.5                                                                              | 1.3                                                                               | 1.4                                                                               | 17.4                                                                               | 0.0                                                                                 | 20.1                                                                                | 0.2                                                                                 | 2.6                                                                                 | 0.5                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.6                                                                               | 0.0                                                                               | 10.0                                                                              | 1.9                                                                               | 4.4                                                                               | 4.5                                                                               | 2.9                                                                                | 0.0                                                                                 | 13.5                                                                                | 0.7                                                                                 | 6.5                                                                                 | 1.4                                                                                 |
| LnGrp Delay(d),s/veh         | 54.3                                                                              | 0.0                                                                               | 47.5                                                                              | 63.4                                                                              | 28.3                                                                              | 28.4                                                                              | 53.8                                                                               | 0.0                                                                                 | 46.8                                                                                | 29.8                                                                                | 21.7                                                                                | 17.0                                                                                |
| LnGrp LOS                    | D                                                                                 |                                                                                   | D                                                                                 | E                                                                                 | C                                                                                 | C                                                                                 | D                                                                                  |                                                                                     | D                                                                                   | C                                                                                   | C                                                                                   | B                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 428                                                                               |                                                                                   |                                                                                   | 500                                                                               |                                                                                   |                                                                                    | 598                                                                                 |                                                                                     |                                                                                     | 485                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 48.5                                                                              |                                                                                   |                                                                                   | 32.6                                                                              |                                                                                   |                                                                                    | 48.0                                                                                |                                                                                     |                                                                                     | 21.4                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 17.4                                                                              | 29.8                                                                              | 8.9                                                                               | 23.9                                                                              | 11.5                                                                              | 35.7                                                                              | 8.8                                                                                | 24.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 28.5                                                                              | 4.5                                                                               | 20.5                                                                              | 7.5                                                                               | 25.5                                                                              | 6.5                                                                                | 18.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.5                                                                               | 22.9                                                                              | 4.7                                                                               | 17.8                                                                              | 6.6                                                                               | 13.7                                                                              | 4.6                                                                                | 10.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.4                                                                               | 0.0                                                                               | 0.5                                                                               | 0.0                                                                               | 1.7                                                                               | 0.0                                                                                | 1.4                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 37.9                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 6: Lassell St & Bay Ave

02/22/2021

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 18                                                                                | 53                                                                                | 8                                                                                 | 62                                                                                | 82                                                                                | 57                                                                                | 22                                                                                  | 402                                                                                 | 43                                                                                  | 32                                                                                  | 354                                                                                 | 5                                                                                   |
| Future Volume (veh/h)        | 18                                                                                | 53                                                                                | 8                                                                                 | 62                                                                                | 82                                                                                | 57                                                                                | 22                                                                                  | 402                                                                                 | 43                                                                                  | 32                                                                                  | 354                                                                                 | 5                                                                                   |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                   | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                                | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 21                                                                                | 62                                                                                | 9                                                                                 | 72                                                                                | 95                                                                                | 66                                                                                | 26                                                                                  | 467                                                                                 | 50                                                                                  | 37                                                                                  | 412                                                                                 | 6                                                                                   |
| Adj No. of Lanes             | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                   | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 94                                                                                | 231                                                                               | 29                                                                                | 130                                                                               | 130                                                                               | 79                                                                                | 818                                                                                 | 978                                                                                 | 105                                                                                 | 56                                                                                  | 578                                                                                 | 8                                                                                   |
| Arrive On Green              | 0.17                                                                              | 0.17                                                                              | 0.17                                                                              | 0.17                                                                              | 0.17                                                                              | 0.17                                                                              | 0.92                                                                                | 1.00                                                                                | 1.00                                                                                | 0.03                                                                                | 0.16                                                                                | 0.16                                                                                |
| Sat Flow, veh/h              | 228                                                                               | 1351                                                                              | 171                                                                               | 414                                                                               | 760                                                                               | 464                                                                               | 1774                                                                                | 1654                                                                                | 177                                                                                 | 1774                                                                                | 3571                                                                                | 52                                                                                  |
| Grp Volume(v), veh/h         | 92                                                                                | 0                                                                                 | 0                                                                                 | 233                                                                               | 0                                                                                 | 0                                                                                 | 26                                                                                  | 0                                                                                   | 517                                                                                 | 37                                                                                  | 204                                                                                 | 214                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1750                                                                              | 0                                                                                 | 0                                                                                 | 1638                                                                              | 0                                                                                 | 0                                                                                 | 1774                                                                                | 0                                                                                   | 1831                                                                                | 1774                                                                                | 1770                                                                                | 1854                                                                                |
| Q Serve(g_s), s              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 7.4                                                                               | 0.0                                                                               | 0.0                                                                               | 0.1                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 1.7                                                                                 | 8.7                                                                                 | 8.8                                                                                 |
| Cycle Q Clear(g_c), s        | 3.5                                                                               | 0.0                                                                               | 0.0                                                                               | 10.9                                                                              | 0.0                                                                               | 0.0                                                                               | 0.1                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 1.7                                                                                 | 8.7                                                                                 | 8.8                                                                                 |
| Prop In Lane                 | 0.23                                                                              |                                                                                   | 0.10                                                                              | 0.31                                                                              |                                                                                   | 0.28                                                                              | 1.00                                                                                |                                                                                     | 0.10                                                                                | 1.00                                                                                |                                                                                     | 0.03                                                                                |
| Lane Grp Cap(c), veh/h       | 354                                                                               | 0                                                                                 | 0                                                                                 | 339                                                                               | 0                                                                                 | 0                                                                                 | 818                                                                                 | 0                                                                                   | 1083                                                                                | 56                                                                                  | 286                                                                                 | 300                                                                                 |
| V/C Ratio(X)                 | 0.26                                                                              | 0.00                                                                              | 0.00                                                                              | 0.69                                                                              | 0.00                                                                              | 0.00                                                                              | 0.03                                                                                | 0.00                                                                                | 0.48                                                                                | 0.66                                                                                | 0.71                                                                                | 0.71                                                                                |
| Avail Cap(c_a), veh/h        | 515                                                                               | 0                                                                                 | 0                                                                                 | 494                                                                               | 0                                                                                 | 0                                                                                 | 818                                                                                 | 0                                                                                   | 1083                                                                                | 122                                                                                 | 807                                                                                 | 846                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                                | 2.00                                                                                | 2.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 29.0                                                                              | 0.0                                                                               | 0.0                                                                               | 31.9                                                                              | 0.0                                                                               | 0.0                                                                               | 1.7                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 38.3                                                                                | 31.8                                                                                | 31.8                                                                                |
| Incr Delay (d2), s/veh       | 0.4                                                                               | 0.0                                                                               | 0.0                                                                               | 2.5                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 1.5                                                                                 | 12.6                                                                                | 14.1                                                                                | 13.5                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.8                                                                               | 0.0                                                                               | 0.0                                                                               | 5.2                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.5                                                                                 | 1.0                                                                                 | 5.4                                                                                 | 5.6                                                                                 |
| LnGrp Delay(d),s/veh         | 29.3                                                                              | 0.0                                                                               | 0.0                                                                               | 34.4                                                                              | 0.0                                                                               | 0.0                                                                               | 1.7                                                                                 | 0.0                                                                                 | 1.5                                                                                 | 50.9                                                                                | 45.8                                                                                | 45.3                                                                                |
| LnGrp LOS                    | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     | A                                                                                   | D                                                                                   | D                                                                                   | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 92                                                                                |                                                                                   |                                                                                   | 233                                                                               |                                                                                   |                                                                                     | 543                                                                                 |                                                                                     |                                                                                     | 455                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 29.3                                                                              |                                                                                   |                                                                                   | 34.4                                                                              |                                                                                   |                                                                                     | 1.5                                                                                 |                                                                                     |                                                                                     | 46.0                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.0                                                                               | 52.8                                                                              |                                                                                   | 19.2                                                                              | 42.4                                                                              | 18.4                                                                              |                                                                                     | 19.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               |                                                                                   | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               |                                                                                     | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 36.5                                                                              |                                                                                   | 21.5                                                                              | 5.5                                                                               | 36.5                                                                              |                                                                                     | 21.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.7                                                                               | 2.0                                                                               |                                                                                   | 5.5                                                                               | 2.1                                                                               | 10.8                                                                              |                                                                                     | 12.9                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 3.3                                                                               |                                                                                   | 0.3                                                                               | 0.0                                                                               | 2.2                                                                               |                                                                                     | 0.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 24.5                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

**Intersection**

Int Delay, s/veh 1

| Movement                 | EBL                                                                               | EBR  | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |  |      |  |  |  |      |
| Traffic Vol, veh/h       | 22                                                                                | 43   | 40                                                                                | 719                                                                               | 531                                                                               | 46   |
| Future Vol, veh/h        | 22                                                                                | 43   | 40                                                                                | 719                                                                               | 531                                                                               | 46   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -    | 200                                                                               | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 92                                                                                | 92   | 92                                                                                | 92                                                                                | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 24                                                                                | 47   | 43                                                                                | 782                                                                               | 577                                                                               | 50   |

| Major/Minor          | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 1079   | 314    | 627    |
| Stage 1              | 602    | -      | -      |
| Stage 2              | 477    | -      | -      |
| Critical Hdwy        | 6.84   | 6.94   | 4.14   |
| Critical Hdwy Stg 1  | 5.84   | -      | -      |
| Critical Hdwy Stg 2  | 5.84   | -      | -      |
| Follow-up Hdwy       | 3.52   | 3.32   | 2.22   |
| Pot Cap-1 Maneuver   | 213    | 682    | 951    |
| Stage 1              | 510    | -      | -      |
| Stage 2              | 590    | -      | -      |
| Platoon blocked, %   |        |        |        |
| Mov Cap-1 Maneuver   | 203    | 682    | 951    |
| Mov Cap-2 Maneuver   | 203    | -      | -      |
| Stage 1              | 487    | -      | -      |
| Stage 2              | 590    | -      | -      |

| Approach             | EB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 16.7 | 0.5 | 0  |
| HCM LOS              | C    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 951   | -   | 379   | -   | -   |
| HCM Lane V/C Ratio    | 0.046 | -   | 0.186 | -   | -   |
| HCM Control Delay (s) | 9     | -   | 16.7  | -   | -   |
| HCM Lane LOS          | A     | -   | C     | -   | -   |
| HCM 95th %tile Q(veh) | 0.1   | -   | 0.7   | -   | -   |

# HCM 2010 Signalized Intersection Summary

## 8: Lassell St & Catcus Ave

02/22/2021

|                              |  |                                                                                    |  |  |                                                                                    |  |   |                                                                                      |  |  |                                                                                      |  |
|------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |  |   |                                                                                   |  |   |  |  |   |  |  |   |  |
| Traffic Volume (veh/h)       | 76                                                                                | 426                                                                                                                                                                 | 157                                                                               | 242                                                                               | 524                                                                                                                                                                 | 38                                                                                | 165                                                                                 | 669                                                                                                                                                                     | 326                                                                                 | 49                                                                                  | 473                                                                                                                                                                     | 63                                                                                  |
| Future Volume (veh/h)        | 76                                                                                | 426                                                                                                                                                                 | 157                                                                               | 242                                                                               | 524                                                                                                                                                                 | 38                                                                                | 165                                                                                 | 669                                                                                                                                                                     | 326                                                                                 | 49                                                                                  | 473                                                                                                                                                                     | 63                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                                                                                                   | 14                                                                                | 3                                                                                 | 8                                                                                                                                                                   | 18                                                                                | 5                                                                                   | 2                                                                                                                                                                       | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                                                                                                                | 1900                                                                              | 1863                                                                              | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                                | 1863                                                                                                                                                                    | 1863                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1900                                                                                |
| Adj Flow Rate, veh/h         | 90                                                                                | 507                                                                                                                                                                 | 187                                                                               | 288                                                                               | 624                                                                                                                                                                 | 45                                                                                | 196                                                                                 | 796                                                                                                                                                                     | 0                                                                                   | 58                                                                                  | 563                                                                                                                                                                     | 75                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                                                                                                   | 0                                                                                 | 1                                                                                 | 2                                                                                                                                                                   | 1                                                                                 | 1                                                                                   | 2                                                                                                                                                                       | 1                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 0                                                                                   |
| Peak Hour Factor             | 0.84                                                                              | 0.84                                                                                                                                                                | 0.84                                                                              | 0.84                                                                              | 0.84                                                                                                                                                                | 0.84                                                                              | 0.84                                                                                | 0.84                                                                                                                                                                    | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                                                                                                    | 0.84                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 339                                                                               | 600                                                                                                                                                                 | 220                                                                               | 333                                                                               | 825                                                                                                                                                                 | 369                                                                               | 284                                                                                 | 1120                                                                                                                                                                    | 501                                                                                 | 106                                                                                 | 678                                                                                                                                                                     | 90                                                                                  |
| Arrive On Green              | 0.19                                                                              | 0.24                                                                                                                                                                | 0.22                                                                              | 0.19                                                                              | 0.23                                                                                                                                                                | 0.23                                                                              | 0.16                                                                                | 0.32                                                                                                                                                                    | 0.00                                                                                | 0.12                                                                                | 0.43                                                                                                                                                                    | 0.39                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 2537                                                                                                                                                                | 931                                                                               | 1774                                                                              | 3539                                                                                                                                                                | 1583                                                                              | 1774                                                                                | 3539                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 3141                                                                                                                                                                    | 417                                                                                 |
| Grp Volume(v), veh/h         | 90                                                                                | 353                                                                                                                                                                 | 341                                                                               | 288                                                                               | 624                                                                                                                                                                 | 45                                                                                | 196                                                                                 | 796                                                                                                                                                                     | 0                                                                                   | 58                                                                                  | 317                                                                                                                                                                     | 321                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                                                                                                                | 1698                                                                              | 1774                                                                              | 1770                                                                                                                                                                | 1583                                                                              | 1774                                                                                | 1770                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1789                                                                                |
| Q Serve(g_s), s              | 3.5                                                                               | 15.2                                                                                                                                                                | 15.4                                                                              | 12.6                                                                              | 13.1                                                                                                                                                                | 1.3                                                                               | 8.3                                                                                 | 15.9                                                                                                                                                                    | 0.0                                                                                 | 2.5                                                                                 | 12.7                                                                                                                                                                    | 12.8                                                                                |
| Cycle Q Clear(g_c), s        | 3.5                                                                               | 15.2                                                                                                                                                                | 15.4                                                                              | 12.6                                                                              | 13.1                                                                                                                                                                | 1.3                                                                               | 8.3                                                                                 | 15.9                                                                                                                                                                    | 0.0                                                                                 | 2.5                                                                                 | 12.7                                                                                                                                                                    | 12.8                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                                                                                                     | 0.55                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 0.23                                                                                |
| Lane Grp Cap(c), veh/h       | 339                                                                               | 419                                                                                                                                                                 | 402                                                                               | 333                                                                               | 825                                                                                                                                                                 | 369                                                                               | 284                                                                                 | 1120                                                                                                                                                                    | 501                                                                                 | 106                                                                                 | 382                                                                                                                                                                     | 386                                                                                 |
| V/C Ratio(X)                 | 0.27                                                                              | 0.84                                                                                                                                                                | 0.85                                                                              | 0.87                                                                              | 0.76                                                                                                                                                                | 0.12                                                                              | 0.69                                                                                | 0.71                                                                                                                                                                    | 0.00                                                                                | 0.55                                                                                | 0.83                                                                                                                                                                    | 0.83                                                                                |
| Avail Cap(c_a), veh/h        | 339                                                                               | 420                                                                                                                                                                 | 403                                                                               | 333                                                                               | 1106                                                                                                                                                                | 495                                                                               | 284                                                                                 | 1120                                                                                                                                                                    | 501                                                                                 | 133                                                                                 | 442                                                                                                                                                                     | 447                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 2.00                                                                                | 2.00                                                                                                                                                                    | 2.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                                                                                                    | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 27.6                                                                              | 29.1                                                                                                                                                                | 29.6                                                                              | 31.5                                                                              | 28.6                                                                                                                                                                | 13.4                                                                              | 31.7                                                                                | 24.1                                                                                                                                                                    | 0.0                                                                                 | 34.2                                                                                | 21.4                                                                                                                                                                    | 21.8                                                                                |
| Incr Delay (d2), s/veh       | 0.4                                                                               | 14.3                                                                                                                                                                | 15.5                                                                              | 20.6                                                                              | 2.1                                                                                                                                                                 | 0.1                                                                               | 6.9                                                                                 | 3.8                                                                                                                                                                     | 0.0                                                                                 | 4.4                                                                                 | 18.4                                                                                                                                                                    | 18.6                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.7                                                                               | 9.1                                                                                                                                                                 | 9.0                                                                               | 8.1                                                                               | 6.7                                                                                                                                                                 | 0.8                                                                               | 4.6                                                                                 | 8.3                                                                                                                                                                     | 0.0                                                                                 | 1.3                                                                                 | 7.9                                                                                                                                                                     | 8.3                                                                                 |
| LnGrp Delay(d),s/veh         | 28.0                                                                              | 43.5                                                                                                                                                                | 45.1                                                                              | 52.1                                                                              | 30.7                                                                                                                                                                | 13.5                                                                              | 38.6                                                                                | 28.0                                                                                                                                                                    | 0.0                                                                                 | 38.6                                                                                | 39.8                                                                                                                                                                    | 40.4                                                                                |
| LnGrp LOS                    | C                                                                                 | D                                                                                                                                                                   | D                                                                                 | D                                                                                 | C                                                                                                                                                                   | B                                                                                 | D                                                                                   | C                                                                                                                                                                       |                                                                                     | D                                                                                   | D                                                                                                                                                                       | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 784                                                                                                                                                                 |                                                                                   |                                                                                   | 957                                                                                                                                                                 |                                                                                   |                                                                                     | 992                                                                                                                                                                     |                                                                                     |                                                                                     | 696                                                                                                                                                                     |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 42.4                                                                                                                                                                |                                                                                   |                                                                                   | 36.3                                                                                                                                                                |                                                                                   |                                                                                     | 30.1                                                                                                                                                                    |                                                                                     |                                                                                     | 40.0                                                                                                                                                                    |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                                                                                                   |                                                                                   |                                                                                   | D                                                                                                                                                                   |                                                                                   |                                                                                     | C                                                                                                                                                                       |                                                                                     |                                                                                     | D                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                   | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                   | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.8                                                                               | 29.3                                                                                                                                                                | 19.0                                                                              | 22.9                                                                              | 16.8                                                                                                                                                                | 21.3                                                                              | 19.3                                                                                | 22.7                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                                 | 5.5                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 22.5                                                                                                                                                                | 13.5                                                                              | 17.5                                                                              | 8.5                                                                                                                                                                 | 18.5                                                                              | 7.5                                                                                 | 23.5                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 4.5                                                                               | 17.9                                                                                                                                                                | 14.6                                                                              | 17.4                                                                              | 10.3                                                                                                                                                                | 14.8                                                                              | 5.5                                                                                 | 15.1                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.6                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 1.0                                                                               | 0.0                                                                                 | 2.0                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                                                                                                     |                                                                                   | 36.6                                                                              |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                                                                                                     |                                                                                   | D                                                                                 |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 1: Alessandro Blvd & Perris Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 114                                                                               | 340                                                                               | 106                                                                               | 172                                                                               | 834                                                                               | 119                                                                               | 269                                                                                | 867                                                                                 | 165                                                                                 | 185                                                                                 | 597                                                                                 | 281                                                                                 |
| Future Volume (veh/h)        | 114                                                                               | 340                                                                               | 106                                                                               | 172                                                                               | 834                                                                               | 119                                                                               | 269                                                                                | 867                                                                                 | 165                                                                                 | 185                                                                                 | 597                                                                                 | 281                                                                                 |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 125                                                                               | 374                                                                               | 116                                                                               | 189                                                                               | 916                                                                               | 131                                                                               | 296                                                                                | 953                                                                                 | 181                                                                                 | 203                                                                                 | 656                                                                                 | 309                                                                                 |
| Adj No. of Lanes             | 2                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                 | 3                                                                                 | 0                                                                                 | 1                                                                                  | 2                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                               | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 172                                                                               | 484                                                                               | 216                                                                               | 262                                                                               | 1053                                                                              | 150                                                                               | 420                                                                                | 1094                                                                                | 489                                                                                 | 288                                                                                 | 831                                                                                 | 372                                                                                 |
| Arrive On Green              | 0.05                                                                              | 0.14                                                                              | 0.14                                                                              | 0.15                                                                              | 0.23                                                                              | 0.23                                                                              | 0.24                                                                               | 0.31                                                                                | 0.31                                                                                | 0.16                                                                                | 0.23                                                                                | 0.23                                                                                |
| Sat Flow, veh/h              | 3442                                                                              | 3539                                                                              | 1583                                                                              | 1774                                                                              | 4499                                                                              | 641                                                                               | 1774                                                                               | 3539                                                                                | 1583                                                                                | 1774                                                                                | 3539                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 125                                                                               | 374                                                                               | 116                                                                               | 189                                                                               | 689                                                                               | 358                                                                               | 296                                                                                | 953                                                                                 | 181                                                                                 | 203                                                                                 | 656                                                                                 | 309                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1721                                                                              | 1770                                                                              | 1583                                                                              | 1774                                                                              | 1695                                                                              | 1750                                                                              | 1774                                                                               | 1770                                                                                | 1583                                                                                | 1774                                                                                | 1770                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 3.2                                                                               | 9.2                                                                               | 6.1                                                                               | 9.1                                                                               | 17.6                                                                              | 17.7                                                                              | 13.8                                                                               | 22.9                                                                                | 8.0                                                                                 | 9.7                                                                                 | 15.7                                                                                | 16.7                                                                                |
| Cycle Q Clear(g_c), s        | 3.2                                                                               | 9.2                                                                               | 6.1                                                                               | 9.1                                                                               | 17.6                                                                              | 17.7                                                                              | 13.8                                                                               | 22.9                                                                                | 8.0                                                                                 | 9.7                                                                                 | 15.7                                                                                | 16.7                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.37                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 172                                                                               | 484                                                                               | 216                                                                               | 262                                                                               | 794                                                                               | 410                                                                               | 420                                                                                | 1094                                                                                | 489                                                                                 | 288                                                                                 | 831                                                                                 | 372                                                                                 |
| V/C Ratio(X)                 | 0.73                                                                              | 0.77                                                                              | 0.54                                                                              | 0.72                                                                              | 0.87                                                                              | 0.87                                                                              | 0.71                                                                               | 0.87                                                                                | 0.37                                                                                | 0.70                                                                                | 0.79                                                                                | 0.83                                                                                |
| Avail Cap(c_a), veh/h        | 172                                                                               | 629                                                                               | 281                                                                               | 262                                                                               | 829                                                                               | 428                                                                               | 420                                                                                | 1180                                                                                | 528                                                                                 | 288                                                                                 | 944                                                                                 | 422                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.51                                                                              | 0.51                                                                              | 0.51                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 42.1                                                                              | 37.5                                                                              | 36.2                                                                              | 36.6                                                                              | 33.1                                                                              | 33.2                                                                              | 31.5                                                                               | 29.4                                                                                | 24.3                                                                                | 35.7                                                                                | 32.3                                                                                | 32.7                                                                                |
| Incr Delay (d2), s/veh       | 14.2                                                                              | 4.4                                                                               | 2.1                                                                               | 5.0                                                                               | 5.2                                                                               | 9.8                                                                               | 5.3                                                                                | 9.6                                                                                 | 2.1                                                                                 | 7.6                                                                                 | 7.5                                                                                 | 19.0                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.9                                                                               | 4.8                                                                               | 2.8                                                                               | 4.8                                                                               | 8.8                                                                               | 9.7                                                                               | 7.4                                                                                | 12.6                                                                                | 3.8                                                                                 | 5.4                                                                                 | 8.5                                                                                 | 9.3                                                                                 |
| LnGrp Delay(d),s/veh         | 56.4                                                                              | 41.9                                                                              | 38.2                                                                              | 41.6                                                                              | 38.3                                                                              | 43.0                                                                              | 36.8                                                                               | 38.9                                                                                | 26.4                                                                                | 43.2                                                                                | 39.9                                                                                | 51.8                                                                                |
| LnGrp LOS                    | E                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                  | D                                                                                   | C                                                                                   | D                                                                                   | D                                                                                   | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 615                                                                               |                                                                                   |                                                                                   | 1236                                                                              |                                                                                   |                                                                                    | 1430                                                                                |                                                                                     |                                                                                     | 1168                                                                                |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 44.2                                                                              |                                                                                   |                                                                                   | 40.2                                                                              |                                                                                   |                                                                                    | 36.9                                                                                |                                                                                     |                                                                                     | 43.6                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                    | D                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 20.1                                                                              | 33.3                                                                              | 18.8                                                                              | 17.8                                                                              | 26.8                                                                              | 26.6                                                                              | 10.0                                                                               | 26.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 11.5                                                                              | 30.0                                                                              | 10.5                                                                              | 16.0                                                                              | 17.5                                                                              | 24.0                                                                              | 4.5                                                                                | 22.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 11.7                                                                              | 24.9                                                                              | 11.1                                                                              | 11.2                                                                              | 15.8                                                                              | 18.7                                                                              | 5.2                                                                                | 19.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 2.9                                                                               | 0.0                                                                               | 1.1                                                                               | 0.2                                                                               | 2.4                                                                               | 0.0                                                                                | 1.4                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 40.6                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## HCM 2010 Signalized Intersection Summary

### 2: Alessandro Blvd & Kitching St

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 105                                                                               | 440                                                                               | 115                                                                               | 49                                                                                | 743                                                                               | 188                                                                               | 199                                                                                | 238                                                                                 | 59                                                                                  | 72                                                                                  | 164                                                                                 | 144                                                                                 |
| Future Volume (veh/h)        | 105                                                                               | 440                                                                               | 115                                                                               | 49                                                                                | 743                                                                               | 188                                                                               | 199                                                                                | 238                                                                                 | 59                                                                                  | 72                                                                                  | 164                                                                                 | 144                                                                                 |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 118                                                                               | 494                                                                               | 129                                                                               | 55                                                                                | 835                                                                               | 211                                                                               | 224                                                                                | 267                                                                                 | 66                                                                                  | 81                                                                                  | 184                                                                                 | 162                                                                                 |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 1                                                                                 | 2                                                                                  | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.89                                                                              | 0.89                                                                              | 0.89                                                                              | 0.89                                                                              | 0.89                                                                              | 0.89                                                                              | 0.89                                                                               | 0.89                                                                                | 0.89                                                                                | 0.89                                                                                | 0.89                                                                                | 0.89                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 146                                                                               | 1114                                                                              | 637                                                                               | 70                                                                                | 963                                                                               | 731                                                                               | 301                                                                                | 306                                                                                 | 76                                                                                  | 336                                                                                 | 577                                                                                 | 478                                                                                 |
| Arrive On Green              | 0.16                                                                              | 0.63                                                                              | 0.63                                                                              | 0.04                                                                              | 0.27                                                                              | 0.27                                                                              | 0.09                                                                               | 0.21                                                                                | 0.21                                                                                | 0.19                                                                                | 0.31                                                                                | 0.31                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 3539                                                                              | 1583                                                                              | 1774                                                                              | 3539                                                                              | 1583                                                                              | 3442                                                                               | 1443                                                                                | 357                                                                                 | 1774                                                                                | 1838                                                                                | 1525                                                                                |
| Grp Volume(v), veh/h         | 118                                                                               | 494                                                                               | 129                                                                               | 55                                                                                | 835                                                                               | 211                                                                               | 224                                                                                | 0                                                                                   | 333                                                                                 | 81                                                                                  | 177                                                                                 | 169                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                              | 1583                                                                              | 1774                                                                              | 1770                                                                              | 1583                                                                              | 1721                                                                               | 0                                                                                   | 1800                                                                                | 1774                                                                                | 1770                                                                                | 1594                                                                                |
| Q Serve(g_s), s              | 5.8                                                                               | 6.5                                                                               | 2.8                                                                               | 2.8                                                                               | 20.2                                                                              | 2.0                                                                               | 5.7                                                                                | 0.0                                                                                 | 16.1                                                                                | 3.5                                                                                 | 6.9                                                                                 | 7.3                                                                                 |
| Cycle Q Clear(g_c), s        | 5.8                                                                               | 6.5                                                                               | 2.8                                                                               | 2.8                                                                               | 20.2                                                                              | 2.0                                                                               | 5.7                                                                                | 0.0                                                                                 | 16.1                                                                                | 3.5                                                                                 | 6.9                                                                                 | 7.3                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.20                                                                                | 1.00                                                                                |                                                                                     | 0.96                                                                                |
| Lane Grp Cap(c), veh/h       | 146                                                                               | 1114                                                                              | 637                                                                               | 70                                                                                | 963                                                                               | 731                                                                               | 301                                                                                | 0                                                                                   | 381                                                                                 | 336                                                                                 | 555                                                                                 | 500                                                                                 |
| V/C Ratio(X)                 | 0.81                                                                              | 0.44                                                                              | 0.20                                                                              | 0.78                                                                              | 0.87                                                                              | 0.29                                                                              | 0.74                                                                               | 0.00                                                                                | 0.87                                                                                | 0.24                                                                                | 0.32                                                                                | 0.34                                                                                |
| Avail Cap(c_a), veh/h        | 187                                                                               | 1160                                                                              | 658                                                                               | 128                                                                               | 1042                                                                              | 766                                                                               | 402                                                                                | 0                                                                                   | 490                                                                                 | 336                                                                                 | 555                                                                                 | 500                                                                                 |
| HCM Platoon Ratio            | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 0.74                                                                              | 0.74                                                                              | 0.74                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 36.9                                                                              | 12.6                                                                              | 9.2                                                                               | 42.8                                                                              | 31.2                                                                              | 4.9                                                                               | 40.1                                                                               | 0.0                                                                                 | 34.3                                                                                | 31.0                                                                                | 23.6                                                                                | 23.7                                                                                |
| Incr Delay (d2), s/veh       | 13.9                                                                              | 0.2                                                                               | 0.1                                                                               | 16.9                                                                              | 7.5                                                                               | 0.2                                                                               | 5.1                                                                                | 0.0                                                                                 | 23.2                                                                                | 0.4                                                                                 | 1.5                                                                                 | 1.8                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.4                                                                               | 3.0                                                                               | 1.2                                                                               | 1.7                                                                               | 10.9                                                                              | 1.6                                                                               | 2.9                                                                                | 0.0                                                                                 | 10.4                                                                                | 1.7                                                                                 | 3.6                                                                                 | 3.5                                                                                 |
| LnGrp Delay(d),s/veh         | 50.8                                                                              | 12.8                                                                              | 9.3                                                                               | 59.7                                                                              | 38.7                                                                              | 5.2                                                                               | 45.2                                                                               | 0.0                                                                                 | 57.5                                                                                | 31.4                                                                                | 25.1                                                                                | 25.6                                                                                |
| LnGrp LOS                    | D                                                                                 | B                                                                                 | A                                                                                 | E                                                                                 | D                                                                                 | A                                                                                 | D                                                                                  |                                                                                     | E                                                                                   | C                                                                                   | C                                                                                   | C                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 741                                                                               |                                                                                   |                                                                                   | 1101                                                                              |                                                                                   |                                                                                    | 557                                                                                 |                                                                                     |                                                                                     | 427                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 18.3                                                                              |                                                                                   |                                                                                   | 33.3                                                                              |                                                                                   |                                                                                    | 52.5                                                                                |                                                                                     |                                                                                     | 26.4                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 22.5                                                                              | 24.6                                                                              | 9.1                                                                               | 33.8                                                                              | 13.4                                                                              | 33.7                                                                              | 12.9                                                                               | 30.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 7.5                                                                               | 24.5                                                                              | 6.5                                                                               | 29.5                                                                              | 10.5                                                                              | 21.5                                                                              | 9.5                                                                                | 26.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 5.5                                                                               | 18.1                                                                              | 4.8                                                                               | 8.5                                                                               | 7.7                                                                               | 9.3                                                                               | 7.8                                                                                | 22.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.0                                                                               | 0.0                                                                               | 3.3                                                                               | 0.2                                                                               | 1.5                                                                               | 0.0                                                                                | 2.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 32.1                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 3: Lasselle St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 158                                                                               | 224                                                                               | 161                                                                               | 133                                                                               | 614                                                                               | 38                                                                                | 300                                                                                | 458                                                                                 | 144                                                                                 | 114                                                                                 | 358                                                                                 | 78                                                                                  |
| Future Volume (veh/h)        | 158                                                                               | 224                                                                               | 161                                                                               | 133                                                                               | 614                                                                               | 38                                                                                | 300                                                                                | 458                                                                                 | 144                                                                                 | 114                                                                                 | 358                                                                                 | 78                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 184                                                                               | 260                                                                               | 187                                                                               | 155                                                                               | 714                                                                               | 44                                                                                | 349                                                                                | 533                                                                                 | 167                                                                                 | 133                                                                                 | 416                                                                                 | 91                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                  | 1                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                               | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 138                                                                               | 342                                                                               | 264                                                                               | 424                                                                               | 642                                                                               | 625                                                                               | 370                                                                                | 589                                                                                 | 879                                                                                 | 149                                                                                 | 554                                                                                 | 120                                                                                 |
| Arrive On Green              | 0.08                                                                              | 0.18                                                                              | 0.17                                                                              | 0.24                                                                              | 0.34                                                                              | 0.33                                                                              | 0.21                                                                               | 0.32                                                                                | 0.32                                                                                | 0.03                                                                                | 0.06                                                                                | 0.06                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 2894                                                                                | 628                                                                                 |
| Grp Volume(v), veh/h         | 184                                                                               | 260                                                                               | 187                                                                               | 155                                                                               | 714                                                                               | 44                                                                                | 349                                                                                | 533                                                                                 | 167                                                                                 | 133                                                                                 | 253                                                                                 | 254                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 1770                                                                                | 1752                                                                                |
| Q Serve(g_s), s              | 7.0                                                                               | 11.9                                                                              | 10.0                                                                              | 6.6                                                                               | 31.0                                                                              | 0.0                                                                               | 17.4                                                                               | 24.7                                                                                | 0.0                                                                                 | 6.7                                                                                 | 12.7                                                                                | 12.8                                                                                |
| Cycle Q Clear(g_c), s        | 7.0                                                                               | 11.9                                                                              | 10.0                                                                              | 6.6                                                                               | 31.0                                                                              | 0.0                                                                               | 17.4                                                                               | 24.7                                                                                | 0.0                                                                                 | 6.7                                                                                 | 12.7                                                                                | 12.8                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.36                                                                                |
| Lane Grp Cap(c), veh/h       | 138                                                                               | 342                                                                               | 264                                                                               | 424                                                                               | 642                                                                               | 625                                                                               | 370                                                                                | 589                                                                                 | 879                                                                                 | 149                                                                                 | 339                                                                                 | 335                                                                                 |
| V/C Ratio(X)                 | 1.33                                                                              | 0.76                                                                              | 0.71                                                                              | 0.37                                                                              | 1.11                                                                              | 0.07                                                                              | 0.94                                                                               | 0.90                                                                                | 0.19                                                                                | 0.90                                                                                | 0.75                                                                                | 0.76                                                                                |
| Avail Cap(c_a), veh/h        | 138                                                                               | 476                                                                               | 378                                                                               | 424                                                                               | 642                                                                               | 625                                                                               | 370                                                                                | 600                                                                                 | 888                                                                                 | 149                                                                                 | 413                                                                                 | 409                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 0.33                                                                                | 0.33                                                                                | 0.33                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.74                                                                              | 0.74                                                                              | 0.74                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 41.5                                                                              | 34.9                                                                              | 35.4                                                                              | 28.6                                                                              | 29.5                                                                              | 17.0                                                                              | 35.1                                                                               | 29.5                                                                                | 10.0                                                                                | 43.4                                                                                | 40.0                                                                                | 40.2                                                                                |
| Incr Delay (d2), s/veh       | 191.1                                                                             | 4.6                                                                               | 3.5                                                                               | 0.4                                                                               | 66.4                                                                              | 0.0                                                                               | 32.3                                                                               | 19.8                                                                                | 0.5                                                                                 | 44.5                                                                                | 14.0                                                                                | 14.8                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 10.7                                                                              | 6.6                                                                               | 4.6                                                                               | 3.3                                                                               | 27.7                                                                              | 0.7                                                                               | 11.9                                                                               | 15.8                                                                                | 2.2                                                                                 | 5.2                                                                                 | 7.5                                                                                 | 7.6                                                                                 |
| LnGrp Delay(d),s/veh         | 232.6                                                                             | 39.5                                                                              | 38.9                                                                              | 29.0                                                                              | 95.9                                                                              | 17.0                                                                              | 67.4                                                                               | 49.3                                                                                | 10.4                                                                                | 87.9                                                                                | 54.0                                                                                | 55.0                                                                                |
| LnGrp LOS                    | F                                                                                 | D                                                                                 | D                                                                                 | C                                                                                 | F                                                                                 | B                                                                                 | E                                                                                  | D                                                                                   | B                                                                                   | F                                                                                   | D                                                                                   | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 631                                                                               |                                                                                   |                                                                                   | 913                                                                               |                                                                                   |                                                                                    | 1049                                                                                |                                                                                     |                                                                                     | 640                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 95.6                                                                              |                                                                                   |                                                                                   | 80.7                                                                              |                                                                                   |                                                                                    | 49.1                                                                                |                                                                                     |                                                                                     | 61.4                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                    | D                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 11.5                                                                              | 32.5                                                                              | 25.5                                                                              | 20.5                                                                              | 22.8                                                                              | 21.2                                                                              | 11.0                                                                               | 35.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 27.5                                                                              | 13.5                                                                              | 21.5                                                                              | 13.5                                                                              | 19.5                                                                              | 5.5                                                                                | 29.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 8.7                                                                               | 26.7                                                                              | 8.6                                                                               | 13.9                                                                              | 19.4                                                                              | 14.8                                                                              | 9.0                                                                                | 33.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.3                                                                               | 0.2                                                                               | 1.1                                                                               | 0.0                                                                               | 0.9                                                                               | 0.0                                                                                | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 69.6                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 4: Nason St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 65                                                                                | 183                                                                               | 79                                                                                | 79                                                                                | 299                                                                               | 72                                                                                | 81                                                                                 | 418                                                                                 | 24                                                                                  | 39                                                                                  | 546                                                                                 | 61                                                                                  |
| Future Volume (veh/h)        | 65                                                                                | 183                                                                               | 79                                                                                | 79                                                                                | 299                                                                               | 72                                                                                | 81                                                                                 | 418                                                                                 | 24                                                                                  | 39                                                                                  | 546                                                                                 | 61                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 77                                                                                | 218                                                                               | 94                                                                                | 94                                                                                | 356                                                                               | 86                                                                                | 96                                                                                 | 498                                                                                 | 29                                                                                  | 46                                                                                  | 650                                                                                 | 73                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                  | 2                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                               | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 98                                                                                | 402                                                                               | 342                                                                               | 120                                                                               | 426                                                                               | 362                                                                               | 123                                                                                | 1024                                                                                | 60                                                                                  | 72                                                                                  | 965                                                                                 | 432                                                                                 |
| Arrive On Green              | 0.06                                                                              | 0.22                                                                              | 0.22                                                                              | 0.07                                                                              | 0.23                                                                              | 0.23                                                                              | 0.07                                                                               | 0.30                                                                                | 0.30                                                                                | 0.04                                                                                | 0.27                                                                                | 0.27                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 3400                                                                                | 198                                                                                 | 1774                                                                                | 3539                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 77                                                                                | 218                                                                               | 94                                                                                | 94                                                                                | 356                                                                               | 86                                                                                | 96                                                                                 | 259                                                                                 | 268                                                                                 | 46                                                                                  | 650                                                                                 | 73                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1770                                                                                | 1828                                                                                | 1774                                                                                | 1770                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 2.5                                                                               | 6.1                                                                               | 2.9                                                                               | 3.1                                                                               | 10.7                                                                              | 2.6                                                                               | 3.1                                                                                | 7.0                                                                                 | 7.1                                                                                 | 1.5                                                                                 | 9.6                                                                                 | 2.1                                                                                 |
| Cycle Q Clear(g_c), s        | 2.5                                                                               | 6.1                                                                               | 2.9                                                                               | 3.1                                                                               | 10.7                                                                              | 2.6                                                                               | 3.1                                                                                | 7.0                                                                                 | 7.1                                                                                 | 1.5                                                                                 | 9.6                                                                                 | 2.1                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.11                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 98                                                                                | 402                                                                               | 342                                                                               | 120                                                                               | 426                                                                               | 362                                                                               | 123                                                                                | 533                                                                                 | 551                                                                                 | 72                                                                                  | 965                                                                                 | 432                                                                                 |
| V/C Ratio(X)                 | 0.79                                                                              | 0.54                                                                              | 0.28                                                                              | 0.78                                                                              | 0.84                                                                              | 0.24                                                                              | 0.78                                                                               | 0.49                                                                                | 0.49                                                                                | 0.64                                                                                | 0.67                                                                                | 0.17                                                                                |
| Avail Cap(c_a), veh/h        | 136                                                                               | 508                                                                               | 432                                                                               | 166                                                                               | 539                                                                               | 459                                                                               | 166                                                                                | 533                                                                                 | 551                                                                                 | 166                                                                                 | 965                                                                                 | 432                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 27.4                                                                              | 20.4                                                                              | 19.2                                                                              | 26.9                                                                              | 21.6                                                                              | 18.5                                                                              | 26.9                                                                               | 16.8                                                                                | 16.8                                                                                | 27.7                                                                                | 19.0                                                                                | 16.3                                                                                |
| Incr Delay (d2), s/veh       | 18.4                                                                              | 1.1                                                                               | 0.4                                                                               | 14.9                                                                              | 9.0                                                                               | 0.3                                                                               | 15.4                                                                               | 3.1                                                                                 | 3.1                                                                                 | 9.2                                                                                 | 3.8                                                                                 | 0.8                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.7                                                                               | 3.3                                                                               | 1.3                                                                               | 2.0                                                                               | 6.5                                                                               | 1.2                                                                               | 2.0                                                                                | 3.8                                                                                 | 4.0                                                                                 | 0.9                                                                                 | 5.2                                                                                 | 1.0                                                                                 |
| LnGrp Delay(d),s/veh         | 45.8                                                                              | 21.6                                                                              | 19.6                                                                              | 41.8                                                                              | 30.6                                                                              | 18.8                                                                              | 42.3                                                                               | 19.9                                                                                | 19.9                                                                                | 36.9                                                                                | 22.8                                                                                | 17.1                                                                                |
| LnGrp LOS                    | D                                                                                 | C                                                                                 | B                                                                                 | D                                                                                 | C                                                                                 | B                                                                                 | D                                                                                  | B                                                                                   | B                                                                                   | D                                                                                   | C                                                                                   | B                                                                                   |
| Approach Vol, veh/h          | 389                                                                               |                                                                                   |                                                                                   | 536                                                                               |                                                                                   |                                                                                   | 623                                                                                |                                                                                     |                                                                                     | 769                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 25.9                                                                              |                                                                                   |                                                                                   | 30.7                                                                              |                                                                                   |                                                                                   | 23.3                                                                               |                                                                                     |                                                                                     | 23.1                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                  |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.9                                                                               | 23.2                                                                              | 9.5                                                                               | 18.2                                                                              | 9.6                                                                               | 21.5                                                                              | 8.7                                                                                | 18.9                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 16.0                                                                              | 5.5                                                                               | 16.0                                                                              | 5.5                                                                               | 16.0                                                                              | 4.5                                                                                | 17.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.5                                                                               | 9.1                                                                               | 5.1                                                                               | 8.1                                                                               | 5.1                                                                               | 11.6                                                                              | 4.5                                                                                | 12.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.2                                                                               | 0.0                                                                               | 0.7                                                                               | 0.0                                                                               | 1.4                                                                               | 0.0                                                                                | 0.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          | 25.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 5: Lassell St & Cottonwood Ave

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 46                                                                                | 248                                                                               | 60                                                                                | 60                                                                                | 308                                                                               | 44                                                                                | 94                                                                                 | 348                                                                                 | 73                                                                                  | 30                                                                                  | 300                                                                                 | 74                                                                                  |
| Future Volume (veh/h)        | 46                                                                                | 248                                                                               | 60                                                                                | 60                                                                                | 308                                                                               | 44                                                                                | 94                                                                                 | 348                                                                                 | 73                                                                                  | 30                                                                                  | 300                                                                                 | 74                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 58                                                                                | 310                                                                               | 75                                                                                | 75                                                                                | 385                                                                               | 55                                                                                | 118                                                                                | 435                                                                                 | 91                                                                                  | 38                                                                                  | 375                                                                                 | 92                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                 | 1                                                                                  | 1                                                                                   | 0                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                               | 0.80                                                                                | 0.80                                                                                | 0.80                                                                                | 0.80                                                                                | 0.80                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 74                                                                                | 343                                                                               | 83                                                                                | 96                                                                                | 774                                                                               | 110                                                                               | 410                                                                                | 649                                                                                 | 136                                                                                 | 54                                                                                  | 436                                                                                 | 370                                                                                 |
| Arrive On Green              | 0.04                                                                              | 0.24                                                                              | 0.24                                                                              | 0.05                                                                              | 0.25                                                                              | 0.25                                                                              | 0.23                                                                               | 0.43                                                                                | 0.43                                                                                | 0.03                                                                                | 0.23                                                                                | 0.23                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1450                                                                              | 351                                                                               | 1774                                                                              | 3113                                                                              | 442                                                                               | 1774                                                                               | 1495                                                                                | 313                                                                                 | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 58                                                                                | 0                                                                                 | 385                                                                               | 75                                                                                | 218                                                                               | 222                                                                               | 118                                                                                | 0                                                                                   | 526                                                                                 | 38                                                                                  | 375                                                                                 | 92                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 0                                                                                 | 1801                                                                              | 1774                                                                              | 1770                                                                              | 1785                                                                              | 1774                                                                               | 0                                                                                   | 1808                                                                                | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 2.9                                                                               | 0.0                                                                               | 18.7                                                                              | 3.8                                                                               | 9.5                                                                               | 9.6                                                                               | 4.9                                                                                | 0.0                                                                                 | 20.9                                                                                | 1.9                                                                                 | 17.4                                                                                | 3.3                                                                                 |
| Cycle Q Clear(g_c), s        | 2.9                                                                               | 0.0                                                                               | 18.7                                                                              | 3.8                                                                               | 9.5                                                                               | 9.6                                                                               | 4.9                                                                                | 0.0                                                                                 | 20.9                                                                                | 1.9                                                                                 | 17.4                                                                                | 3.3                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.19                                                                              | 1.00                                                                              |                                                                                   | 0.25                                                                              | 1.00                                                                               |                                                                                     | 0.17                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 74                                                                                | 0                                                                                 | 426                                                                               | 96                                                                                | 440                                                                               | 444                                                                               | 410                                                                                | 0                                                                                   | 785                                                                                 | 54                                                                                  | 436                                                                                 | 370                                                                                 |
| V/C Ratio(X)                 | 0.78                                                                              | 0.00                                                                              | 0.90                                                                              | 0.78                                                                              | 0.49                                                                              | 0.50                                                                              | 0.29                                                                               | 0.00                                                                                | 0.67                                                                                | 0.70                                                                                | 0.86                                                                                | 0.25                                                                                |
| Avail Cap(c_a), veh/h        | 128                                                                               | 0                                                                                 | 470                                                                               | 128                                                                               | 462                                                                               | 466                                                                               | 410                                                                                | 0                                                                                   | 785                                                                                 | 89                                                                                  | 611                                                                                 | 519                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 42.7                                                                              | 0.0                                                                               | 33.4                                                                              | 42.0                                                                              | 29.0                                                                              | 29.0                                                                              | 28.5                                                                               | 0.0                                                                                 | 20.3                                                                                | 43.2                                                                                | 33.1                                                                                | 17.3                                                                                |
| Incr Delay (d2), s/veh       | 16.0                                                                              | 0.0                                                                               | 19.7                                                                              | 19.4                                                                              | 0.9                                                                               | 0.9                                                                               | 0.4                                                                                | 0.0                                                                                 | 4.5                                                                                 | 14.9                                                                                | 19.5                                                                                | 1.6                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.8                                                                               | 0.0                                                                               | 11.6                                                                              | 2.4                                                                               | 4.8                                                                               | 4.9                                                                               | 2.5                                                                                | 0.0                                                                                 | 11.4                                                                                | 1.2                                                                                 | 11.3                                                                                | 1.9                                                                                 |
| LnGrp Delay(d),s/veh         | 58.7                                                                              | 0.0                                                                               | 53.1                                                                              | 61.4                                                                              | 29.8                                                                              | 29.9                                                                              | 28.9                                                                               | 0.0                                                                                 | 24.8                                                                                | 58.1                                                                                | 52.5                                                                                | 18.9                                                                                |
| LnGrp LOS                    | E                                                                                 |                                                                                   | D                                                                                 | E                                                                                 | C                                                                                 | C                                                                                 | C                                                                                  |                                                                                     | C                                                                                   | E                                                                                   | D                                                                                   | B                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 443                                                                               |                                                                                   |                                                                                   | 515                                                                               |                                                                                   |                                                                                    | 644                                                                                 |                                                                                     |                                                                                     | 505                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 53.8                                                                              |                                                                                   |                                                                                   | 34.5                                                                              |                                                                                   |                                                                                    | 25.6                                                                                |                                                                                     |                                                                                     | 46.8                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.3                                                                               | 44.6                                                                              | 10.4                                                                              | 26.8                                                                              | 26.3                                                                              | 26.6                                                                              | 9.3                                                                                | 27.9                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 33.5                                                                              | 6.5                                                                               | 23.5                                                                              | 8.5                                                                               | 29.5                                                                              | 6.5                                                                                | 23.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.9                                                                               | 22.9                                                                              | 5.8                                                                               | 20.7                                                                              | 6.9                                                                               | 19.4                                                                              | 4.9                                                                                | 11.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 2.3                                                                               | 0.0                                                                               | 0.6                                                                               | 0.0                                                                               | 1.7                                                                               | 0.0                                                                                | 1.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 38.8                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 6: Lassell St & Bay Ave

02/22/2021

|                              |  |  |  |  |  |  |   |  |  |  |                                                                                      |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |   |                                                                                     |
| Traffic Volume (veh/h)       | 18                                                                                | 53                                                                                | 18                                                                                | 72                                                                                | 82                                                                                | 57                                                                                | 31                                                                                  | 439                                                                                 | 52                                                                                  | 32                                                                                  | 395                                                                                                                                                                     | 5                                                                                   |
| Future Volume (veh/h)        | 18                                                                                | 53                                                                                | 18                                                                                | 72                                                                                | 82                                                                                | 57                                                                                | 31                                                                                  | 439                                                                                 | 52                                                                                  | 32                                                                                  | 395                                                                                                                                                                     | 5                                                                                   |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                   | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                                | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1900                                                                                |
| Adj Flow Rate, veh/h         | 21                                                                                | 62                                                                                | 21                                                                                | 84                                                                                | 95                                                                                | 66                                                                                | 36                                                                                  | 510                                                                                 | 60                                                                                  | 37                                                                                  | 459                                                                                                                                                                     | 6                                                                                   |
| Adj No. of Lanes             | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                   | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 0                                                                                   |
| Peak Hour Factor             | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                                                                                                    | 0.86                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 83                                                                                | 207                                                                               | 61                                                                                | 139                                                                               | 125                                                                               | 77                                                                                | 53                                                                                  | 545                                                                                 | 64                                                                                  | 546                                                                                 | 2185                                                                                                                                                                    | 29                                                                                  |
| Arrive On Green              | 0.18                                                                              | 0.18                                                                              | 0.18                                                                              | 0.18                                                                              | 0.18                                                                              | 0.18                                                                              | 0.06                                                                                | 0.67                                                                                | 0.67                                                                                | 0.31                                                                                | 0.61                                                                                                                                                                    | 0.61                                                                                |
| Sat Flow, veh/h              | 197                                                                               | 1177                                                                              | 348                                                                               | 482                                                                               | 711                                                                               | 440                                                                               | 1774                                                                                | 1636                                                                                | 193                                                                                 | 1774                                                                                | 3577                                                                                                                                                                    | 47                                                                                  |
| Grp Volume(v), veh/h         | 104                                                                               | 0                                                                                 | 0                                                                                 | 245                                                                               | 0                                                                                 | 0                                                                                 | 36                                                                                  | 0                                                                                   | 570                                                                                 | 37                                                                                  | 227                                                                                                                                                                     | 238                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1722                                                                              | 0                                                                                 | 0                                                                                 | 1633                                                                              | 0                                                                                 | 0                                                                                 | 1774                                                                                | 0                                                                                   | 1829                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1854                                                                                |
| Q Serve(g_s), s              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 8.4                                                                               | 0.0                                                                               | 0.0                                                                               | 1.8                                                                                 | 0.0                                                                                 | 24.9                                                                                | 1.3                                                                                 | 5.2                                                                                                                                                                     | 5.2                                                                                 |
| Cycle Q Clear(g_c), s        | 4.6                                                                               | 0.0                                                                               | 0.0                                                                               | 12.9                                                                              | 0.0                                                                               | 0.0                                                                               | 1.8                                                                                 | 0.0                                                                                 | 24.9                                                                                | 1.3                                                                                 | 5.2                                                                                                                                                                     | 5.2                                                                                 |
| Prop In Lane                 | 0.20                                                                              |                                                                                   | 0.20                                                                              | 0.34                                                                              |                                                                                   | 0.27                                                                              | 1.00                                                                                |                                                                                     | 0.11                                                                                | 1.00                                                                                |                                                                                                                                                                         | 0.03                                                                                |
| Lane Grp Cap(c), veh/h       | 351                                                                               | 0                                                                                 | 0                                                                                 | 341                                                                               | 0                                                                                 | 0                                                                                 | 53                                                                                  | 0                                                                                   | 609                                                                                 | 546                                                                                 | 1081                                                                                                                                                                    | 1133                                                                                |
| V/C Ratio(X)                 | 0.30                                                                              | 0.00                                                                              | 0.00                                                                              | 0.72                                                                              | 0.00                                                                              | 0.00                                                                              | 0.68                                                                                | 0.00                                                                                | 0.94                                                                                | 0.07                                                                                | 0.21                                                                                                                                                                    | 0.21                                                                                |
| Avail Cap(c_a), veh/h        | 508                                                                               | 0                                                                                 | 0                                                                                 | 491                                                                               | 0                                                                                 | 0                                                                                 | 108                                                                                 | 0                                                                                   | 884                                                                                 | 546                                                                                 | 1081                                                                                                                                                                    | 1133                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                                | 2.00                                                                                | 2.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 32.4                                                                              | 0.0                                                                               | 0.0                                                                               | 35.7                                                                              | 0.0                                                                               | 0.0                                                                               | 41.9                                                                                | 0.0                                                                                 | 14.2                                                                                | 22.0                                                                                | 7.8                                                                                                                                                                     | 7.8                                                                                 |
| Incr Delay (d2), s/veh       | 0.5                                                                               | 0.0                                                                               | 0.0                                                                               | 2.8                                                                               | 0.0                                                                               | 0.0                                                                               | 14.5                                                                                | 0.0                                                                                 | 23.7                                                                                | 0.1                                                                                 | 0.4                                                                                                                                                                     | 0.4                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.3                                                                               | 0.0                                                                               | 0.0                                                                               | 6.1                                                                               | 0.0                                                                               | 0.0                                                                               | 1.1                                                                                 | 0.0                                                                                 | 16.0                                                                                | 0.7                                                                                 | 2.7                                                                                                                                                                     | 2.8                                                                                 |
| LnGrp Delay(d),s/veh         | 32.9                                                                              | 0.0                                                                               | 0.0                                                                               | 38.5                                                                              | 0.0                                                                               | 0.0                                                                               | 56.4                                                                                | 0.0                                                                                 | 37.8                                                                                | 22.1                                                                                | 8.3                                                                                                                                                                     | 8.2                                                                                 |
| LnGrp LOS                    | C                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                   |                                                                                     | D                                                                                   | C                                                                                   | A                                                                                                                                                                       | A                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 104                                                                               |                                                                                   |                                                                                   | 245                                                                               |                                                                                   |                                                                                     | 606                                                                                 |                                                                                     |                                                                                     | 502                                                                                                                                                                     |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 32.9                                                                              |                                                                                   |                                                                                   | 38.5                                                                              |                                                                                   |                                                                                     | 38.9                                                                                |                                                                                     |                                                                                     | 9.3                                                                                                                                                                     |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     | A                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 33.2                                                                              | 35.5                                                                              |                                                                                   | 21.3                                                                              | 8.2                                                                               | 60.5                                                                              |                                                                                     | 21.3                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               |                                                                                   | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               |                                                                                     | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 43.5                                                                              |                                                                                   | 24.5                                                                              | 5.5                                                                               | 43.5                                                                              |                                                                                     | 24.5                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.3                                                                               | 26.9                                                                              |                                                                                   | 6.6                                                                               | 3.8                                                                               | 7.2                                                                               |                                                                                     | 14.9                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 3.1                                                                               |                                                                                   | 0.4                                                                               | 0.0                                                                               | 2.6                                                                               |                                                                                     | 0.9                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 28.2                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

**Intersection**

Int Delay, s/veh 1.3

| Movement                 | EBL                                                                               | EBR  | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |  |      |  |  |  |      |
| Traffic Vol, veh/h       | 32                                                                                | 43   | 40                                                                                | 750                                                                               | 559                                                                               | 55   |
| Future Vol, veh/h        | 32                                                                                | 43   | 40                                                                                | 750                                                                               | 559                                                                               | 55   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -    | 200                                                                               | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 92                                                                                | 92   | 92                                                                                | 92                                                                                | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 35                                                                                | 47   | 43                                                                                | 815                                                                               | 608                                                                               | 60   |

| Major/Minor          | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 1132   | 334    | 668    |
| Stage 1              | 638    | -      | -      |
| Stage 2              | 494    | -      | -      |
| Critical Hdwy        | 6.84   | 6.94   | 4.14   |
| Critical Hdwy Stg 1  | 5.84   | -      | -      |
| Critical Hdwy Stg 2  | 5.84   | -      | -      |
| Follow-up Hdwy       | 3.52   | 3.32   | 2.22   |
| Pot Cap-1 Maneuver   | 197    | 662    | 918    |
| Stage 1              | 488    | -      | -      |
| Stage 2              | 579    | -      | -      |
| Platoon blocked, %   |        |        |        |
| Mov Cap-1 Maneuver   | 188    | 662    | 918    |
| Mov Cap-2 Maneuver   | 188    | -      | -      |
| Stage 1              | 465    | -      | -      |
| Stage 2              | 579    | -      | -      |

| Approach             | EB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 20.1 | 0.5 | 0  |
| HCM LOS              | C    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 918   | -   | 319   | -   | -   |
| HCM Lane V/C Ratio    | 0.047 | -   | 0.256 | -   | -   |
| HCM Control Delay (s) | 9.1   | -   | 20.1  | -   | -   |
| HCM Lane LOS          | A     | -   | C     | -   | -   |
| HCM 95th %tile Q(veh) | 0.1   | -   | 1     | -   | -   |

# HCM 2010 Signalized Intersection Summary

## 8: Lassell St & Catcus Ave

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 86                                                                                | 426                                                                               | 157                                                                               | 242                                                                               | 524                                                                               | 48                                                                                | 165                                                                                | 679                                                                                 | 326                                                                                 | 58                                                                                  | 482                                                                                 | 72                                                                                  |
| Future Volume (veh/h)        | 86                                                                                | 426                                                                               | 157                                                                               | 242                                                                               | 524                                                                               | 48                                                                                | 165                                                                                | 679                                                                                 | 326                                                                                 | 58                                                                                  | 482                                                                                 | 72                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 102                                                                               | 507                                                                               | 187                                                                               | 288                                                                               | 624                                                                               | 57                                                                                | 196                                                                                | 808                                                                                 | 0                                                                                   | 69                                                                                  | 574                                                                                 | 86                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                  | 2                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                               | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 158                                                                               | 598                                                                               | 220                                                                               | 347                                                                               | 1211                                                                              | 542                                                                               | 311                                                                                | 1154                                                                                | 516                                                                                 | 115                                                                                 | 666                                                                                 | 100                                                                                 |
| Arrive On Green              | 0.09                                                                              | 0.24                                                                              | 0.22                                                                              | 0.20                                                                              | 0.34                                                                              | 0.34                                                                              | 0.18                                                                               | 0.33                                                                                | 0.00                                                                                | 0.13                                                                                | 0.43                                                                                | 0.40                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 2537                                                                              | 931                                                                               | 1774                                                                              | 3539                                                                              | 1583                                                                              | 1774                                                                               | 3539                                                                                | 1583                                                                                | 1774                                                                                | 3089                                                                                | 462                                                                                 |
| Grp Volume(v), veh/h         | 102                                                                               | 353                                                                               | 341                                                                               | 288                                                                               | 624                                                                               | 57                                                                                | 196                                                                                | 808                                                                                 | 0                                                                                   | 69                                                                                  | 328                                                                                 | 332                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                              | 1698                                                                              | 1774                                                                              | 1770                                                                              | 1583                                                                              | 1774                                                                               | 1770                                                                                | 1583                                                                                | 1774                                                                                | 1770                                                                                | 1781                                                                                |
| Q Serve(g_s), s              | 5.0                                                                               | 17.1                                                                              | 17.3                                                                              | 14.0                                                                              | 12.7                                                                              | 2.2                                                                               | 9.2                                                                                | 17.9                                                                                | 0.0                                                                                 | 3.3                                                                                 | 15.1                                                                                | 15.2                                                                                |
| Cycle Q Clear(g_c), s        | 5.0                                                                               | 17.1                                                                              | 17.3                                                                              | 14.0                                                                              | 12.7                                                                              | 2.2                                                                               | 9.2                                                                                | 17.9                                                                                | 0.0                                                                                 | 3.3                                                                                 | 15.1                                                                                | 15.2                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.55                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.26                                                                                |
| Lane Grp Cap(c), veh/h       | 158                                                                               | 417                                                                               | 401                                                                               | 347                                                                               | 1211                                                                              | 542                                                                               | 311                                                                                | 1154                                                                                | 516                                                                                 | 115                                                                                 | 382                                                                                 | 384                                                                                 |
| V/C Ratio(X)                 | 0.65                                                                              | 0.85                                                                              | 0.85                                                                              | 0.83                                                                              | 0.52                                                                              | 0.11                                                                              | 0.63                                                                               | 0.70                                                                                | 0.00                                                                                | 0.60                                                                                | 0.86                                                                                | 0.86                                                                                |
| Avail Cap(c_a), veh/h        | 217                                                                               | 433                                                                               | 415                                                                               | 355                                                                               | 1211                                                                              | 542                                                                               | 311                                                                                | 1154                                                                                | 516                                                                                 | 118                                                                                 | 413                                                                                 | 416                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 2.00                                                                                | 2.00                                                                                | 2.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 39.6                                                                              | 32.8                                                                              | 33.3                                                                              | 34.8                                                                              | 23.6                                                                              | 20.2                                                                              | 34.4                                                                               | 26.5                                                                                | 0.0                                                                                 | 38.0                                                                                | 24.4                                                                                | 24.8                                                                                |
| Incr Delay (d2), s/veh       | 4.4                                                                               | 14.0                                                                              | 15.1                                                                              | 15.0                                                                              | 0.4                                                                               | 0.1                                                                               | 4.0                                                                                | 3.6                                                                                 | 0.0                                                                                 | 7.7                                                                                 | 21.6                                                                                | 21.9                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.6                                                                               | 9.9                                                                               | 9.8                                                                               | 8.3                                                                               | 6.2                                                                               | 1.0                                                                               | 4.9                                                                                | 9.3                                                                                 | 0.0                                                                                 | 1.9                                                                                 | 9.6                                                                                 | 9.7                                                                                 |
| LnGrp Delay(d),s/veh         | 44.0                                                                              | 46.8                                                                              | 48.4                                                                              | 49.8                                                                              | 24.0                                                                              | 20.3                                                                              | 38.4                                                                               | 30.1                                                                                | 0.0                                                                                 | 45.7                                                                                | 45.9                                                                                | 46.7                                                                                |
| LnGrp LOS                    | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | D                                                                                  | C                                                                                   |                                                                                     | D                                                                                   | D                                                                                   | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 796                                                                               |                                                                                   |                                                                                   | 969                                                                               |                                                                                   |                                                                                    | 1004                                                                                |                                                                                     |                                                                                     | 729                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 47.1                                                                              |                                                                                   |                                                                                   | 31.5                                                                              |                                                                                   |                                                                                    | 31.7                                                                                |                                                                                     |                                                                                     | 46.2                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 9.9                                                                               | 33.3                                                                              | 21.6                                                                              | 25.2                                                                              | 19.8                                                                              | 23.4                                                                              | 12.0                                                                               | 34.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 26.5                                                                              | 16.5                                                                              | 20.5                                                                              | 11.5                                                                              | 19.5                                                                              | 9.5                                                                                | 27.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 5.3                                                                               | 19.9                                                                              | 16.0                                                                              | 19.3                                                                              | 11.2                                                                              | 17.2                                                                              | 7.0                                                                                | 14.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 2.1                                                                               | 0.1                                                                               | 0.4                                                                               | 0.0                                                                               | 0.7                                                                               | 0.1                                                                                | 2.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 38.2                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

HCM 2010 TWSC  
9: Alessandro Blvd & Driveway A

02/22/2021

Intersection

Int Delay, s/veh 0.4

| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      |      | ↑    | ↑↑   |      |      | ↑    |
| Traffic Vol, veh/h       | 0    | 414  | 884  | 22   | 0    | 40   |
| Future Vol, veh/h        | 0    | 414  | 884  | 22   | 0    | 40   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 0    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 0    | 450  | 961  | 24   | 0    | 43   |

| Major/Minor          | Major1 | Major2 | Minor2    |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | -      | 0      | - 0 - 493 |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |
| Critical Hdwy        | -      | -      | - - 6.93  |
| Critical Hdwy Stg 1  | -      | -      | - - -     |
| Critical Hdwy Stg 2  | -      | -      | - - -     |
| Follow-up Hdwy       | -      | -      | - - 3.319 |
| Pot Cap-1 Maneuver   | 0      | -      | - 0 523   |
| Stage 1              | 0      | -      | - 0 -     |
| Stage 2              | 0      | -      | - 0 -     |
| Platoon blocked, %   | -      | -      | -         |
| Mov Cap-1 Maneuver   | -      | -      | - - 523   |
| Mov Cap-2 Maneuver   | -      | -      | - - -     |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |

| Approach             | EB | WB | SB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 0  | 12.5 |
| HCM LOS              |    |    | B    |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h)      | -   | -   | -   | 523   |
| HCM Lane V/C Ratio    | -   | -   | -   | 0.083 |
| HCM Control Delay (s) | -   | -   | -   | 12.5  |
| HCM Lane LOS          | -   | -   | -   | B     |
| HCM 95th %tile Q(veh) | -   | -   | -   | 0.3   |

HCM 2010 TWSC  
10: Alessandro Blvd & Driveway B

02/22/2021

Intersection

Int Delay, s/veh 0.8

| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      |      | ↑    | ↑↑   |      |      | ↑    |
| Traffic Vol, veh/h       | 0    | 414  | 884  | 172  | 0    | 81   |
| Future Vol, veh/h        | 0    | 414  | 884  | 172  | 0    | 81   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 0    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 0    | 450  | 961  | 187  | 0    | 88   |

| Major/Minor          | Major1 | Major2 | Minor2    |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | -      | 0      | - 0 - 574 |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |
| Critical Hdwy        | -      | -      | - - 6.93  |
| Critical Hdwy Stg 1  | -      | -      | - - -     |
| Critical Hdwy Stg 2  | -      | -      | - - -     |
| Follow-up Hdwy       | -      | -      | - - 3.319 |
| Pot Cap-1 Maneuver   | 0      | -      | - - 0 463 |
| Stage 1              | 0      | -      | - - 0 -   |
| Stage 2              | 0      | -      | - - 0 -   |
| Platoon blocked, %   | -      | -      | -         |
| Mov Cap-1 Maneuver   | -      | -      | - - 463   |
| Mov Cap-2 Maneuver   | -      | -      | - - -     |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |

| Approach             | EB | WB | SB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 0  | 14.6 |
| HCM LOS              |    |    | B    |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h)      | -   | -   | -   | 463   |
| HCM Lane V/C Ratio    | -   | -   | -   | 0.19  |
| HCM Control Delay (s) | -   | -   | -   | 14.6  |
| HCM Lane LOS          | -   | -   | -   | B     |
| HCM 95th %tile Q(veh) | -   | -   | -   | 0.7   |

HCM 2010 TWSC  
11: Lasselle St/Lassell St & Driveway C

02/22/2021

Intersection

Int Delay, s/veh 9.4

| Movement                 | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations      |  |  |  |  |  |  |
| Traffic Vol, veh/h       | 121                                                                               | 161                                                                               | 108                                                                               | 459                                                                               | 388                                                                               | 129                                                                               |
| Future Vol, veh/h        | 121                                                                               | 161                                                                               | 108                                                                               | 459                                                                               | 388                                                                               | 129                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Stop                                                                              | Stop                                                                              | Free                                                                              | Free                                                                              | Free                                                                              | Free                                                                              |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | None                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | 40                                                                                | 0                                                                                 | 80                                                                                | -                                                                                 | -                                                                                 | -                                                                                 |
| Veh in Median Storage, # | 0                                                                                 | -                                                                                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | 0                                                                                 | -                                                                                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 132                                                                               | 175                                                                               | 117                                                                               | 499                                                                               | 422                                                                               | 140                                                                               |

| Major/Minor          | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 1225   | 281    | 562    |
| Stage 1              | 492    | -      | -      |
| Stage 2              | 733    | -      | -      |
| Critical Hdwy        | 6.63   | 6.93   | 4.13   |
| Critical Hdwy Stg 1  | 5.83   | -      | -      |
| Critical Hdwy Stg 2  | 5.43   | -      | -      |
| Follow-up Hdwy       | 3.519  | 3.319  | 2.219  |
| Pot Cap-1 Maneuver   | 184    | 717    | 1007   |
| Stage 1              | 581    | -      | -      |
| Stage 2              | 474    | -      | -      |
| Platoon blocked, %   |        |        |        |
| Mov Cap-1 Maneuver   | 163    | 717    | 1007   |
| Mov Cap-2 Maneuver   | 163    | -      | -      |
| Stage 1              | 514    | -      | -      |
| Stage 2              | 474    | -      | -      |

| Approach             | EB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 42.3 | 1.7 | 0  |
| HCM LOS              | E    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | EBLn2 | SBT | SBR |
|-----------------------|-------|-----|-------|-------|-----|-----|
| Capacity (veh/h)      | 1007  | -   | 163   | 717   | -   | -   |
| HCM Lane V/C Ratio    | 0.117 | -   | 0.807 | 0.244 | -   | -   |
| HCM Control Delay (s) | 9     | -   | 83.2  | 11.6  | -   | -   |
| HCM Lane LOS          | A     | -   | F     | B     | -   | -   |
| HCM 95th %tile Q(veh) | 0.4   | -   | 5.3   | 1     | -   | -   |

# HCM 2010 Signalized Intersection Summary

## 3: Lasselle St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 158                                                                               | 224                                                                               | 161                                                                               | 133                                                                               | 614                                                                               | 38                                                                                | 300                                                                                | 458                                                                                 | 144                                                                                 | 114                                                                                 | 358                                                                                 | 78                                                                                  |
| Future Volume (veh/h)        | 158                                                                               | 224                                                                               | 161                                                                               | 133                                                                               | 614                                                                               | 38                                                                                | 300                                                                                | 458                                                                                 | 144                                                                                 | 114                                                                                 | 358                                                                                 | 78                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 184                                                                               | 260                                                                               | 187                                                                               | 155                                                                               | 714                                                                               | 44                                                                                | 349                                                                                | 533                                                                                 | 167                                                                                 | 133                                                                                 | 416                                                                                 | 91                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                 | 1                                                                                  | 1                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                              | 0.86                                                                               | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                | 0.86                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 138                                                                               | 342                                                                               | 264                                                                               | 276                                                                               | 884                                                                               | 54                                                                                | 518                                                                                | 589                                                                                 | 747                                                                                 | 297                                                                                 | 554                                                                                 | 120                                                                                 |
| Arrive On Green              | 0.08                                                                              | 0.18                                                                              | 0.17                                                                              | 0.16                                                                              | 0.26                                                                              | 0.24                                                                              | 0.29                                                                               | 0.32                                                                                | 0.32                                                                                | 0.06                                                                                | 0.06                                                                                | 0.06                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 3387                                                                              | 209                                                                               | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 2894                                                                                | 628                                                                                 |
| Grp Volume(v), veh/h         | 184                                                                               | 260                                                                               | 187                                                                               | 155                                                                               | 373                                                                               | 385                                                                               | 349                                                                                | 533                                                                                 | 167                                                                                 | 133                                                                                 | 253                                                                                 | 254                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1770                                                                              | 1826                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 1770                                                                                | 1752                                                                                |
| Q Serve(g_s), s              | 7.0                                                                               | 11.9                                                                              | 10.0                                                                              | 7.3                                                                               | 17.8                                                                              | 17.8                                                                              | 15.6                                                                               | 24.7                                                                                | 0.0                                                                                 | 6.5                                                                                 | 12.7                                                                                | 12.8                                                                                |
| Cycle Q Clear(g_c), s        | 7.0                                                                               | 11.9                                                                              | 10.0                                                                              | 7.3                                                                               | 17.8                                                                              | 17.8                                                                              | 15.6                                                                               | 24.7                                                                                | 0.0                                                                                 | 6.5                                                                                 | 12.7                                                                                | 12.8                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.11                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.36                                                                                |
| Lane Grp Cap(c), veh/h       | 138                                                                               | 342                                                                               | 264                                                                               | 276                                                                               | 462                                                                               | 476                                                                               | 518                                                                                | 589                                                                                 | 747                                                                                 | 297                                                                                 | 339                                                                                 | 335                                                                                 |
| V/C Ratio(X)                 | 1.33                                                                              | 0.76                                                                              | 0.71                                                                              | 0.56                                                                              | 0.81                                                                              | 0.81                                                                              | 0.67                                                                               | 0.90                                                                                | 0.22                                                                                | 0.45                                                                                | 0.75                                                                                | 0.76                                                                                |
| Avail Cap(c_a), veh/h        | 138                                                                               | 476                                                                               | 378                                                                               | 296                                                                               | 610                                                                               | 629                                                                               | 518                                                                                | 600                                                                                 | 756                                                                                 | 297                                                                                 | 413                                                                                 | 409                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 0.33                                                                                | 0.33                                                                                | 0.33                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.74                                                                              | 0.74                                                                              | 0.74                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 41.5                                                                              | 34.9                                                                              | 35.4                                                                              | 35.2                                                                              | 31.1                                                                              | 31.2                                                                              | 28.1                                                                               | 29.5                                                                                | 14.0                                                                                | 38.5                                                                                | 40.0                                                                                | 40.2                                                                                |
| Incr Delay (d2), s/veh       | 191.1                                                                             | 4.6                                                                               | 3.5                                                                               | 1.6                                                                               | 4.5                                                                               | 4.4                                                                               | 3.4                                                                                | 19.8                                                                                | 0.7                                                                                 | 1.1                                                                                 | 14.0                                                                                | 14.8                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 10.7                                                                              | 6.6                                                                               | 4.6                                                                               | 3.7                                                                               | 9.3                                                                               | 9.6                                                                               | 8.1                                                                                | 15.8                                                                                | 2.6                                                                                 | 3.3                                                                                 | 7.5                                                                                 | 7.6                                                                                 |
| LnGrp Delay(d),s/veh         | 232.6                                                                             | 39.5                                                                              | 38.9                                                                              | 36.7                                                                              | 35.7                                                                              | 35.6                                                                              | 31.5                                                                               | 49.3                                                                                | 14.7                                                                                | 39.5                                                                                | 54.0                                                                                | 55.0                                                                                |
| LnGrp LOS                    | F                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | C                                                                                  | D                                                                                   | B                                                                                   | D                                                                                   | D                                                                                   | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 631                                                                               |                                                                                   |                                                                                   | 913                                                                               |                                                                                   |                                                                                    | 1049                                                                                |                                                                                     |                                                                                     | 640                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 95.6                                                                              |                                                                                   |                                                                                   | 35.8                                                                              |                                                                                   |                                                                                    | 37.9                                                                                |                                                                                     |                                                                                     | 51.4                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                    | D                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 19.1                                                                              | 32.5                                                                              | 18.0                                                                              | 20.5                                                                              | 30.3                                                                              | 21.2                                                                              | 11.0                                                                               | 27.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 27.5                                                                              | 13.5                                                                              | 21.5                                                                              | 13.5                                                                              | 19.5                                                                              | 5.5                                                                                | 29.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 8.5                                                                               | 26.7                                                                              | 9.3                                                                               | 13.9                                                                              | 17.6                                                                              | 14.8                                                                              | 9.0                                                                                | 19.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.3                                                                               | 0.2                                                                               | 1.1                                                                               | 0.0                                                                               | 0.9                                                                               | 0.0                                                                                | 2.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   | 51.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 1: Alessandro Blvd & Perris Blvd

02/22/2021

|                              |                                                                                    |                                                                                    |  |  |                                                                                                                                                                      |  |  |                                                                                    |  |  |                                                                                      |  |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                                                                                                                 | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                | NBT                                                                                                                                                                   | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |   |   |  |  |    |                                                                                   |   |   |  |  |   |  |
| Traffic Volume (veh/h)       | 237                                                                                                                                                                 | 663                                                                                                                                                                 | 253                                                                               | 155                                                                               | 426                                                                                                                                                                                                                                                   | 93                                                                                | 174                                                                                | 652                                                                                                                                                                   | 131                                                                                 | 132                                                                                 | 668                                                                                                                                                                     | 112                                                                                 |
| Future Volume (veh/h)        | 237                                                                                                                                                                 | 663                                                                                                                                                                 | 253                                                                               | 155                                                                               | 426                                                                                                                                                                                                                                                   | 93                                                                                | 174                                                                                | 652                                                                                                                                                                   | 131                                                                                 | 132                                                                                 | 668                                                                                                                                                                     | 112                                                                                 |
| Number                       | 7                                                                                                                                                                   | 4                                                                                                                                                                   | 14                                                                                | 3                                                                                 | 8                                                                                                                                                                                                                                                     | 18                                                                                | 5                                                                                  | 2                                                                                                                                                                     | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                                                                                                   | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                  | 0                                                                                                                                                                     | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                                                                                                       | 1.00                                                                              | 1.00                                                                               |                                                                                                                                                                       | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                  | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                                                                                                                | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                              | 1863                                                                                                                                                                                                                                                  | 1900                                                                              | 1863                                                                               | 1863                                                                                                                                                                  | 1863                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1863                                                                                |
| Adj Flow Rate, veh/h         | 249                                                                                                                                                                 | 698                                                                                                                                                                 | 266                                                                               | 163                                                                               | 448                                                                                                                                                                                                                                                   | 98                                                                                | 183                                                                                | 686                                                                                                                                                                   | 138                                                                                 | 139                                                                                 | 703                                                                                                                                                                     | 118                                                                                 |
| Adj No. of Lanes             | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 1                                                                                 | 1                                                                                 | 3                                                                                                                                                                                                                                                     | 0                                                                                 | 1                                                                                  | 2                                                                                                                                                                     | 1                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 1                                                                                   |
| Peak Hour Factor             | 0.95                                                                                                                                                                | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                                                                                                                                                                                  | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                                                                                                  | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                                                                                                    | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                                                                                                     | 2                                                                                 | 2                                                                                  | 2                                                                                                                                                                     | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 334                                                                                                                                                                 | 793                                                                                                                                                                 | 355                                                                               | 188                                                                               | 981                                                                                                                                                                                                                                                   | 209                                                                               | 278                                                                                | 854                                                                                                                                                                   | 382                                                                                 | 272                                                                                 | 842                                                                                                                                                                     | 377                                                                                 |
| Arrive On Green              | 0.10                                                                                                                                                                | 0.22                                                                                                                                                                | 0.22                                                                              | 0.11                                                                              | 0.23                                                                                                                                                                                                                                                  | 0.23                                                                              | 0.16                                                                               | 0.24                                                                                                                                                                  | 0.24                                                                                | 0.15                                                                                | 0.24                                                                                                                                                                    | 0.24                                                                                |
| Sat Flow, veh/h              | 3442                                                                                                                                                                | 3539                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 4201                                                                                                                                                                                                                                                  | 894                                                                               | 1774                                                                               | 3539                                                                                                                                                                  | 1583                                                                                | 1774                                                                                | 3539                                                                                                                                                                    | 1583                                                                                |
| Grp Volume(v), veh/h         | 249                                                                                                                                                                 | 698                                                                                                                                                                 | 266                                                                               | 163                                                                               | 359                                                                                                                                                                                                                                                   | 187                                                                               | 183                                                                                | 686                                                                                                                                                                   | 138                                                                                 | 139                                                                                 | 703                                                                                                                                                                     | 118                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1721                                                                                                                                                                | 1770                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 1695                                                                                                                                                                                                                                                  | 1705                                                                              | 1774                                                                               | 1770                                                                                                                                                                  | 1583                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1583                                                                                |
| Q Serve(g_s), s              | 5.6                                                                                                                                                                 | 15.2                                                                                                                                                                | 12.5                                                                              | 7.2                                                                               | 7.3                                                                                                                                                                                                                                                   | 7.5                                                                               | 7.8                                                                                | 14.6                                                                                                                                                                  | 5.8                                                                                 | 5.8                                                                                 | 15.1                                                                                                                                                                    | 3.4                                                                                 |
| Cycle Q Clear(g_c), s        | 5.6                                                                                                                                                                 | 15.2                                                                                                                                                                | 12.5                                                                              | 7.2                                                                               | 7.3                                                                                                                                                                                                                                                   | 7.5                                                                               | 7.8                                                                                | 14.6                                                                                                                                                                  | 5.8                                                                                 | 5.8                                                                                 | 15.1                                                                                                                                                                    | 3.4                                                                                 |
| Prop In Lane                 | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                                                                                                       | 0.52                                                                              | 1.00                                                                               |                                                                                                                                                                       | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 334                                                                                                                                                                 | 793                                                                                                                                                                 | 355                                                                               | 188                                                                               | 792                                                                                                                                                                                                                                                   | 398                                                                               | 278                                                                                | 854                                                                                                                                                                   | 382                                                                                 | 272                                                                                 | 842                                                                                                                                                                     | 377                                                                                 |
| V/C Ratio(X)                 | 0.75                                                                                                                                                                | 0.88                                                                                                                                                                | 0.75                                                                              | 0.86                                                                              | 0.45                                                                                                                                                                                                                                                  | 0.47                                                                              | 0.66                                                                               | 0.80                                                                                                                                                                  | 0.36                                                                                | 0.51                                                                                | 0.83                                                                                                                                                                    | 0.31                                                                                |
| Avail Cap(c_a), veh/h        | 409                                                                                                                                                                 | 818                                                                                                                                                                 | 366                                                                               | 188                                                                               | 792                                                                                                                                                                                                                                                   | 398                                                                               | 278                                                                                | 1040                                                                                                                                                                  | 465                                                                                 | 272                                                                                 | 951                                                                                                                                                                     | 426                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                  | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 0.79                                                                              | 0.79                                                                                                                                                                                                                                                  | 0.79                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                  | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 35.2                                                                                                                                                                | 30.0                                                                                                                                                                | 28.9                                                                              | 35.2                                                                              | 26.3                                                                                                                                                                                                                                                  | 26.4                                                                              | 31.7                                                                               | 28.6                                                                                                                                                                  | 25.2                                                                                | 31.1                                                                                | 29.0                                                                                                                                                                    | 12.0                                                                                |
| Incr Delay (d2), s/veh       | 5.8                                                                                                                                                                 | 10.7                                                                                                                                                                | 8.1                                                                               | 26.5                                                                              | 0.3                                                                                                                                                                                                                                                   | 0.7                                                                               | 5.6                                                                                | 7.9                                                                                                                                                                   | 2.6                                                                                 | 1.6                                                                                 | 9.5                                                                                                                                                                     | 2.2                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                                                                                                   | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.9                                                                                                                                                                 | 8.6                                                                                                                                                                 | 6.3                                                                               | 4.9                                                                               | 3.4                                                                                                                                                                                                                                                   | 3.6                                                                               | 4.2                                                                                | 8.1                                                                                                                                                                   | 2.8                                                                                 | 2.9                                                                                 | 8.4                                                                                                                                                                     | 2.2                                                                                 |
| LnGrp Delay(d),s/veh         | 41.0                                                                                                                                                                | 40.6                                                                                                                                                                | 37.0                                                                              | 61.7                                                                              | 26.6                                                                                                                                                                                                                                                  | 27.1                                                                              | 37.4                                                                               | 36.5                                                                                                                                                                  | 27.9                                                                                | 32.7                                                                                | 38.5                                                                                                                                                                    | 14.2                                                                                |
| LnGrp LOS                    | D                                                                                                                                                                   | D                                                                                                                                                                   | D                                                                                 | E                                                                                 | C                                                                                                                                                                                                                                                     | C                                                                                 | D                                                                                  | D                                                                                                                                                                     | C                                                                                   | C                                                                                   | D                                                                                                                                                                       | B                                                                                   |
| Approach Vol, veh/h          | 1213                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   | 709                                                                                                                                                                                                                                                   |                                                                                   |                                                                                    | 1007                                                                                                                                                                  |                                                                                     |                                                                                     | 960                                                                                                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 39.9                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   | 34.8                                                                                                                                                                                                                                                  |                                                                                   |                                                                                    | 35.4                                                                                                                                                                  |                                                                                     |                                                                                     | 34.7                                                                                                                                                                    |                                                                                     |
| Approach LOS                 | D                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   | C                                                                                                                                                                                                                                                     |                                                                                   |                                                                                    | D                                                                                                                                                                     |                                                                                     |                                                                                     | C                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                                                                                                     | 6                                                                                 | 7                                                                                  | 8                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                                                                                                     | 6                                                                                 | 7                                                                                  | 8                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 17.8                                                                                                                                                                | 24.8                                                                                                                                                                | 14.0                                                                              | 23.4                                                                              | 18.0                                                                                                                                                                                                                                                  | 24.5                                                                              | 13.3                                                                               | 24.2                                                                                                                                                                  |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                                                                                                                 | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                                                                                                                                                                                   | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 7.5                                                                                                                                                                 | 23.5                                                                                                                                                                | 8.5                                                                               | 18.5                                                                              | 9.5                                                                                                                                                                                                                                                   | 21.5                                                                              | 9.5                                                                                | 17.5                                                                                                                                                                  |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 7.8                                                                                                                                                                 | 16.6                                                                                                                                                                | 9.2                                                                               | 17.2                                                                              | 9.8                                                                                                                                                                                                                                                   | 17.1                                                                              | 7.6                                                                                | 9.5                                                                                                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                                                                                                                 | 2.7                                                                                                                                                                 | 0.0                                                                               | 0.7                                                                               | 0.0                                                                                                                                                                                                                                                   | 1.9                                                                               | 0.2                                                                                | 2.0                                                                                                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          | 36.5                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 | D                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 2: Alessandro Blvd & Kitching St

02/22/2021

|                              |  |                                                                                    |  |  |                                                                                    |  |                                                                                       |  |  |  |                                                                                      |  |
|------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                                                                                                     | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |  |   |  |  |   |  |   |  |                                                                                     |  |   |                                                                                     |
| Traffic Volume (veh/h)       | 138                                                                               | 701                                                                                                                                                                 | 103                                                                               | 26                                                                                | 393                                                                                                                                                                 | 76                                                                                | 98                                                                                                                                                                      | 143                                                                                 | 14                                                                                  | 28                                                                                  | 173                                                                                                                                                                     | 86                                                                                  |
| Future Volume (veh/h)        | 138                                                                               | 701                                                                                                                                                                 | 103                                                                               | 26                                                                                | 393                                                                                                                                                                 | 76                                                                                | 98                                                                                                                                                                      | 143                                                                                 | 14                                                                                  | 28                                                                                  | 173                                                                                                                                                                     | 86                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                                                                                                   | 14                                                                                | 3                                                                                 | 8                                                                                                                                                                   | 18                                                                                | 5                                                                                                                                                                       | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                                                                                                    |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                              | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                                                                                                                    | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1900                                                                                |
| Adj Flow Rate, veh/h         | 152                                                                               | 770                                                                                                                                                                 | 113                                                                               | 29                                                                                | 432                                                                                                                                                                 | 84                                                                                | 108                                                                                                                                                                     | 157                                                                                 | 15                                                                                  | 31                                                                                  | 190                                                                                                                                                                     | 95                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                                                                                                   | 1                                                                                 | 1                                                                                 | 2                                                                                                                                                                   | 1                                                                                 | 2                                                                                                                                                                       | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 0                                                                                   |
| Peak Hour Factor             | 0.91                                                                              | 0.91                                                                                                                                                                | 0.91                                                                              | 0.91                                                                              | 0.91                                                                                                                                                                | 0.91                                                                              | 0.91                                                                                                                                                                    | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                                                                                                    | 0.91                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                                                                                                       | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 186                                                                               | 909                                                                                                                                                                 | 488                                                                               | 47                                                                                | 633                                                                                                                                                                 | 787                                                                               | 176                                                                                                                                                                     | 206                                                                                 | 20                                                                                  | 565                                                                                 | 906                                                                                                                                                                     | 435                                                                                 |
| Arrive On Green              | 0.21                                                                              | 0.51                                                                                                                                                                | 0.51                                                                              | 0.03                                                                              | 0.18                                                                                                                                                                | 0.18                                                                              | 0.05                                                                                                                                                                    | 0.12                                                                                | 0.12                                                                                | 0.32                                                                                | 0.39                                                                                                                                                                    | 0.39                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 3539                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 3539                                                                                                                                                                | 1583                                                                              | 3442                                                                                                                                                                    | 1675                                                                                | 160                                                                                 | 1774                                                                                | 2322                                                                                                                                                                    | 1114                                                                                |
| Grp Volume(v), veh/h         | 152                                                                               | 770                                                                                                                                                                 | 113                                                                               | 29                                                                                | 432                                                                                                                                                                 | 84                                                                                | 108                                                                                                                                                                     | 0                                                                                   | 172                                                                                 | 31                                                                                  | 143                                                                                                                                                                     | 142                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 1770                                                                                                                                                                | 1583                                                                              | 1721                                                                                                                                                                    | 0                                                                                   | 1835                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1666                                                                                |
| Q Serve(g_s), s              | 6.5                                                                               | 15.0                                                                                                                                                                | 2.0                                                                               | 1.3                                                                               | 9.1                                                                                                                                                                 | 0.8                                                                               | 2.5                                                                                                                                                                     | 0.0                                                                                 | 7.3                                                                                 | 1.0                                                                                 | 4.3                                                                                                                                                                     | 4.5                                                                                 |
| Cycle Q Clear(g_c), s        | 6.5                                                                               | 15.0                                                                                                                                                                | 2.0                                                                               | 1.3                                                                               | 9.1                                                                                                                                                                 | 0.8                                                                               | 2.5                                                                                                                                                                     | 0.0                                                                                 | 7.3                                                                                 | 1.0                                                                                 | 4.3                                                                                                                                                                     | 4.5                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                                                                                                    |                                                                                     | 0.09                                                                                | 1.00                                                                                |                                                                                                                                                                         | 0.67                                                                                |
| Lane Grp Cap(c), veh/h       | 186                                                                               | 909                                                                                                                                                                 | 488                                                                               | 47                                                                                | 633                                                                                                                                                                 | 787                                                                               | 176                                                                                                                                                                     | 0                                                                                   | 226                                                                                 | 565                                                                                 | 690                                                                                                                                                                     | 650                                                                                 |
| V/C Ratio(X)                 | 0.82                                                                              | 0.85                                                                                                                                                                | 0.23                                                                              | 0.61                                                                              | 0.68                                                                                                                                                                | 0.11                                                                              | 0.61                                                                                                                                                                    | 0.00                                                                                | 0.76                                                                                | 0.05                                                                                | 0.21                                                                                                                                                                    | 0.22                                                                                |
| Avail Cap(c_a), veh/h        | 299                                                                               | 1172                                                                                                                                                                | 605                                                                               | 122                                                                               | 818                                                                                                                                                                 | 870                                                                               | 237                                                                                                                                                                     | 0                                                                                   | 470                                                                                 | 565                                                                                 | 690                                                                                                                                                                     | 650                                                                                 |
| HCM Platoon Ratio            | 2.00                                                                              | 2.00                                                                                                                                                                | 2.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)           | 0.58                                                                              | 0.58                                                                                                                                                                | 0.58                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                    | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 30.9                                                                              | 18.1                                                                                                                                                                | 6.1                                                                               | 38.5                                                                              | 30.7                                                                                                                                                                | 2.8                                                                               | 37.2                                                                                                                                                                    | 0.0                                                                                 | 34.0                                                                                | 18.9                                                                                | 16.2                                                                                                                                                                    | 16.3                                                                                |
| Incr Delay (d2), s/veh       | 5.4                                                                               | 2.8                                                                                                                                                                 | 0.1                                                                               | 12.1                                                                              | 1.6                                                                                                                                                                 | 0.1                                                                               | 3.4                                                                                                                                                                     | 0.0                                                                                 | 21.3                                                                                | 0.0                                                                                 | 0.7                                                                                                                                                                     | 0.8                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.5                                                                               | 7.4                                                                                                                                                                 | 1.0                                                                               | 0.8                                                                               | 4.6                                                                                                                                                                 | 0.5                                                                               | 1.3                                                                                                                                                                     | 0.0                                                                                 | 5.0                                                                                 | 0.5                                                                                 | 2.2                                                                                                                                                                     | 2.2                                                                                 |
| LnGrp Delay(d),s/veh         | 36.2                                                                              | 20.9                                                                                                                                                                | 6.2                                                                               | 50.6                                                                              | 32.3                                                                                                                                                                | 2.9                                                                               | 40.6                                                                                                                                                                    | 0.0                                                                                 | 55.3                                                                                | 19.0                                                                                | 16.9                                                                                                                                                                    | 17.0                                                                                |
| LnGrp LOS                    | D                                                                                 | C                                                                                                                                                                   | A                                                                                 | D                                                                                 | C                                                                                                                                                                   | A                                                                                 | D                                                                                                                                                                       |                                                                                     | E                                                                                   | B                                                                                   | B                                                                                                                                                                       | B                                                                                   |
| Approach Vol, veh/h          | 1035                                                                              |                                                                                                                                                                     |                                                                                   |                                                                                   | 545                                                                                                                                                                 |                                                                                   |                                                                                                                                                                         | 280                                                                                 |                                                                                     |                                                                                     | 316                                                                                                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 21.5                                                                              |                                                                                                                                                                     |                                                                                   |                                                                                   | 28.7                                                                                                                                                                |                                                                                   |                                                                                                                                                                         | 49.6                                                                                |                                                                                     |                                                                                     | 17.1                                                                                                                                                                    |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                                                                                                     |                                                                                   |                                                                                   | C                                                                                                                                                                   |                                                                                   |                                                                                                                                                                         | D                                                                                   |                                                                                     |                                                                                     | B                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                                                                                                       | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                                                                                                       | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 31.0                                                                              | 15.3                                                                                                                                                                | 7.6                                                                               | 26.1                                                                              | 9.6                                                                                                                                                                 | 36.7                                                                              | 13.9                                                                                                                                                                    | 19.8                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                                                                                                                     | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 20.5                                                                                                                                                                | 5.5                                                                               | 26.5                                                                              | 5.5                                                                                                                                                                 | 20.5                                                                              | 13.5                                                                                                                                                                    | 18.5                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.0                                                                               | 9.3                                                                                                                                                                 | 3.3                                                                               | 17.0                                                                              | 4.5                                                                                                                                                                 | 6.5                                                                               | 8.5                                                                                                                                                                     | 11.1                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.6                                                                                                                                                                 | 0.0                                                                               | 3.6                                                                               | 0.0                                                                                                                                                                 | 1.2                                                                               | 0.1                                                                                                                                                                     | 1.7                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                                                                                                     | 26.3                                                                              |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                                                                                                     | C                                                                                 |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 3: Lasselle St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 68                                                                                | 413                                                                               | 225                                                                               | 86                                                                                | 278                                                                               | 14                                                                                | 142                                                                                | 263                                                                                 | 104                                                                                 | 22                                                                                  | 295                                                                                 | 29                                                                                  |
| Future Volume (veh/h)        | 68                                                                                | 413                                                                               | 225                                                                               | 86                                                                                | 278                                                                               | 14                                                                                | 142                                                                                | 263                                                                                 | 104                                                                                 | 22                                                                                  | 295                                                                                 | 29                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 76                                                                                | 459                                                                               | 250                                                                               | 96                                                                                | 309                                                                               | 16                                                                                | 158                                                                                | 292                                                                                 | 116                                                                                 | 24                                                                                  | 328                                                                                 | 32                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                  | 1                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                               | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 134                                                                               | 542                                                                               | 427                                                                               | 152                                                                               | 561                                                                               | 481                                                                               | 275                                                                                | 651                                                                                 | 689                                                                                 | 81                                                                                  | 401                                                                                 | 39                                                                                  |
| Arrive On Green              | 0.08                                                                              | 0.29                                                                              | 0.27                                                                              | 0.09                                                                              | 0.30                                                                              | 0.28                                                                              | 0.31                                                                               | 0.70                                                                                | 0.70                                                                                | 0.05                                                                                | 0.24                                                                                | 0.22                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 1671                                                                                | 163                                                                                 |
| Grp Volume(v), veh/h         | 76                                                                                | 459                                                                               | 250                                                                               | 96                                                                                | 309                                                                               | 16                                                                                | 158                                                                                | 292                                                                                 | 116                                                                                 | 24                                                                                  | 0                                                                                   | 360                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 0                                                                                   | 1834                                                                                |
| Q Serve(g_s), s              | 2.9                                                                               | 16.2                                                                              | 9.6                                                                               | 3.7                                                                               | 9.7                                                                               | 0.5                                                                               | 5.2                                                                                | 4.8                                                                                 | 0.2                                                                                 | 0.9                                                                                 | 0.0                                                                                 | 13.0                                                                                |
| Cycle Q Clear(g_c), s        | 2.9                                                                               | 16.2                                                                              | 9.6                                                                               | 3.7                                                                               | 9.7                                                                               | 0.5                                                                               | 5.2                                                                                | 4.8                                                                                 | 0.2                                                                                 | 0.9                                                                                 | 0.0                                                                                 | 13.0                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.09                                                                                |
| Lane Grp Cap(c), veh/h       | 134                                                                               | 542                                                                               | 427                                                                               | 152                                                                               | 561                                                                               | 481                                                                               | 275                                                                                | 651                                                                                 | 689                                                                                 | 81                                                                                  | 0                                                                                   | 440                                                                                 |
| V/C Ratio(X)                 | 0.57                                                                              | 0.85                                                                              | 0.59                                                                              | 0.63                                                                              | 0.55                                                                              | 0.03                                                                              | 0.57                                                                               | 0.45                                                                                | 0.17                                                                                | 0.30                                                                                | 0.00                                                                                | 0.82                                                                                |
| Avail Cap(c_a), veh/h        | 177                                                                               | 575                                                                               | 455                                                                               | 152                                                                               | 561                                                                               | 481                                                                               | 275                                                                                | 651                                                                                 | 689                                                                                 | 152                                                                                 | 0                                                                                   | 482                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                               | 2.00                                                                                | 2.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.89                                                                              | 0.89                                                                              | 0.89                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 31.3                                                                              | 23.4                                                                              | 22.2                                                                              | 30.9                                                                              | 20.5                                                                              | 17.1                                                                              | 22.2                                                                               | 7.6                                                                                 | 1.9                                                                                 | 32.3                                                                                | 0.0                                                                                 | 25.2                                                                                |
| Incr Delay (d2), s/veh       | 3.7                                                                               | 10.9                                                                              | 1.7                                                                               | 7.3                                                                               | 1.0                                                                               | 0.0                                                                               | 2.9                                                                                | 2.2                                                                                 | 0.5                                                                                 | 2.0                                                                                 | 0.0                                                                                 | 15.5                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.6                                                                               | 9.9                                                                               | 4.4                                                                               | 2.1                                                                               | 5.1                                                                               | 0.2                                                                               | 2.8                                                                                | 2.7                                                                                 | 0.4                                                                                 | 0.5                                                                                 | 0.0                                                                                 | 8.5                                                                                 |
| LnGrp Delay(d),s/veh         | 35.0                                                                              | 34.2                                                                              | 23.9                                                                              | 38.2                                                                              | 21.5                                                                              | 17.2                                                                              | 25.1                                                                               | 9.8                                                                                 | 2.4                                                                                 | 34.4                                                                                | 0.0                                                                                 | 40.8                                                                                |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | D                                                                                 | C                                                                                 | B                                                                                 | C                                                                                  | A                                                                                   | A                                                                                   | C                                                                                   |                                                                                     | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 785                                                                               |                                                                                   |                                                                                   | 421                                                                               |                                                                                   |                                                                                    | 566                                                                                 |                                                                                     |                                                                                     | 384                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 31.0                                                                              |                                                                                   |                                                                                   | 25.2                                                                              |                                                                                   |                                                                                    | 12.6                                                                                |                                                                                     |                                                                                     | 40.4                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | B                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.2                                                                               | 28.5                                                                              | 10.0                                                                              | 24.4                                                                              | 14.9                                                                              | 20.8                                                                              | 9.3                                                                                | 25.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 18.9                                                                              | 4.5                                                                               | 20.1                                                                              | 6.5                                                                               | 16.9                                                                              | 5.5                                                                                | 19.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.9                                                                               | 6.8                                                                               | 5.7                                                                               | 18.2                                                                              | 7.2                                                                               | 15.0                                                                              | 4.9                                                                                | 11.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.2                                                                               | 0.0                                                                               | 0.6                                                                               | 0.0                                                                               | 0.3                                                                               | 0.0                                                                                | 0.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 26.7                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 4: Nason St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 104                                                                               | 293                                                                               | 52                                                                                | 21                                                                                | 228                                                                               | 66                                                                                | 61                                                                                 | 549                                                                                 | 63                                                                                  | 85                                                                                  | 660                                                                                 | 74                                                                                  |
| Future Volume (veh/h)        | 104                                                                               | 293                                                                               | 52                                                                                | 21                                                                                | 228                                                                               | 66                                                                                | 61                                                                                 | 549                                                                                 | 63                                                                                  | 85                                                                                  | 660                                                                                 | 74                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 106                                                                               | 299                                                                               | 53                                                                                | 21                                                                                | 233                                                                               | 67                                                                                | 62                                                                                 | 560                                                                                 | 64                                                                                  | 87                                                                                  | 673                                                                                 | 76                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                  | 2                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                               | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 135                                                                               | 410                                                                               | 348                                                                               | 40                                                                                | 309                                                                               | 263                                                                               | 88                                                                                 | 971                                                                                 | 111                                                                                 | 111                                                                                 | 1117                                                                                | 500                                                                                 |
| Arrive On Green              | 0.08                                                                              | 0.22                                                                              | 0.22                                                                              | 0.02                                                                              | 0.17                                                                              | 0.17                                                                              | 0.05                                                                               | 0.30                                                                                | 0.30                                                                                | 0.06                                                                                | 0.32                                                                                | 0.32                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 3203                                                                                | 365                                                                                 | 1774                                                                                | 3539                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 106                                                                               | 299                                                                               | 53                                                                                | 21                                                                                | 233                                                                               | 67                                                                                | 62                                                                                 | 309                                                                                 | 315                                                                                 | 87                                                                                  | 673                                                                                 | 76                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1770                                                                                | 1798                                                                                | 1774                                                                                | 1770                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 3.3                                                                               | 8.4                                                                               | 1.5                                                                               | 0.7                                                                               | 6.7                                                                               | 2.1                                                                               | 1.9                                                                                | 8.3                                                                                 | 8.3                                                                                 | 2.7                                                                                 | 9.0                                                                                 | 1.9                                                                                 |
| Cycle Q Clear(g_c), s        | 3.3                                                                               | 8.4                                                                               | 1.5                                                                               | 0.7                                                                               | 6.7                                                                               | 2.1                                                                               | 1.9                                                                                | 8.3                                                                                 | 8.3                                                                                 | 2.7                                                                                 | 9.0                                                                                 | 1.9                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.20                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 135                                                                               | 410                                                                               | 348                                                                               | 40                                                                                | 309                                                                               | 263                                                                               | 88                                                                                 | 536                                                                                 | 545                                                                                 | 111                                                                                 | 1117                                                                                | 500                                                                                 |
| V/C Ratio(X)                 | 0.78                                                                              | 0.73                                                                              | 0.15                                                                              | 0.53                                                                              | 0.75                                                                              | 0.25                                                                              | 0.70                                                                               | 0.58                                                                                | 0.58                                                                                | 0.79                                                                                | 0.60                                                                                | 0.15                                                                                |
| Avail Cap(c_a), veh/h        | 174                                                                               | 565                                                                               | 480                                                                               | 142                                                                               | 531                                                                               | 452                                                                               | 142                                                                                | 536                                                                                 | 545                                                                                 | 142                                                                                 | 1117                                                                                | 500                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 25.4                                                                              | 20.3                                                                              | 17.7                                                                              | 27.1                                                                              | 22.3                                                                              | 20.4                                                                              | 26.2                                                                               | 16.5                                                                                | 16.5                                                                                | 25.9                                                                                | 16.2                                                                                | 13.8                                                                                |
| Incr Delay (d2), s/veh       | 16.0                                                                              | 3.0                                                                               | 0.2                                                                               | 10.5                                                                              | 3.7                                                                               | 0.5                                                                               | 9.7                                                                                | 4.5                                                                                 | 4.4                                                                                 | 19.5                                                                                | 2.4                                                                                 | 0.6                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.2                                                                               | 4.6                                                                               | 0.7                                                                               | 0.4                                                                               | 3.7                                                                               | 0.9                                                                               | 1.2                                                                                | 4.7                                                                                 | 4.8                                                                                 | 1.9                                                                                 | 4.8                                                                                 | 0.9                                                                                 |
| LnGrp Delay(d),s/veh         | 41.4                                                                              | 23.4                                                                              | 17.9                                                                              | 37.6                                                                              | 26.0                                                                              | 20.9                                                                              | 36.0                                                                               | 21.0                                                                                | 20.9                                                                                | 45.4                                                                                | 18.6                                                                                | 14.4                                                                                |
| LnGrp LOS                    | D                                                                                 | C                                                                                 | B                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | D                                                                                  | C                                                                                   | C                                                                                   | D                                                                                   | B                                                                                   | B                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 458                                                                               |                                                                                   |                                                                                   | 321                                                                               |                                                                                   |                                                                                    | 686                                                                                 |                                                                                     |                                                                                     | 836                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 26.9                                                                              |                                                                                   |                                                                                   | 25.7                                                                              |                                                                                   |                                                                                    | 22.3                                                                                |                                                                                     |                                                                                     | 21.0                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 9.0                                                                               | 22.5                                                                              | 6.8                                                                               | 17.8                                                                              | 8.3                                                                               | 23.2                                                                              | 9.8                                                                                | 14.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 17.0                                                                              | 4.5                                                                               | 17.0                                                                              | 4.5                                                                               | 17.0                                                                              | 5.5                                                                                | 16.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 4.7                                                                               | 10.3                                                                              | 2.7                                                                               | 10.4                                                                              | 3.9                                                                               | 11.0                                                                              | 5.3                                                                                | 8.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.4                                                                               | 0.0                                                                               | 0.7                                                                               | 0.0                                                                               | 1.8                                                                               | 0.0                                                                                | 0.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   | 23.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 5: Lassell St & Cottonwood Ave

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 18                                                                                | 142                                                                               | 62                                                                                | 23                                                                                | 118                                                                               | 10                                                                                | 37                                                                                 | 246                                                                                 | 26                                                                                  | 12                                                                                  | 237                                                                                 | 27                                                                                  |
| Future Volume (veh/h)        | 18                                                                                | 142                                                                               | 62                                                                                | 23                                                                                | 118                                                                               | 10                                                                                | 37                                                                                 | 246                                                                                 | 26                                                                                  | 12                                                                                  | 237                                                                                 | 27                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 19                                                                                | 149                                                                               | 65                                                                                | 24                                                                                | 124                                                                               | 11                                                                                | 39                                                                                 | 259                                                                                 | 27                                                                                  | 13                                                                                  | 249                                                                                 | 28                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                 | 1                                                                                  | 1                                                                                   | 0                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 34                                                                                | 184                                                                               | 80                                                                                | 41                                                                                | 506                                                                               | 44                                                                                | 681                                                                                | 892                                                                                 | 93                                                                                  | 25                                                                                  | 313                                                                                 | 266                                                                                 |
| Arrive On Green              | 0.02                                                                              | 0.15                                                                              | 0.15                                                                              | 0.02                                                                              | 0.15                                                                              | 0.15                                                                              | 0.38                                                                               | 0.54                                                                                | 0.54                                                                                | 0.01                                                                                | 0.17                                                                                | 0.17                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1231                                                                              | 537                                                                               | 1774                                                                              | 3292                                                                              | 289                                                                               | 1774                                                                               | 1659                                                                                | 173                                                                                 | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 19                                                                                | 0                                                                                 | 214                                                                               | 24                                                                                | 66                                                                                | 69                                                                                | 39                                                                                 | 0                                                                                   | 286                                                                                 | 13                                                                                  | 249                                                                                 | 28                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 0                                                                                 | 1768                                                                              | 1774                                                                              | 1770                                                                              | 1812                                                                              | 1774                                                                               | 0                                                                                   | 1832                                                                                | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 0.8                                                                               | 0.0                                                                               | 9.4                                                                               | 1.1                                                                               | 2.6                                                                               | 2.7                                                                               | 1.1                                                                                | 0.0                                                                                 | 6.8                                                                                 | 0.6                                                                                 | 10.3                                                                                | 1.0                                                                                 |
| Cycle Q Clear(g_c), s        | 0.8                                                                               | 0.0                                                                               | 9.4                                                                               | 1.1                                                                               | 2.6                                                                               | 2.7                                                                               | 1.1                                                                                | 0.0                                                                                 | 6.8                                                                                 | 0.6                                                                                 | 10.3                                                                                | 1.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.30                                                                              | 1.00                                                                              |                                                                                   | 0.16                                                                              | 1.00                                                                               |                                                                                     | 0.09                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 34                                                                                | 0                                                                                 | 265                                                                               | 41                                                                                | 272                                                                               | 278                                                                               | 681                                                                                | 0                                                                                   | 985                                                                                 | 25                                                                                  | 313                                                                                 | 266                                                                                 |
| V/C Ratio(X)                 | 0.55                                                                              | 0.00                                                                              | 0.81                                                                              | 0.58                                                                              | 0.24                                                                              | 0.25                                                                              | 0.06                                                                               | 0.00                                                                                | 0.29                                                                                | 0.52                                                                                | 0.80                                                                                | 0.11                                                                                |
| Avail Cap(c_a), veh/h        | 100                                                                               | 0                                                                                 | 431                                                                               | 100                                                                               | 431                                                                               | 442                                                                               | 681                                                                                | 0                                                                                   | 985                                                                                 | 100                                                                                 | 664                                                                                 | 564                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 38.9                                                                              | 0.0                                                                               | 32.9                                                                              | 38.7                                                                              | 29.8                                                                              | 29.8                                                                              | 15.5                                                                               | 0.0                                                                                 | 10.1                                                                                | 39.2                                                                                | 32.0                                                                                | 18.6                                                                                |
| Incr Delay (d2), s/veh       | 13.1                                                                              | 0.0                                                                               | 5.8                                                                               | 12.3                                                                              | 0.5                                                                               | 0.5                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.7                                                                                 | 15.6                                                                                | 18.6                                                                                | 0.8                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.5                                                                               | 0.0                                                                               | 5.0                                                                               | 0.7                                                                               | 1.3                                                                               | 1.4                                                                               | 0.5                                                                                | 0.0                                                                                 | 3.6                                                                                 | 0.4                                                                                 | 6.9                                                                                 | 0.6                                                                                 |
| LnGrp Delay(d),s/veh         | 52.0                                                                              | 0.0                                                                               | 38.7                                                                              | 51.0                                                                              | 30.2                                                                              | 30.2                                                                              | 15.6                                                                               | 0.0                                                                                 | 10.9                                                                                | 54.8                                                                                | 50.6                                                                                | 19.4                                                                                |
| LnGrp LOS                    | D                                                                                 |                                                                                   | D                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | B                                                                                  |                                                                                     | B                                                                                   | D                                                                                   | D                                                                                   | B                                                                                   |
| Approach Vol, veh/h          | 233                                                                               |                                                                                   |                                                                                   |                                                                                   | 159                                                                               |                                                                                   | 325                                                                                |                                                                                     |                                                                                     |                                                                                     | 290                                                                                 |                                                                                     |
| Approach Delay, s/veh        | 39.8                                                                              |                                                                                   |                                                                                   |                                                                                   | 33.4                                                                              |                                                                                   | 11.4                                                                               |                                                                                     |                                                                                     |                                                                                     | 47.8                                                                                |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   | B                                                                                  |                                                                                     |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 6.6                                                                               | 48.5                                                                              | 7.4                                                                               | 17.5                                                                              | 36.2                                                                              | 18.9                                                                              | 7.0                                                                                | 17.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 29.5                                                                              | 4.5                                                                               | 19.5                                                                              | 5.5                                                                               | 28.5                                                                              | 4.5                                                                                | 19.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.6                                                                               | 8.8                                                                               | 3.1                                                                               | 11.4                                                                              | 3.1                                                                               | 12.3                                                                              | 2.8                                                                                | 4.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.4                                                                               | 0.0                                                                               | 0.6                                                                               | 0.0                                                                               | 1.2                                                                               | 0.0                                                                                | 0.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   | 31.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 6: Lassell St & Bay Ave

02/22/2021

|                              |  |  |  |  |  |  |   |  |  |  |                                                                                      |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |   |                                                                                     |
| Traffic Volume (veh/h)       | 6                                                                                 | 19                                                                                | 4                                                                                 | 16                                                                                | 19                                                                                | 25                                                                                | 4                                                                                   | 295                                                                                 | 19                                                                                  | 19                                                                                  | 303                                                                                                                                                                     | 7                                                                                   |
| Future Volume (veh/h)        | 6                                                                                 | 19                                                                                | 4                                                                                 | 16                                                                                | 19                                                                                | 25                                                                                | 4                                                                                   | 295                                                                                 | 19                                                                                  | 19                                                                                  | 303                                                                                                                                                                     | 7                                                                                   |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                   | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                                | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1900                                                                                |
| Adj Flow Rate, veh/h         | 6                                                                                 | 20                                                                                | 4                                                                                 | 17                                                                                | 20                                                                                | 27                                                                                | 4                                                                                   | 317                                                                                 | 20                                                                                  | 20                                                                                  | 326                                                                                                                                                                     | 8                                                                                   |
| Adj No. of Lanes             | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                   | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 0                                                                                   |
| Peak Hour Factor             | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                                                                                                    | 0.93                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 67                                                                                | 75                                                                                | 14                                                                                | 77                                                                                | 34                                                                                | 39                                                                                | 8                                                                                   | 383                                                                                 | 24                                                                                  | 915                                                                                 | 2584                                                                                                                                                                    | 63                                                                                  |
| Arrive On Green              | 0.06                                                                              | 0.06                                                                              | 0.06                                                                              | 0.06                                                                              | 0.06                                                                              | 0.06                                                                              | 0.00                                                                                | 0.22                                                                                | 0.22                                                                                | 0.52                                                                                | 0.73                                                                                                                                                                    | 0.73                                                                                |
| Sat Flow, veh/h              | 231                                                                               | 1316                                                                              | 238                                                                               | 350                                                                               | 600                                                                               | 693                                                                               | 1774                                                                                | 1734                                                                                | 109                                                                                 | 1774                                                                                | 3531                                                                                                                                                                    | 86                                                                                  |
| Grp Volume(v), veh/h         | 30                                                                                | 0                                                                                 | 0                                                                                 | 64                                                                                | 0                                                                                 | 0                                                                                 | 4                                                                                   | 0                                                                                   | 337                                                                                 | 20                                                                                  | 163                                                                                                                                                                     | 171                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1785                                                                              | 0                                                                                 | 0                                                                                 | 1644                                                                              | 0                                                                                 | 0                                                                                 | 1774                                                                                | 0                                                                                   | 1843                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1847                                                                                |
| Q Serve(g_s), s              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 1.7                                                                               | 0.0                                                                               | 0.0                                                                               | 0.2                                                                                 | 0.0                                                                                 | 13.9                                                                                | 0.4                                                                                 | 2.2                                                                                                                                                                     | 2.2                                                                                 |
| Cycle Q Clear(g_c), s        | 1.3                                                                               | 0.0                                                                               | 0.0                                                                               | 3.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.2                                                                                 | 0.0                                                                                 | 13.9                                                                                | 0.4                                                                                 | 2.2                                                                                                                                                                     | 2.2                                                                                 |
| Prop In Lane                 | 0.20                                                                              |                                                                                   | 0.13                                                                              | 0.27                                                                              |                                                                                   | 0.42                                                                              | 1.00                                                                                |                                                                                     | 0.06                                                                                | 1.00                                                                                |                                                                                                                                                                         | 0.05                                                                                |
| Lane Grp Cap(c), veh/h       | 156                                                                               | 0                                                                                 | 0                                                                                 | 151                                                                               | 0                                                                                 | 0                                                                                 | 8                                                                                   | 0                                                                                   | 407                                                                                 | 915                                                                                 | 1295                                                                                                                                                                    | 1352                                                                                |
| V/C Ratio(X)                 | 0.19                                                                              | 0.00                                                                              | 0.00                                                                              | 0.43                                                                              | 0.00                                                                              | 0.00                                                                              | 0.47                                                                                | 0.00                                                                                | 0.83                                                                                | 0.02                                                                                | 0.13                                                                                                                                                                    | 0.13                                                                                |
| Avail Cap(c_a), veh/h        | 472                                                                               | 0                                                                                 | 0                                                                                 | 449                                                                               | 0                                                                                 | 0                                                                                 | 144                                                                                 | 0                                                                                   | 864                                                                                 | 915                                                                                 | 1295                                                                                                                                                                    | 1352                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 36.2                                                                              | 0.0                                                                               | 0.0                                                                               | 37.0                                                                              | 0.0                                                                               | 0.0                                                                               | 39.7                                                                                | 0.0                                                                                 | 29.7                                                                                | 9.5                                                                                 | 3.2                                                                                                                                                                     | 3.2                                                                                 |
| Incr Delay (d2), s/veh       | 0.6                                                                               | 0.0                                                                               | 0.0                                                                               | 1.9                                                                               | 0.0                                                                               | 0.0                                                                               | 35.5                                                                                | 0.0                                                                                 | 17.3                                                                                | 0.0                                                                                 | 0.2                                                                                                                                                                     | 0.2                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.7                                                                               | 0.0                                                                               | 0.0                                                                               | 1.5                                                                               | 0.0                                                                               | 0.0                                                                               | 0.2                                                                                 | 0.0                                                                                 | 9.1                                                                                 | 0.2                                                                                 | 1.1                                                                                                                                                                     | 1.2                                                                                 |
| LnGrp Delay(d),s/veh         | 36.8                                                                              | 0.0                                                                               | 0.0                                                                               | 38.9                                                                              | 0.0                                                                               | 0.0                                                                               | 75.2                                                                                | 0.0                                                                                 | 47.0                                                                                | 9.5                                                                                 | 3.4                                                                                                                                                                     | 3.4                                                                                 |
| LnGrp LOS                    | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                   |                                                                                     | D                                                                                   | A                                                                                   | A                                                                                                                                                                       | A                                                                                   |
| Approach Vol, veh/h          | 30                                                                                |                                                                                   |                                                                                   |                                                                                   | 64                                                                                |                                                                                   | 341                                                                                 |                                                                                     |                                                                                     |                                                                                     | 354                                                                                                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 36.8                                                                              |                                                                                   |                                                                                   |                                                                                   | 38.9                                                                              |                                                                                   | 47.3                                                                                |                                                                                     |                                                                                     |                                                                                     | 3.7                                                                                                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   | D                                                                                   |                                                                                     |                                                                                     |                                                                                     | A                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 4                                                                                 |                                                                                   | 5                                                                                 | 6                                                                                 | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 46.8                                                                              | 23.2                                                                              | 10.1                                                                              |                                                                                   | 5.9                                                                               | 64.1                                                                              | 10.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               |                                                                                   | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 6.5                                                                               | 37.5                                                                              | 19.5                                                                              |                                                                                   | 6.5                                                                               | 37.5                                                                              | 19.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.4                                                                               | 15.9                                                                              | 3.3                                                                               |                                                                                   | 2.2                                                                               | 4.2                                                                               | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.7                                                                               | 0.1                                                                               |                                                                                   | 0.0                                                                               | 1.8                                                                               | 0.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   | 26.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

**Intersection**

Int Delay, s/veh 0.4

| Movement                 | EBL                                                                               | EBR  | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |  |      |  |  |  |      |
| Traffic Vol, veh/h       | 13                                                                                | 13   | 5                                                                                 | 514                                                                               | 557                                                                               | 11   |
| Future Vol, veh/h        | 13                                                                                | 13   | 5                                                                                 | 514                                                                               | 557                                                                               | 11   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -    | 200                                                                               | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 89                                                                                | 89   | 89                                                                                | 89                                                                                | 89                                                                                | 89   |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 15                                                                                | 15   | 6                                                                                 | 578                                                                               | 626                                                                               | 12   |

| Major/Minor          | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 933    | 319    | 638    |
| Stage 1              | 632    | -      | -      |
| Stage 2              | 301    | -      | -      |
| Critical Hdwy        | 6.84   | 6.94   | 4.14   |
| Critical Hdwy Stg 1  | 5.84   | -      | -      |
| Critical Hdwy Stg 2  | 5.84   | -      | -      |
| Follow-up Hdwy       | 3.52   | 3.32   | 2.22   |
| Pot Cap-1 Maneuver   | 265    | 677    | 942    |
| Stage 1              | 492    | -      | -      |
| Stage 2              | 725    | -      | -      |
| Platoon blocked, %   |        |        |        |
| Mov Cap-1 Maneuver   | 263    | 677    | 942    |
| Mov Cap-2 Maneuver   | 263    | -      | -      |
| Stage 1              | 489    | -      | -      |
| Stage 2              | 725    | -      | -      |

| Approach             | EB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 15.3 | 0.1 | 0  |
| HCM LOS              | C    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 942   | -   | 379   | -   | -   |
| HCM Lane V/C Ratio    | 0.006 | -   | 0.077 | -   | -   |
| HCM Control Delay (s) | 8.8   | -   | 15.3  | -   | -   |
| HCM Lane LOS          | A     | -   | C     | -   | -   |
| HCM 95th %tile Q(veh) | 0     | -   | 0.2   | -   | -   |

# HCM 2010 Signalized Intersection Summary

## 8: Lassell St & Catcus Ave

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |  |  |  |  |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 33                                                                                | 359                                                                               | 146                                                                               | 160                                                                               | 305                                                                               | 43                                                                                | 79                                                                                 | 409                                                                                 | 135                                                                                 | 47                                                                                  | 477                                                                                 | 25                                                                                  |
| Future Volume (veh/h)        | 33                                                                                | 359                                                                               | 146                                                                               | 160                                                                               | 305                                                                               | 43                                                                                | 79                                                                                 | 409                                                                                 | 135                                                                                 | 47                                                                                  | 477                                                                                 | 25                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 34                                                                                | 374                                                                               | 152                                                                               | 167                                                                               | 318                                                                               | 45                                                                                | 82                                                                                 | 426                                                                                 | 0                                                                                   | 49                                                                                  | 497                                                                                 | 26                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                  | 2                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                               | 0.96                                                                                | 0.96                                                                                | 0.96                                                                                | 0.96                                                                                | 0.96                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 93                                                                                | 510                                                                               | 204                                                                               | 241                                                                               | 1027                                                                              | 459                                                                               | 418                                                                                | 1302                                                                                | 583                                                                                 | 108                                                                                 | 661                                                                                 | 35                                                                                  |
| Arrive On Green              | 0.05                                                                              | 0.21                                                                              | 0.19                                                                              | 0.14                                                                              | 0.29                                                                              | 0.29                                                                              | 0.24                                                                               | 0.37                                                                                | 0.00                                                                                | 0.12                                                                                | 0.39                                                                                | 0.34                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 2469                                                                              | 989                                                                               | 1774                                                                              | 3539                                                                              | 1583                                                                              | 1774                                                                               | 3539                                                                                | 1583                                                                                | 1774                                                                                | 3422                                                                                | 179                                                                                 |
| Grp Volume(v), veh/h         | 34                                                                                | 267                                                                               | 259                                                                               | 167                                                                               | 318                                                                               | 45                                                                                | 82                                                                                 | 426                                                                                 | 0                                                                                   | 49                                                                                  | 257                                                                                 | 266                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                              | 1688                                                                              | 1774                                                                              | 1770                                                                              | 1583                                                                              | 1774                                                                               | 1770                                                                                | 1583                                                                                | 1774                                                                                | 1770                                                                                | 1831                                                                                |
| Q Serve(g_s), s              | 1.3                                                                               | 9.9                                                                               | 10.1                                                                              | 6.3                                                                               | 4.9                                                                               | 1.5                                                                               | 2.6                                                                                | 6.1                                                                                 | 0.0                                                                                 | 1.8                                                                                 | 8.8                                                                                 | 8.8                                                                                 |
| Cycle Q Clear(g_c), s        | 1.3                                                                               | 9.9                                                                               | 10.1                                                                              | 6.3                                                                               | 4.9                                                                               | 1.5                                                                               | 2.6                                                                                | 6.1                                                                                 | 0.0                                                                                 | 1.8                                                                                 | 8.8                                                                                 | 8.8                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.59                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.10                                                                                |
| Lane Grp Cap(c), veh/h       | 93                                                                                | 365                                                                               | 349                                                                               | 241                                                                               | 1027                                                                              | 459                                                                               | 418                                                                                | 1302                                                                                | 583                                                                                 | 108                                                                                 | 342                                                                                 | 354                                                                                 |
| V/C Ratio(X)                 | 0.36                                                                              | 0.73                                                                              | 0.74                                                                              | 0.69                                                                              | 0.31                                                                              | 0.10                                                                              | 0.20                                                                               | 0.33                                                                                | 0.00                                                                                | 0.45                                                                                | 0.75                                                                                | 0.75                                                                                |
| Avail Cap(c_a), veh/h        | 152                                                                               | 442                                                                               | 422                                                                               | 279                                                                               | 1138                                                                              | 509                                                                               | 418                                                                                | 1302                                                                                | 583                                                                                 | 152                                                                                 | 493                                                                                 | 510                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 2.00                                                                                | 2.00                                                                                | 2.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 32.0                                                                              | 25.9                                                                              | 26.5                                                                              | 28.8                                                                              | 19.4                                                                              | 18.2                                                                              | 21.4                                                                               | 15.9                                                                                | 0.0                                                                                 | 29.7                                                                                | 20.0                                                                                | 20.2                                                                                |
| Incr Delay (d2), s/veh       | 2.4                                                                               | 4.8                                                                               | 5.7                                                                               | 6.0                                                                               | 0.2                                                                               | 0.1                                                                               | 0.2                                                                                | 0.7                                                                                 | 0.0                                                                                 | 2.9                                                                                 | 14.1                                                                                | 13.8                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.7                                                                               | 5.3                                                                               | 5.3                                                                               | 3.5                                                                               | 2.4                                                                               | 0.6                                                                               | 1.3                                                                                | 3.1                                                                                 | 0.0                                                                                 | 1.0                                                                                 | 5.5                                                                                 | 5.7                                                                                 |
| LnGrp Delay(d),s/veh         | 34.4                                                                              | 30.8                                                                              | 32.1                                                                              | 34.8                                                                              | 19.6                                                                              | 18.2                                                                              | 21.7                                                                               | 16.6                                                                                | 0.0                                                                                 | 32.6                                                                                | 34.1                                                                                | 34.0                                                                                |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 | B                                                                                 | B                                                                                 | C                                                                                  | B                                                                                   |                                                                                     | C                                                                                   | C                                                                                   | C                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 560                                                                               |                                                                                   |                                                                                   | 530                                                                               |                                                                                   |                                                                                    | 508                                                                                 |                                                                                     |                                                                                     | 572                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 31.6                                                                              |                                                                                   |                                                                                   | 24.2                                                                              |                                                                                   |                                                                                    | 17.4                                                                                |                                                                                     |                                                                                     | 33.9                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | B                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.3                                                                               | 29.8                                                                              | 13.5                                                                              | 18.5                                                                              | 20.5                                                                              | 17.5                                                                              | 7.7                                                                                | 24.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 18.0                                                                              | 9.5                                                                               | 16.0                                                                              | 4.5                                                                               | 18.0                                                                              | 4.5                                                                                | 21.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.8                                                                               | 8.1                                                                               | 8.3                                                                               | 12.1                                                                              | 4.6                                                                               | 10.8                                                                              | 3.3                                                                                | 6.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.3                                                                               | 0.1                                                                               | 0.8                                                                               | 0.0                                                                               | 1.2                                                                               | 0.0                                                                                | 1.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 27.1                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 1: Alessandro Blvd & Perris Blvd

02/22/2021

|                              |                                                                                    |                                                                                    |  |  |                                                                                                                                                                      |  |  |                                                                                      |  |  |                                                                                      |  |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                                                                                                                 | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |   |   |  |  |    |                                                                                   |  |   |  |  |   |  |
| Traffic Volume (veh/h)       | 237                                                                                                                                                                 | 680                                                                                                                                                                 | 253                                                                               | 167                                                                               | 442                                                                                                                                                                                                                                                   | 105                                                                               | 174                                                                                | 652                                                                                                                                                                     | 144                                                                                 | 145                                                                                 | 668                                                                                                                                                                     | 112                                                                                 |
| Future Volume (veh/h)        | 237                                                                                                                                                                 | 680                                                                                                                                                                 | 253                                                                               | 167                                                                               | 442                                                                                                                                                                                                                                                   | 105                                                                               | 174                                                                                | 652                                                                                                                                                                     | 144                                                                                 | 145                                                                                 | 668                                                                                                                                                                     | 112                                                                                 |
| Number                       | 7                                                                                                                                                                   | 4                                                                                                                                                                   | 14                                                                                | 3                                                                                 | 8                                                                                                                                                                                                                                                     | 18                                                                                | 5                                                                                  | 2                                                                                                                                                                       | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                                                                                                   | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                  | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                                                                                                       | 1.00                                                                              | 1.00                                                                               |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                                                                                                                | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                              | 1863                                                                                                                                                                                                                                                  | 1900                                                                              | 1863                                                                               | 1863                                                                                                                                                                    | 1863                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1863                                                                                |
| Adj Flow Rate, veh/h         | 249                                                                                                                                                                 | 716                                                                                                                                                                 | 266                                                                               | 176                                                                               | 465                                                                                                                                                                                                                                                   | 111                                                                               | 183                                                                                | 686                                                                                                                                                                     | 152                                                                                 | 153                                                                                 | 703                                                                                                                                                                     | 118                                                                                 |
| Adj No. of Lanes             | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 1                                                                                 | 1                                                                                 | 3                                                                                                                                                                                                                                                     | 0                                                                                 | 1                                                                                  | 2                                                                                                                                                                       | 1                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 1                                                                                   |
| Peak Hour Factor             | 0.95                                                                                                                                                                | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                                                                                                                                                                                  | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                                                                                                    | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                                                                                                    | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                                                                                                     | 2                                                                                 | 2                                                                                  | 2                                                                                                                                                                       | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 334                                                                                                                                                                 | 803                                                                                                                                                                 | 359                                                                               | 188                                                                               | 974                                                                                                                                                                                                                                                   | 226                                                                               | 273                                                                                | 855                                                                                                                                                                     | 383                                                                                 | 267                                                                                 | 842                                                                                                                                                                     | 377                                                                                 |
| Arrive On Green              | 0.10                                                                                                                                                                | 0.23                                                                                                                                                                | 0.23                                                                              | 0.11                                                                              | 0.24                                                                                                                                                                                                                                                  | 0.24                                                                              | 0.15                                                                               | 0.24                                                                                                                                                                    | 0.24                                                                                | 0.15                                                                                | 0.24                                                                                                                                                                    | 0.24                                                                                |
| Sat Flow, veh/h              | 3442                                                                                                                                                                | 3539                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 4126                                                                                                                                                                                                                                                  | 958                                                                               | 1774                                                                               | 3539                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 3539                                                                                                                                                                    | 1583                                                                                |
| Grp Volume(v), veh/h         | 249                                                                                                                                                                 | 716                                                                                                                                                                 | 266                                                                               | 176                                                                               | 380                                                                                                                                                                                                                                                   | 196                                                                               | 183                                                                                | 686                                                                                                                                                                     | 152                                                                                 | 153                                                                                 | 703                                                                                                                                                                     | 118                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1721                                                                                                                                                                | 1770                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 1695                                                                                                                                                                                                                                                  | 1694                                                                              | 1774                                                                               | 1770                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1583                                                                                |
| Q Serve(g_s), s              | 5.6                                                                                                                                                                 | 15.7                                                                                                                                                                | 12.5                                                                              | 7.9                                                                               | 7.7                                                                                                                                                                                                                                                   | 8.0                                                                               | 7.8                                                                                | 14.6                                                                                                                                                                    | 6.4                                                                                 | 6.4                                                                                 | 15.1                                                                                                                                                                    | 3.4                                                                                 |
| Cycle Q Clear(g_c), s        | 5.6                                                                                                                                                                 | 15.7                                                                                                                                                                | 12.5                                                                              | 7.9                                                                               | 7.7                                                                                                                                                                                                                                                   | 8.0                                                                               | 7.8                                                                                | 14.6                                                                                                                                                                    | 6.4                                                                                 | 6.4                                                                                 | 15.1                                                                                                                                                                    | 3.4                                                                                 |
| Prop In Lane                 | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                                                                                                       | 0.57                                                                              | 1.00                                                                               |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 334                                                                                                                                                                 | 803                                                                                                                                                                 | 359                                                                               | 188                                                                               | 801                                                                                                                                                                                                                                                   | 400                                                                               | 273                                                                                | 855                                                                                                                                                                     | 383                                                                                 | 267                                                                                 | 842                                                                                                                                                                     | 377                                                                                 |
| V/C Ratio(X)                 | 0.75                                                                                                                                                                | 0.89                                                                                                                                                                | 0.74                                                                              | 0.93                                                                              | 0.47                                                                                                                                                                                                                                                  | 0.49                                                                              | 0.67                                                                               | 0.80                                                                                                                                                                    | 0.40                                                                                | 0.57                                                                                | 0.83                                                                                                                                                                    | 0.31                                                                                |
| Avail Cap(c_a), veh/h        | 409                                                                                                                                                                 | 818                                                                                                                                                                 | 366                                                                               | 188                                                                               | 801                                                                                                                                                                                                                                                   | 400                                                                               | 273                                                                                | 1040                                                                                                                                                                    | 465                                                                                 | 267                                                                                 | 951                                                                                                                                                                     | 426                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 0.78                                                                              | 0.78                                                                                                                                                                                                                                                  | 0.78                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 35.2                                                                                                                                                                | 30.0                                                                                                                                                                | 28.7                                                                              | 35.5                                                                              | 26.3                                                                                                                                                                                                                                                  | 26.4                                                                              | 31.9                                                                               | 28.5                                                                                                                                                                    | 25.4                                                                                | 31.6                                                                                | 29.0                                                                                                                                                                    | 12.0                                                                                |
| Incr Delay (d2), s/veh       | 5.8                                                                                                                                                                 | 11.9                                                                                                                                                                | 7.7                                                                               | 40.2                                                                              | 0.3                                                                                                                                                                                                                                                   | 0.7                                                                               | 6.2                                                                                | 7.8                                                                                                                                                                     | 3.1                                                                                 | 3.0                                                                                 | 9.5                                                                                                                                                                     | 2.2                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.9                                                                                                                                                                 | 9.0                                                                                                                                                                 | 6.2                                                                               | 6.0                                                                               | 3.6                                                                                                                                                                                                                                                   | 3.8                                                                               | 4.3                                                                                | 8.1                                                                                                                                                                     | 3.1                                                                                 | 3.4                                                                                 | 8.4                                                                                                                                                                     | 2.2                                                                                 |
| LnGrp Delay(d),s/veh         | 41.0                                                                                                                                                                | 41.9                                                                                                                                                                | 36.4                                                                              | 75.6                                                                              | 26.6                                                                                                                                                                                                                                                  | 27.1                                                                              | 38.2                                                                               | 36.4                                                                                                                                                                    | 28.5                                                                                | 34.6                                                                                | 38.5                                                                                                                                                                    | 14.2                                                                                |
| LnGrp LOS                    | D                                                                                                                                                                   | D                                                                                                                                                                   | D                                                                                 | E                                                                                 | C                                                                                                                                                                                                                                                     | C                                                                                 | D                                                                                  | D                                                                                                                                                                       | C                                                                                   | C                                                                                   | D                                                                                                                                                                       | B                                                                                   |
| Approach Vol, veh/h          | 1231                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   | 752                                                                                                                                                                                                                                                   |                                                                                   |                                                                                    | 1021                                                                                                                                                                    |                                                                                     |                                                                                     | 974                                                                                                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 40.5                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   | 38.2                                                                                                                                                                                                                                                  |                                                                                   |                                                                                    | 35.5                                                                                                                                                                    |                                                                                     |                                                                                     | 35.0                                                                                                                                                                    |                                                                                     |
| Approach LOS                 | D                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   | D                                                                                                                                                                                                                                                     |                                                                                   |                                                                                    | D                                                                                                                                                                       |                                                                                     |                                                                                     | C                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                                                                                                     | 6                                                                                 | 7                                                                                  | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                                                                                                     | 6                                                                                 | 7                                                                                  | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 17.5                                                                                                                                                                | 24.8                                                                                                                                                                | 14.0                                                                              | 23.7                                                                              | 17.8                                                                                                                                                                                                                                                  | 24.5                                                                              | 13.3                                                                               | 24.4                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                                                                                                                 | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                                                                                                                                                                                   | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 7.5                                                                                                                                                                 | 23.5                                                                                                                                                                | 8.5                                                                               | 18.5                                                                              | 9.5                                                                                                                                                                                                                                                   | 21.5                                                                              | 9.5                                                                                | 17.5                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 8.4                                                                                                                                                                 | 16.6                                                                                                                                                                | 9.9                                                                               | 17.7                                                                              | 9.8                                                                                                                                                                                                                                                   | 17.1                                                                              | 7.6                                                                                | 10.0                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                                                                                                                 | 2.7                                                                                                                                                                 | 0.0                                                                               | 0.5                                                                               | 0.0                                                                                                                                                                                                                                                   | 1.9                                                                               | 0.2                                                                                | 2.0                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          | 37.4                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 | D                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 2: Alessandro Blvd & Kitching St

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 138                                                                               | 743                                                                               | 103                                                                               | 36                                                                                | 433                                                                               | 86                                                                                | 98                                                                                 | 143                                                                                 | 24                                                                                  | 38                                                                                  | 173                                                                                 | 86                                                                                  |
| Future Volume (veh/h)        | 138                                                                               | 743                                                                               | 103                                                                               | 36                                                                                | 433                                                                               | 86                                                                                | 98                                                                                 | 143                                                                                 | 24                                                                                  | 38                                                                                  | 173                                                                                 | 86                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 152                                                                               | 816                                                                               | 113                                                                               | 40                                                                                | 476                                                                               | 95                                                                                | 108                                                                                | 157                                                                                 | 26                                                                                  | 42                                                                                  | 190                                                                                 | 95                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 1                                                                                 | 2                                                                                  | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                               | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 186                                                                               | 948                                                                               | 505                                                                               | 59                                                                                | 694                                                                               | 776                                                                               | 176                                                                                | 203                                                                                 | 34                                                                                  | 521                                                                                 | 865                                                                                 | 415                                                                                 |
| Arrive On Green              | 0.21                                                                              | 0.54                                                                              | 0.54                                                                              | 0.03                                                                              | 0.20                                                                              | 0.20                                                                              | 0.05                                                                               | 0.13                                                                                | 0.13                                                                                | 0.29                                                                                | 0.37                                                                                | 0.37                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 3539                                                                              | 1583                                                                              | 1774                                                                              | 3539                                                                              | 1583                                                                              | 3442                                                                               | 1559                                                                                | 258                                                                                 | 1774                                                                                | 2322                                                                                | 1114                                                                                |
| Grp Volume(v), veh/h         | 152                                                                               | 816                                                                               | 113                                                                               | 40                                                                                | 476                                                                               | 95                                                                                | 108                                                                                | 0                                                                                   | 183                                                                                 | 42                                                                                  | 143                                                                                 | 142                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                              | 1583                                                                              | 1774                                                                              | 1770                                                                              | 1583                                                                              | 1721                                                                               | 0                                                                                   | 1817                                                                                | 1774                                                                                | 1770                                                                                | 1666                                                                                |
| Q Serve(g_s), s              | 6.5                                                                               | 15.9                                                                              | 1.9                                                                               | 1.8                                                                               | 10.0                                                                              | 0.9                                                                               | 2.5                                                                                | 0.0                                                                                 | 7.8                                                                                 | 1.4                                                                                 | 4.4                                                                                 | 4.7                                                                                 |
| Cycle Q Clear(g_c), s        | 6.5                                                                               | 15.9                                                                              | 1.9                                                                               | 1.8                                                                               | 10.0                                                                              | 0.9                                                                               | 2.5                                                                                | 0.0                                                                                 | 7.8                                                                                 | 1.4                                                                                 | 4.4                                                                                 | 4.7                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.14                                                                                | 1.00                                                                                |                                                                                     | 0.67                                                                                |
| Lane Grp Cap(c), veh/h       | 186                                                                               | 948                                                                               | 505                                                                               | 59                                                                                | 694                                                                               | 776                                                                               | 176                                                                                | 0                                                                                   | 236                                                                                 | 521                                                                                 | 660                                                                                 | 621                                                                                 |
| V/C Ratio(X)                 | 0.82                                                                              | 0.86                                                                              | 0.22                                                                              | 0.68                                                                              | 0.69                                                                              | 0.12                                                                              | 0.61                                                                               | 0.00                                                                                | 0.77                                                                                | 0.08                                                                                | 0.22                                                                                | 0.23                                                                                |
| Avail Cap(c_a), veh/h        | 299                                                                               | 1172                                                                              | 605                                                                               | 122                                                                               | 818                                                                               | 831                                                                               | 237                                                                                | 0                                                                                   | 466                                                                                 | 521                                                                                 | 660                                                                                 | 621                                                                                 |
| HCM Platoon Ratio            | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 0.55                                                                              | 0.55                                                                              | 0.55                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 30.9                                                                              | 17.3                                                                              | 5.5                                                                               | 38.3                                                                              | 29.9                                                                              | 3.0                                                                               | 37.2                                                                               | 0.0                                                                                 | 33.7                                                                                | 20.4                                                                                | 17.1                                                                                | 17.2                                                                                |
| Incr Delay (d2), s/veh       | 5.1                                                                               | 3.2                                                                               | 0.1                                                                               | 12.9                                                                              | 1.9                                                                               | 0.1                                                                               | 3.4                                                                                | 0.0                                                                                 | 21.5                                                                                | 0.1                                                                                 | 0.8                                                                                 | 0.9                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.5                                                                               | 7.9                                                                               | 0.9                                                                               | 1.1                                                                               | 5.1                                                                               | 0.6                                                                               | 1.3                                                                                | 0.0                                                                                 | 5.3                                                                                 | 0.7                                                                                 | 2.3                                                                                 | 2.3                                                                                 |
| LnGrp Delay(d),s/veh         | 36.0                                                                              | 20.5                                                                              | 5.6                                                                               | 51.2                                                                              | 31.8                                                                              | 3.0                                                                               | 40.6                                                                               | 0.0                                                                                 | 55.2                                                                                | 20.5                                                                                | 17.9                                                                                | 18.1                                                                                |
| LnGrp LOS                    | D                                                                                 | C                                                                                 | A                                                                                 | D                                                                                 | C                                                                                 | A                                                                                 | D                                                                                  |                                                                                     | E                                                                                   | C                                                                                   | B                                                                                   | B                                                                                   |
| Approach Vol, veh/h          | 1081                                                                              |                                                                                   |                                                                                   |                                                                                   | 611                                                                               |                                                                                   |                                                                                    |                                                                                     | 291                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 21.1                                                                              |                                                                                   |                                                                                   |                                                                                   | 28.6                                                                              |                                                                                   |                                                                                    |                                                                                     | 49.8                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 29.0                                                                              | 15.9                                                                              | 8.1                                                                               | 26.9                                                                              | 9.6                                                                               | 35.3                                                                              | 13.9                                                                               | 21.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 20.5                                                                              | 5.5                                                                               | 26.5                                                                              | 5.5                                                                               | 20.5                                                                              | 13.5                                                                               | 18.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.4                                                                               | 9.8                                                                               | 3.8                                                                               | 17.9                                                                              | 4.5                                                                               | 6.7                                                                               | 8.5                                                                                | 12.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.6                                                                               | 0.0                                                                               | 3.5                                                                               | 0.0                                                                               | 1.2                                                                               | 0.1                                                                                | 1.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   | 26.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 3: Lasselle St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 192                                                                               | 413                                                                               | 225                                                                               | 86                                                                                | 339                                                                               | 34                                                                                | 182                                                                                | 303                                                                                 | 104                                                                                 | 98                                                                                  | 371                                                                                 | 29                                                                                  |
| Future Volume (veh/h)        | 192                                                                               | 413                                                                               | 225                                                                               | 86                                                                                | 339                                                                               | 34                                                                                | 182                                                                                | 303                                                                                 | 104                                                                                 | 98                                                                                  | 371                                                                                 | 29                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 213                                                                               | 459                                                                               | 250                                                                               | 96                                                                                | 377                                                                               | 38                                                                                | 202                                                                                | 337                                                                                 | 116                                                                                 | 109                                                                                 | 412                                                                                 | 32                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                  | 1                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                               | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 177                                                                               | 542                                                                               | 427                                                                               | 152                                                                               | 515                                                                               | 506                                                                               | 381                                                                                | 576                                                                                 | 625                                                                                 | 152                                                                                 | 599                                                                                 | 46                                                                                  |
| Arrive On Green              | 0.10                                                                              | 0.29                                                                              | 0.27                                                                              | 0.09                                                                              | 0.28                                                                              | 0.26                                                                              | 0.43                                                                               | 0.62                                                                                | 0.62                                                                                | 0.09                                                                                | 0.18                                                                                | 0.16                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 3329                                                                                | 258                                                                                 |
| Grp Volume(v), veh/h         | 213                                                                               | 459                                                                               | 250                                                                               | 96                                                                                | 377                                                                               | 38                                                                                | 202                                                                                | 337                                                                                 | 116                                                                                 | 109                                                                                 | 218                                                                                 | 226                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 1770                                                                                | 1817                                                                                |
| Q Serve(g_s), s              | 7.0                                                                               | 16.2                                                                              | 9.6                                                                               | 3.7                                                                               | 12.8                                                                              | 1.2                                                                               | 5.9                                                                                | 7.6                                                                                 | 0.4                                                                                 | 4.2                                                                                 | 8.1                                                                                 | 8.2                                                                                 |
| Cycle Q Clear(g_c), s        | 7.0                                                                               | 16.2                                                                              | 9.6                                                                               | 3.7                                                                               | 12.8                                                                              | 1.2                                                                               | 5.9                                                                                | 7.6                                                                                 | 0.4                                                                                 | 4.2                                                                                 | 8.1                                                                                 | 8.2                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.14                                                                                |
| Lane Grp Cap(c), veh/h       | 177                                                                               | 542                                                                               | 427                                                                               | 152                                                                               | 515                                                                               | 506                                                                               | 381                                                                                | 576                                                                                 | 625                                                                                 | 152                                                                                 | 318                                                                                 | 327                                                                                 |
| V/C Ratio(X)                 | 1.20                                                                              | 0.85                                                                              | 0.59                                                                              | 0.63                                                                              | 0.73                                                                              | 0.08                                                                              | 0.53                                                                               | 0.59                                                                                | 0.19                                                                                | 0.72                                                                                | 0.69                                                                                | 0.69                                                                                |
| Avail Cap(c_a), veh/h        | 177                                                                               | 575                                                                               | 455                                                                               | 152                                                                               | 548                                                                               | 534                                                                               | 381                                                                                | 576                                                                                 | 625                                                                                 | 152                                                                                 | 465                                                                                 | 478                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                               | 2.00                                                                                | 2.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.87                                                                              | 0.87                                                                              | 0.87                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 31.5                                                                              | 23.4                                                                              | 22.2                                                                              | 30.9                                                                              | 23.0                                                                              | 16.6                                                                              | 17.3                                                                               | 10.7                                                                                | 2.4                                                                                 | 31.2                                                                                | 26.8                                                                                | 27.0                                                                                |
| Incr Delay (d2), s/veh       | 131.9                                                                             | 10.9                                                                              | 1.7                                                                               | 7.1                                                                               | 4.1                                                                               | 0.1                                                                               | 1.4                                                                                | 4.3                                                                                 | 0.7                                                                                 | 14.9                                                                                | 11.4                                                                                | 11.3                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 9.9                                                                               | 9.9                                                                               | 4.4                                                                               | 2.1                                                                               | 7.2                                                                               | 0.5                                                                               | 2.9                                                                                | 4.4                                                                                 | 0.5                                                                                 | 2.7                                                                                 | 4.9                                                                                 | 5.1                                                                                 |
| LnGrp Delay(d),s/veh         | 163.4                                                                             | 34.2                                                                              | 23.9                                                                              | 38.0                                                                              | 27.0                                                                              | 16.7                                                                              | 18.7                                                                               | 15.0                                                                                | 3.1                                                                                 | 46.1                                                                                | 38.2                                                                                | 38.3                                                                                |
| LnGrp LOS                    | F                                                                                 | C                                                                                 | C                                                                                 | D                                                                                 | C                                                                                 | B                                                                                 | B                                                                                  | B                                                                                   | A                                                                                   | D                                                                                   | D                                                                                   | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 922                                                                               |                                                                                   |                                                                                   | 511                                                                               |                                                                                   |                                                                                    | 655                                                                                 |                                                                                     |                                                                                     | 553                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 61.3                                                                              |                                                                                   |                                                                                   | 28.3                                                                              |                                                                                   |                                                                                    | 14.0                                                                                |                                                                                     |                                                                                     | 39.8                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | B                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 10.0                                                                              | 25.6                                                                              | 10.0                                                                              | 24.4                                                                              | 19.0                                                                              | 16.6                                                                              | 11.0                                                                               | 23.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 18.9                                                                              | 4.5                                                                               | 20.1                                                                              | 6.5                                                                               | 16.9                                                                              | 5.5                                                                                | 19.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 6.2                                                                               | 9.6                                                                               | 5.7                                                                               | 18.2                                                                              | 7.9                                                                               | 10.2                                                                              | 9.0                                                                                | 14.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.2                                                                               | 0.0                                                                               | 0.6                                                                               | 0.0                                                                               | 0.9                                                                               | 0.0                                                                                | 0.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 38.7                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 4: Nason St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 116                                                                               | 309                                                                               | 64                                                                                | 21                                                                                | 245                                                                               | 66                                                                                | 74                                                                                  | 549                                                                                 | 63                                                                                  | 85                                                                                  | 660                                                                                 | 87                                                                                  |
| Future Volume (veh/h)        | 116                                                                               | 309                                                                               | 64                                                                                | 21                                                                                | 245                                                                               | 66                                                                                | 74                                                                                  | 549                                                                                 | 63                                                                                  | 85                                                                                  | 660                                                                                 | 87                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                   | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                                | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 118                                                                               | 315                                                                               | 65                                                                                | 21                                                                                | 250                                                                               | 67                                                                                | 76                                                                                  | 560                                                                                 | 64                                                                                  | 87                                                                                  | 673                                                                                 | 89                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                   | 2                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 150                                                                               | 440                                                                               | 374                                                                               | 40                                                                                | 324                                                                               | 275                                                                               | 98                                                                                  | 948                                                                                 | 108                                                                                 | 111                                                                                 | 1073                                                                                | 480                                                                                 |
| Arrive On Green              | 0.08                                                                              | 0.24                                                                              | 0.24                                                                              | 0.02                                                                              | 0.17                                                                              | 0.17                                                                              | 0.06                                                                                | 0.30                                                                                | 0.30                                                                                | 0.06                                                                                | 0.30                                                                                | 0.30                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                                | 3203                                                                                | 365                                                                                 | 1774                                                                                | 3539                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 118                                                                               | 315                                                                               | 65                                                                                | 21                                                                                | 250                                                                               | 67                                                                                | 76                                                                                  | 309                                                                                 | 315                                                                                 | 87                                                                                  | 673                                                                                 | 89                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                                | 1770                                                                                | 1798                                                                                | 1774                                                                                | 1770                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 3.7                                                                               | 8.9                                                                               | 1.9                                                                               | 0.7                                                                               | 7.4                                                                               | 2.1                                                                               | 2.4                                                                                 | 8.5                                                                                 | 8.6                                                                                 | 2.8                                                                                 | 9.4                                                                                 | 2.4                                                                                 |
| Cycle Q Clear(g_c), s        | 3.7                                                                               | 8.9                                                                               | 1.9                                                                               | 0.7                                                                               | 7.4                                                                               | 2.1                                                                               | 2.4                                                                                 | 8.5                                                                                 | 8.6                                                                                 | 2.8                                                                                 | 9.4                                                                                 | 2.4                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 0.20                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 150                                                                               | 440                                                                               | 374                                                                               | 40                                                                                | 324                                                                               | 275                                                                               | 98                                                                                  | 524                                                                                 | 532                                                                                 | 111                                                                                 | 1073                                                                                | 480                                                                                 |
| V/C Ratio(X)                 | 0.78                                                                              | 0.72                                                                              | 0.17                                                                              | 0.53                                                                              | 0.77                                                                              | 0.24                                                                              | 0.78                                                                                | 0.59                                                                                | 0.59                                                                                | 0.79                                                                                | 0.63                                                                                | 0.19                                                                                |
| Avail Cap(c_a), veh/h        | 170                                                                               | 551                                                                               | 469                                                                               | 139                                                                               | 519                                                                               | 441                                                                               | 139                                                                                 | 524                                                                                 | 532                                                                                 | 139                                                                                 | 1073                                                                                | 480                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 25.8                                                                              | 20.2                                                                              | 17.5                                                                              | 27.8                                                                              | 22.6                                                                              | 20.5                                                                              | 26.8                                                                                | 17.2                                                                                | 17.3                                                                                | 26.6                                                                                | 17.2                                                                                | 14.8                                                                                |
| Incr Delay (d2), s/veh       | 19.0                                                                              | 3.3                                                                               | 0.2                                                                               | 10.6                                                                              | 3.9                                                                               | 0.5                                                                               | 16.1                                                                                | 4.8                                                                                 | 4.8                                                                                 | 20.4                                                                                | 2.8                                                                                 | 0.9                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.6                                                                               | 5.0                                                                               | 0.8                                                                               | 0.4                                                                               | 4.1                                                                               | 1.0                                                                               | 1.6                                                                                 | 4.8                                                                                 | 4.9                                                                                 | 2.0                                                                                 | 5.0                                                                                 | 1.2                                                                                 |
| LnGrp Delay(d),s/veh         | 44.7                                                                              | 23.4                                                                              | 17.7                                                                              | 38.4                                                                              | 26.6                                                                              | 20.9                                                                              | 42.9                                                                                | 22.1                                                                                | 22.1                                                                                | 46.9                                                                                | 20.0                                                                                | 15.6                                                                                |
| LnGrp LOS                    | D                                                                                 | C                                                                                 | B                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | D                                                                                   | C                                                                                   | C                                                                                   | D                                                                                   | B                                                                                   | B                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 498                                                                               |                                                                                   |                                                                                   | 338                                                                               |                                                                                   |                                                                                     | 700                                                                                 |                                                                                     |                                                                                     | 849                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 27.7                                                                              |                                                                                   |                                                                                   | 26.2                                                                              |                                                                                   |                                                                                     | 24.3                                                                                |                                                                                     |                                                                                     | 22.3                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 9.1                                                                               | 22.5                                                                              | 6.8                                                                               | 19.1                                                                              | 8.7                                                                               | 22.9                                                                              | 10.4                                                                                | 15.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                 | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 17.0                                                                              | 4.5                                                                               | 17.0                                                                              | 4.5                                                                               | 17.0                                                                              | 5.5                                                                                 | 16.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 4.8                                                                               | 10.6                                                                              | 2.7                                                                               | 10.9                                                                              | 4.4                                                                               | 11.4                                                                              | 5.7                                                                                 | 9.4                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.4                                                                               | 0.0                                                                               | 0.8                                                                               | 0.0                                                                               | 1.8                                                                               | 0.0                                                                                 | 0.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 24.6                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 5: Lassell St & Cottonwood Ave

02/22/2021

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 18                                                                                | 142                                                                               | 75                                                                                | 36                                                                                | 118                                                                               | 10                                                                                | 49                                                                                  | 262                                                                                 | 38                                                                                  | 12                                                                                  | 254                                                                                 | 27                                                                                  |
| Future Volume (veh/h)        | 18                                                                                | 142                                                                               | 75                                                                                | 36                                                                                | 118                                                                               | 10                                                                                | 49                                                                                  | 262                                                                                 | 38                                                                                  | 12                                                                                  | 254                                                                                 | 27                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                   | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                                | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 19                                                                                | 149                                                                               | 79                                                                                | 38                                                                                | 124                                                                               | 11                                                                                | 52                                                                                  | 276                                                                                 | 40                                                                                  | 13                                                                                  | 267                                                                                 | 28                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                 | 1                                                                                   | 1                                                                                   | 0                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 34                                                                                | 182                                                                               | 96                                                                                | 57                                                                                | 564                                                                               | 49                                                                                | 632                                                                                 | 828                                                                                 | 120                                                                                 | 25                                                                                  | 332                                                                                 | 282                                                                                 |
| Arrive On Green              | 0.02                                                                              | 0.16                                                                              | 0.16                                                                              | 0.03                                                                              | 0.17                                                                              | 0.17                                                                              | 0.36                                                                                | 0.52                                                                                | 0.52                                                                                | 0.01                                                                                | 0.18                                                                                | 0.18                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1147                                                                              | 608                                                                               | 1774                                                                              | 3292                                                                              | 289                                                                               | 1774                                                                                | 1591                                                                                | 231                                                                                 | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 19                                                                                | 0                                                                                 | 228                                                                               | 38                                                                                | 66                                                                                | 69                                                                                | 52                                                                                  | 0                                                                                   | 316                                                                                 | 13                                                                                  | 267                                                                                 | 28                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 0                                                                                 | 1755                                                                              | 1774                                                                              | 1770                                                                              | 1812                                                                              | 1774                                                                                | 0                                                                                   | 1822                                                                                | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 0.8                                                                               | 0.0                                                                               | 10.0                                                                              | 1.7                                                                               | 2.6                                                                               | 2.6                                                                               | 1.6                                                                                 | 0.0                                                                                 | 8.1                                                                                 | 0.6                                                                                 | 11.0                                                                                | 1.0                                                                                 |
| Cycle Q Clear(g_c), s        | 0.8                                                                               | 0.0                                                                               | 10.0                                                                              | 1.7                                                                               | 2.6                                                                               | 2.6                                                                               | 1.6                                                                                 | 0.0                                                                                 | 8.1                                                                                 | 0.6                                                                                 | 11.0                                                                                | 1.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.35                                                                              | 1.00                                                                              |                                                                                   | 0.16                                                                              | 1.00                                                                                |                                                                                     | 0.13                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 34                                                                                | 0                                                                                 | 278                                                                               | 57                                                                                | 303                                                                               | 310                                                                               | 632                                                                                 | 0                                                                                   | 948                                                                                 | 25                                                                                  | 332                                                                                 | 282                                                                                 |
| V/C Ratio(X)                 | 0.55                                                                              | 0.00                                                                              | 0.82                                                                              | 0.67                                                                              | 0.22                                                                              | 0.22                                                                              | 0.08                                                                                | 0.00                                                                                | 0.33                                                                                | 0.52                                                                                | 0.81                                                                                | 0.10                                                                                |
| Avail Cap(c_a), veh/h        | 100                                                                               | 0                                                                                 | 428                                                                               | 100                                                                               | 431                                                                               | 442                                                                               | 632                                                                                 | 0                                                                                   | 948                                                                                 | 100                                                                                 | 664                                                                                 | 564                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 38.9                                                                              | 0.0                                                                               | 32.5                                                                              | 38.3                                                                              | 28.5                                                                              | 28.6                                                                              | 17.1                                                                                | 0.0                                                                                 | 11.1                                                                                | 39.2                                                                                | 31.5                                                                                | 18.0                                                                                |
| Incr Delay (d2), s/veh       | 13.1                                                                              | 0.0                                                                               | 7.2                                                                               | 12.7                                                                              | 0.4                                                                               | 0.4                                                                               | 0.1                                                                                 | 0.0                                                                                 | 0.9                                                                                 | 15.6                                                                                | 18.5                                                                                | 0.7                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.5                                                                               | 0.0                                                                               | 5.4                                                                               | 1.0                                                                               | 1.3                                                                               | 1.3                                                                               | 0.8                                                                                 | 0.0                                                                                 | 4.3                                                                                 | 0.4                                                                                 | 7.3                                                                                 | 0.6                                                                                 |
| LnGrp Delay(d),s/veh         | 52.0                                                                              | 0.0                                                                               | 39.8                                                                              | 51.0                                                                              | 28.9                                                                              | 28.9                                                                              | 17.1                                                                                | 0.0                                                                                 | 12.1                                                                                | 54.8                                                                                | 50.1                                                                                | 18.7                                                                                |
| LnGrp LOS                    | D                                                                                 |                                                                                   | D                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | B                                                                                   |                                                                                     | B                                                                                   | D                                                                                   | D                                                                                   | B                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 247                                                                               |                                                                                   |                                                                                   | 173                                                                               |                                                                                   |                                                                                     | 368                                                                                 |                                                                                     |                                                                                     | 308                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 40.7                                                                              |                                                                                   |                                                                                   | 33.8                                                                              |                                                                                   |                                                                                     | 12.8                                                                                |                                                                                     |                                                                                     | 47.4                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | B                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 6.6                                                                               | 47.1                                                                              | 8.1                                                                               | 18.2                                                                              | 34.0                                                                              | 19.7                                                                              | 7.0                                                                                 | 19.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                 | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 29.5                                                                              | 4.5                                                                               | 19.5                                                                              | 5.5                                                                               | 28.5                                                                              | 4.5                                                                                 | 19.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.6                                                                               | 10.1                                                                              | 3.7                                                                               | 12.0                                                                              | 3.6                                                                               | 13.0                                                                              | 2.8                                                                                 | 4.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.6                                                                               | 0.0                                                                               | 0.6                                                                               | 0.0                                                                               | 1.2                                                                               | 0.0                                                                                 | 0.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 32.1                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 6: Lassell St & Bay Ave

02/22/2021

|                              |  |  |  |  |  |  |   |  |  |  |                                                                                      |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |   |                                                                                     |
| Traffic Volume (veh/h)       | 6                                                                                 | 19                                                                                | 14                                                                                | 26                                                                                | 19                                                                                | 25                                                                                | 14                                                                                  | 335                                                                                 | 29                                                                                  | 19                                                                                  | 345                                                                                                                                                                     | 7                                                                                   |
| Future Volume (veh/h)        | 6                                                                                 | 19                                                                                | 14                                                                                | 26                                                                                | 19                                                                                | 25                                                                                | 14                                                                                  | 335                                                                                 | 29                                                                                  | 19                                                                                  | 345                                                                                                                                                                     | 7                                                                                   |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                   | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                                | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1900                                                                                |
| Adj Flow Rate, veh/h         | 6                                                                                 | 20                                                                                | 15                                                                                | 28                                                                                | 20                                                                                | 27                                                                                | 15                                                                                  | 360                                                                                 | 31                                                                                  | 20                                                                                  | 371                                                                                                                                                                     | 8                                                                                   |
| Adj No. of Lanes             | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                   | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 0                                                                                   |
| Peak Hour Factor             | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                                                                                                    | 0.93                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 62                                                                                | 63                                                                                | 42                                                                                | 96                                                                                | 35                                                                                | 39                                                                                | 28                                                                                  | 427                                                                                 | 37                                                                                  | 843                                                                                 | 2521                                                                                                                                                                    | 54                                                                                  |
| Arrive On Green              | 0.07                                                                              | 0.07                                                                              | 0.07                                                                              | 0.07                                                                              | 0.07                                                                              | 0.07                                                                              | 0.02                                                                                | 0.25                                                                                | 0.25                                                                                | 0.48                                                                                | 0.71                                                                                                                                                                    | 0.71                                                                                |
| Sat Flow, veh/h              | 151                                                                               | 956                                                                               | 639                                                                               | 512                                                                               | 534                                                                               | 589                                                                               | 1774                                                                                | 1691                                                                                | 146                                                                                 | 1774                                                                                | 3543                                                                                                                                                                    | 76                                                                                  |
| Grp Volume(v), veh/h         | 41                                                                                | 0                                                                                 | 0                                                                                 | 75                                                                                | 0                                                                                 | 0                                                                                 | 15                                                                                  | 0                                                                                   | 391                                                                                 | 20                                                                                  | 185                                                                                                                                                                     | 194                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1746                                                                              | 0                                                                                 | 0                                                                                 | 1635                                                                              | 0                                                                                 | 0                                                                                 | 1774                                                                                | 0                                                                                   | 1837                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1849                                                                                |
| Q Serve(g_s), s              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 1.7                                                                               | 0.0                                                                               | 0.0                                                                               | 0.7                                                                                 | 0.0                                                                                 | 16.2                                                                                | 0.5                                                                                 | 2.7                                                                                                                                                                     | 2.7                                                                                 |
| Cycle Q Clear(g_c), s        | 1.8                                                                               | 0.0                                                                               | 0.0                                                                               | 3.5                                                                               | 0.0                                                                               | 0.0                                                                               | 0.7                                                                                 | 0.0                                                                                 | 16.2                                                                                | 0.5                                                                                 | 2.7                                                                                                                                                                     | 2.7                                                                                 |
| Prop In Lane                 | 0.15                                                                              |                                                                                   | 0.37                                                                              | 0.37                                                                              |                                                                                   | 0.36                                                                              | 1.00                                                                                |                                                                                     | 0.08                                                                                | 1.00                                                                                |                                                                                                                                                                         | 0.04                                                                                |
| Lane Grp Cap(c), veh/h       | 167                                                                               | 0                                                                                 | 0                                                                                 | 170                                                                               | 0                                                                                 | 0                                                                                 | 28                                                                                  | 0                                                                                   | 464                                                                                 | 843                                                                                 | 1259                                                                                                                                                                    | 1316                                                                                |
| V/C Ratio(X)                 | 0.25                                                                              | 0.00                                                                              | 0.00                                                                              | 0.44                                                                              | 0.00                                                                              | 0.00                                                                              | 0.53                                                                                | 0.00                                                                                | 0.84                                                                                | 0.02                                                                                | 0.15                                                                                                                                                                    | 0.15                                                                                |
| Avail Cap(c_a), veh/h        | 463                                                                               | 0                                                                                 | 0                                                                                 | 446                                                                               | 0                                                                                 | 0                                                                                 | 144                                                                                 | 0                                                                                   | 861                                                                                 | 843                                                                                 | 1259                                                                                                                                                                    | 1316                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 35.7                                                                              | 0.0                                                                               | 0.0                                                                               | 36.5                                                                              | 0.0                                                                               | 0.0                                                                               | 39.1                                                                                | 0.0                                                                                 | 28.4                                                                                | 11.1                                                                                | 3.7                                                                                                                                                                     | 3.7                                                                                 |
| Incr Delay (d2), s/veh       | 0.8                                                                               | 0.0                                                                               | 0.0                                                                               | 1.8                                                                               | 0.0                                                                               | 0.0                                                                               | 14.5                                                                                | 0.0                                                                                 | 16.8                                                                                | 0.0                                                                                 | 0.2                                                                                                                                                                     | 0.2                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.9                                                                               | 0.0                                                                               | 0.0                                                                               | 1.7                                                                               | 0.0                                                                               | 0.0                                                                               | 0.4                                                                                 | 0.0                                                                                 | 10.3                                                                                | 0.2                                                                                 | 1.4                                                                                                                                                                     | 1.4                                                                                 |
| LnGrp Delay(d),s/veh         | 36.5                                                                              | 0.0                                                                               | 0.0                                                                               | 38.3                                                                              | 0.0                                                                               | 0.0                                                                               | 53.6                                                                                | 0.0                                                                                 | 45.2                                                                                | 11.2                                                                                | 4.0                                                                                                                                                                     | 4.0                                                                                 |
| LnGrp LOS                    | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                   |                                                                                     | D                                                                                   | B                                                                                   | A                                                                                                                                                                       | A                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 41                                                                                |                                                                                   |                                                                                   | 75                                                                                |                                                                                   |                                                                                     | 406                                                                                 |                                                                                     |                                                                                     | 399                                                                                                                                                                     |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 36.5                                                                              |                                                                                   |                                                                                   | 38.3                                                                              |                                                                                   |                                                                                     | 45.5                                                                                |                                                                                     |                                                                                     | 4.3                                                                                                                                                                     |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     | A                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 43.5                                                                              | 25.7                                                                              |                                                                                   | 10.8                                                                              | 6.8                                                                               | 62.4                                                                              |                                                                                     | 10.8                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               |                                                                                   | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               |                                                                                     | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 6.5                                                                               | 37.5                                                                              |                                                                                   | 19.5                                                                              | 6.5                                                                               | 37.5                                                                              |                                                                                     | 19.5                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.5                                                                               | 18.2                                                                              |                                                                                   | 3.8                                                                               | 2.7                                                                               | 4.7                                                                               |                                                                                     | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 2.0                                                                               |                                                                                   | 0.1                                                                               | 0.0                                                                               | 2.0                                                                               |                                                                                     | 0.2                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 26.7                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

**Intersection**

Int Delay, s/veh 0.6

| Movement                 | EBL                                                                               | EBR  | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |  |      |  |  |  |      |
| Traffic Vol, veh/h       | 23                                                                                | 13   | 5                                                                                 | 545                                                                               | 587                                                                               | 21   |
| Future Vol, veh/h        | 23                                                                                | 13   | 5                                                                                 | 545                                                                               | 587                                                                               | 21   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -    | 200                                                                               | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 89                                                                                | 89   | 89                                                                                | 89                                                                                | 89                                                                                | 89   |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 26                                                                                | 15   | 6                                                                                 | 612                                                                               | 660                                                                               | 24   |

| Major/Minor          | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 990    | 342    | 684    |
| Stage 1              | 672    | -      | -      |
| Stage 2              | 318    | -      | -      |
| Critical Hdwy        | 6.84   | 6.94   | 4.14   |
| Critical Hdwy Stg 1  | 5.84   | -      | -      |
| Critical Hdwy Stg 2  | 5.84   | -      | -      |
| Follow-up Hdwy       | 3.52   | 3.32   | 2.22   |
| Pot Cap-1 Maneuver   | 243    | 654    | 905    |
| Stage 1              | 469    | -      | -      |
| Stage 2              | 710    | -      | -      |
| Platoon blocked, %   |        |        |        |
| Mov Cap-1 Maneuver   | 241    | 654    | 905    |
| Mov Cap-2 Maneuver   | 241    | -      | -      |
| Stage 1              | 466    | -      | -      |
| Stage 2              | 710    | -      | -      |

| Approach             | EB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 18.3 | 0.1 | 0  |
| HCM LOS              | C    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 905   | -   | 312   | -   | -   |
| HCM Lane V/C Ratio    | 0.006 | -   | 0.13  | -   | -   |
| HCM Control Delay (s) | 9     | -   | 18.3  | -   | -   |
| HCM Lane LOS          | A     | -   | C     | -   | -   |
| HCM 95th %tile Q(veh) | 0     | -   | 0.4   | -   | -   |

# HCM 2010 Signalized Intersection Summary

## 8: Lassell St & Catcus Ave

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 43                                                                                | 359                                                                               | 146                                                                               | 160                                                                               | 305                                                                               | 53                                                                                | 79                                                                                 | 419                                                                                 | 135                                                                                 | 57                                                                                  | 487                                                                                 | 35                                                                                  |
| Future Volume (veh/h)        | 43                                                                                | 359                                                                               | 146                                                                               | 160                                                                               | 305                                                                               | 53                                                                                | 79                                                                                 | 419                                                                                 | 135                                                                                 | 57                                                                                  | 487                                                                                 | 35                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 45                                                                                | 374                                                                               | 152                                                                               | 167                                                                               | 318                                                                               | 55                                                                                | 82                                                                                 | 436                                                                                 | 0                                                                                   | 59                                                                                  | 507                                                                                 | 36                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                  | 2                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                               | 0.96                                                                                | 0.96                                                                                | 0.96                                                                                | 0.96                                                                                | 0.96                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 105                                                                               | 510                                                                               | 204                                                                               | 241                                                                               | 1004                                                                              | 449                                                                               | 408                                                                                | 1287                                                                                | 576                                                                                 | 116                                                                                 | 666                                                                                 | 47                                                                                  |
| Arrive On Green              | 0.06                                                                              | 0.21                                                                              | 0.19                                                                              | 0.14                                                                              | 0.28                                                                              | 0.28                                                                              | 0.23                                                                               | 0.36                                                                                | 0.00                                                                                | 0.13                                                                                | 0.40                                                                                | 0.35                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 2469                                                                              | 989                                                                               | 1774                                                                              | 3539                                                                              | 1583                                                                              | 1774                                                                               | 3539                                                                                | 1583                                                                                | 1774                                                                                | 3353                                                                                | 238                                                                                 |
| Grp Volume(v), veh/h         | 45                                                                                | 267                                                                               | 259                                                                               | 167                                                                               | 318                                                                               | 55                                                                                | 82                                                                                 | 436                                                                                 | 0                                                                                   | 59                                                                                  | 267                                                                                 | 276                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                              | 1688                                                                              | 1774                                                                              | 1770                                                                              | 1583                                                                              | 1774                                                                               | 1770                                                                                | 1583                                                                                | 1774                                                                                | 1770                                                                                | 1821                                                                                |
| Q Serve(g_s), s              | 1.7                                                                               | 9.9                                                                               | 10.1                                                                              | 6.3                                                                               | 5.0                                                                               | 1.8                                                                               | 2.6                                                                                | 6.3                                                                                 | 0.0                                                                                 | 2.2                                                                                 | 9.1                                                                                 | 9.2                                                                                 |
| Cycle Q Clear(g_c), s        | 1.7                                                                               | 9.9                                                                               | 10.1                                                                              | 6.3                                                                               | 5.0                                                                               | 1.8                                                                               | 2.6                                                                                | 6.3                                                                                 | 0.0                                                                                 | 2.2                                                                                 | 9.1                                                                                 | 9.2                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.59                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.13                                                                                |
| Lane Grp Cap(c), veh/h       | 105                                                                               | 365                                                                               | 349                                                                               | 241                                                                               | 1004                                                                              | 449                                                                               | 408                                                                                | 1287                                                                                | 576                                                                                 | 116                                                                                 | 352                                                                                 | 362                                                                                 |
| V/C Ratio(X)                 | 0.43                                                                              | 0.73                                                                              | 0.74                                                                              | 0.69                                                                              | 0.32                                                                              | 0.12                                                                              | 0.20                                                                               | 0.34                                                                                | 0.00                                                                                | 0.51                                                                                | 0.76                                                                                | 0.76                                                                                |
| Avail Cap(c_a), veh/h        | 152                                                                               | 442                                                                               | 422                                                                               | 279                                                                               | 1138                                                                              | 509                                                                               | 408                                                                                | 1287                                                                                | 576                                                                                 | 152                                                                                 | 493                                                                                 | 507                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 2.00                                                                                | 2.00                                                                                | 2.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 31.8                                                                              | 25.9                                                                              | 26.5                                                                              | 28.8                                                                              | 19.7                                                                              | 18.6                                                                              | 21.8                                                                               | 16.2                                                                                | 0.0                                                                                 | 29.4                                                                                | 19.6                                                                                | 19.9                                                                                |
| Incr Delay (d2), s/veh       | 2.8                                                                               | 4.8                                                                               | 5.7                                                                               | 6.0                                                                               | 0.2                                                                               | 0.1                                                                               | 0.2                                                                                | 0.7                                                                                 | 0.0                                                                                 | 3.4                                                                                 | 14.3                                                                                | 14.1                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.9                                                                               | 5.3                                                                               | 5.3                                                                               | 3.5                                                                               | 2.5                                                                               | 0.8                                                                               | 1.3                                                                                | 3.2                                                                                 | 0.0                                                                                 | 1.2                                                                                 | 5.7                                                                                 | 5.9                                                                                 |
| LnGrp Delay(d),s/veh         | 34.6                                                                              | 30.8                                                                              | 32.1                                                                              | 34.8                                                                              | 19.9                                                                              | 18.7                                                                              | 22.0                                                                               | 16.9                                                                                | 0.0                                                                                 | 32.8                                                                                | 33.9                                                                                | 34.0                                                                                |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 | B                                                                                 | B                                                                                 | C                                                                                  | B                                                                                   |                                                                                     | C                                                                                   | C                                                                                   | C                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 571                                                                               |                                                                                   |                                                                                   | 540                                                                               |                                                                                   |                                                                                    | 518                                                                                 |                                                                                     |                                                                                     | 602                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 31.7                                                                              |                                                                                   |                                                                                   | 24.4                                                                              |                                                                                   |                                                                                    | 17.7                                                                                |                                                                                     |                                                                                     | 33.8                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | B                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.6                                                                               | 29.4                                                                              | 13.5                                                                              | 18.5                                                                              | 20.1                                                                              | 17.9                                                                              | 8.1                                                                                | 23.9                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 18.0                                                                              | 9.5                                                                               | 16.0                                                                              | 4.5                                                                               | 18.0                                                                              | 4.5                                                                                | 21.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 4.2                                                                               | 8.3                                                                               | 8.3                                                                               | 12.1                                                                              | 4.6                                                                               | 11.2                                                                              | 3.7                                                                                | 7.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.3                                                                               | 0.1                                                                               | 0.8                                                                               | 0.0                                                                               | 1.2                                                                               | 0.0                                                                                | 1.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 27.3                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

HCM 2010 TWSC  
9: Alessandro Blvd & Driveway A

02/22/2021

Intersection

Int Delay, s/veh 0.4

| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      |      | ↑    | ↑    |      |      | ↑    |
| Traffic Vol, veh/h       | 0    | 706  | 449  | 20   | 0    | 38   |
| Future Vol, veh/h        | 0    | 706  | 449  | 20   | 0    | 38   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 0    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 0    | 767  | 488  | 22   | 0    | 41   |

| Major/Minor          | Major1 | Major2 | Minor2    |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | -      | 0      | - 0 - 499 |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |
| Critical Hdwy        | -      | -      | - - 6.22  |
| Critical Hdwy Stg 1  | -      | -      | - - -     |
| Critical Hdwy Stg 2  | -      | -      | - - -     |
| Follow-up Hdwy       | -      | -      | - - 3.318 |
| Pot Cap-1 Maneuver   | 0      | -      | - - 0 572 |
| Stage 1              | 0      | -      | - - 0 -   |
| Stage 2              | 0      | -      | - - 0 -   |
| Platoon blocked, %   | -      | -      | - - -     |
| Mov Cap-1 Maneuver   | -      | -      | - - - 572 |
| Mov Cap-2 Maneuver   | -      | -      | - - - -   |
| Stage 1              | -      | -      | - - - -   |
| Stage 2              | -      | -      | - - - -   |

| Approach             | EB | WB | SB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 0  | 11.8 |
| HCM LOS              |    |    | B    |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h)      | -   | -   | -   | 572   |
| HCM Lane V/C Ratio    | -   | -   | -   | 0.072 |
| HCM Control Delay (s) | -   | -   | -   | 11.8  |
| HCM Lane LOS          | -   | -   | -   | B     |
| HCM 95th %tile Q(veh) | -   | -   | -   | 0.2   |

HCM 2010 TWSC  
10: Alessandro Blvd & Driveway B

02/22/2021

Intersection

Int Delay, s/veh 0.7

| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      |      | ↑    | ↑    |      |      | ↑    |
| Traffic Vol, veh/h       | 0    | 706  | 449  | 162  | 0    | 76   |
| Future Vol, veh/h        | 0    | 706  | 449  | 162  | 0    | 76   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 0    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 0    | 767  | 488  | 176  | 0    | 83   |

| Major/Minor          | Major1 | Major2 | Minor2    |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | -      | 0      | - 0 - 576 |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |
| Critical Hdwy        | -      | -      | - - 6.22  |
| Critical Hdwy Stg 1  | -      | -      | - - -     |
| Critical Hdwy Stg 2  | -      | -      | - - -     |
| Follow-up Hdwy       | -      | -      | - - 3.318 |
| Pot Cap-1 Maneuver   | 0      | -      | - - 0 517 |
| Stage 1              | 0      | -      | - - 0 -   |
| Stage 2              | 0      | -      | - - 0 -   |
| Platoon blocked, %   | -      | -      | -         |
| Mov Cap-1 Maneuver   | -      | -      | - - 517   |
| Mov Cap-2 Maneuver   | -      | -      | - - -     |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |

| Approach             | EB | WB | SB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 0  | 13.3 |
| HCM LOS              |    |    | B    |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h)      | -   | -   | -   | 517   |
| HCM Lane V/C Ratio    | -   | -   | -   | 0.16  |
| HCM Control Delay (s) | -   | -   | -   | 13.3  |
| HCM Lane LOS          | -   | -   | -   | B     |
| HCM 95th %tile Q(veh) | -   | -   | -   | 0.6   |

HCM 2010 TWSC  
11: Lasselle St/Lassell St & Driveway C

02/22/2021

Intersection

Int Delay, s/veh 6.3

| Movement                 | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations      |  |  |  |  |  |  |
| Traffic Vol, veh/h       | 114                                                                               | 152                                                                               | 101                                                                               | 345                                                                               | 346                                                                               | 121                                                                               |
| Future Vol, veh/h        | 114                                                                               | 152                                                                               | 101                                                                               | 345                                                                               | 346                                                                               | 121                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Stop                                                                              | Stop                                                                              | Free                                                                              | Free                                                                              | Free                                                                              | Free                                                                              |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | None                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | 0                                                                                 | 0                                                                                 | 80                                                                                | -                                                                                 | -                                                                                 | -                                                                                 |
| Veh in Median Storage, # | 0                                                                                 | -                                                                                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | 0                                                                                 | -                                                                                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 124                                                                               | 165                                                                               | 110                                                                               | 375                                                                               | 376                                                                               | 132                                                                               |

| Major/Minor          | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 1037   | 254    | 508    |
| Stage 1              | 442    | -      | -      |
| Stage 2              | 595    | -      | -      |
| Critical Hdwy        | 6.63   | 6.93   | 4.13   |
| Critical Hdwy Stg 1  | 5.83   | -      | -      |
| Critical Hdwy Stg 2  | 5.43   | -      | -      |
| Follow-up Hdwy       | 3.519  | 3.319  | 2.219  |
| Pot Cap-1 Maneuver   | 241    | 746    | 1055   |
| Stage 1              | 616    | -      | -      |
| Stage 2              | 550    | -      | -      |
| Platoon blocked, %   |        |        |        |
| Mov Cap-1 Maneuver   | 216    | 746    | 1055   |
| Mov Cap-2 Maneuver   | 216    | -      | -      |
| Stage 1              | 552    | -      | -      |
| Stage 2              | 550    | -      | -      |

| Approach             | EB   | NB | SB |
|----------------------|------|----|----|
| HCM Control Delay, s | 24.4 | 2  | 0  |
| HCM LOS              | C    |    |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | EBLn2 | SBT | SBR |
|-----------------------|-------|-----|-------|-------|-----|-----|
| Capacity (veh/h)      | 1055  | -   | 216   | 746   | -   | -   |
| HCM Lane V/C Ratio    | 0.104 | -   | 0.574 | 0.221 | -   | -   |
| HCM Control Delay (s) | 8.8   | -   | 41.9  | 11.2  | -   | -   |
| HCM Lane LOS          | A     | -   | E     | B     | -   | -   |
| HCM 95th %tile Q(veh) | 0.3   | -   | 3.2   | 0.8   | -   | -   |

# HCM 2010 Signalized Intersection Summary

## 1: Alessandro Blvd & Perris Blvd

02/22/2021

|                              |                                                                                    |                                                                                    |  |  |                                                                                                                                                                      |  |  |                                                                                      |  |  |                                                                                      |  |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                                                                                                                 | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |   |   |  |  |    |                                                                                   |  |   |  |  |   |  |
| Traffic Volume (veh/h)       | 272                                                                                                                                                                 | 762                                                                                                                                                                 | 291                                                                               | 178                                                                               | 489                                                                                                                                                                                                                                                   | 107                                                                               | 200                                                                                | 749                                                                                                                                                                     | 150                                                                                 | 152                                                                                 | 767                                                                                                                                                                     | 129                                                                                 |
| Future Volume (veh/h)        | 272                                                                                                                                                                 | 762                                                                                                                                                                 | 291                                                                               | 178                                                                               | 489                                                                                                                                                                                                                                                   | 107                                                                               | 200                                                                                | 749                                                                                                                                                                     | 150                                                                                 | 152                                                                                 | 767                                                                                                                                                                     | 129                                                                                 |
| Number                       | 7                                                                                                                                                                   | 4                                                                                                                                                                   | 14                                                                                | 3                                                                                 | 8                                                                                                                                                                                                                                                     | 18                                                                                | 5                                                                                  | 2                                                                                                                                                                       | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                                                                                                   | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                  | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                                                                                                       | 1.00                                                                              | 1.00                                                                               |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                                                                                                                | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                              | 1863                                                                                                                                                                                                                                                  | 1900                                                                              | 1863                                                                               | 1863                                                                                                                                                                    | 1863                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1863                                                                                |
| Adj Flow Rate, veh/h         | 286                                                                                                                                                                 | 802                                                                                                                                                                 | 306                                                                               | 187                                                                               | 515                                                                                                                                                                                                                                                   | 113                                                                               | 211                                                                                | 788                                                                                                                                                                     | 158                                                                                 | 160                                                                                 | 807                                                                                                                                                                     | 136                                                                                 |
| Adj No. of Lanes             | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 1                                                                                 | 1                                                                                 | 3                                                                                                                                                                                                                                                     | 0                                                                                 | 1                                                                                  | 2                                                                                                                                                                       | 1                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 1                                                                                   |
| Peak Hour Factor             | 0.95                                                                                                                                                                | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                                                                                                                                                                                  | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                                                                                                    | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                                                                                                    | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                                                                                                     | 2                                                                                 | 2                                                                                  | 2                                                                                                                                                                       | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 372                                                                                                                                                                 | 845                                                                                                                                                                 | 378                                                                               | 188                                                                               | 993                                                                                                                                                                                                                                                   | 213                                                                               | 211                                                                                | 926                                                                                                                                                                     | 414                                                                                 | 210                                                                                 | 925                                                                                                                                                                     | 414                                                                                 |
| Arrive On Green              | 0.11                                                                                                                                                                | 0.24                                                                                                                                                                | 0.24                                                                              | 0.11                                                                              | 0.24                                                                                                                                                                                                                                                  | 0.24                                                                              | 0.12                                                                               | 0.26                                                                                                                                                                    | 0.26                                                                                | 0.12                                                                                | 0.26                                                                                                                                                                    | 0.26                                                                                |
| Sat Flow, veh/h              | 3442                                                                                                                                                                | 3539                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 4194                                                                                                                                                                                                                                                  | 900                                                                               | 1774                                                                               | 3539                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 3539                                                                                                                                                                    | 1583                                                                                |
| Grp Volume(v), veh/h         | 286                                                                                                                                                                 | 802                                                                                                                                                                 | 306                                                                               | 187                                                                               | 414                                                                                                                                                                                                                                                   | 214                                                                               | 211                                                                                | 788                                                                                                                                                                     | 158                                                                                 | 160                                                                                 | 807                                                                                                                                                                     | 136                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1721                                                                                                                                                                | 1770                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 1695                                                                                                                                                                                                                                                  | 1704                                                                              | 1774                                                                               | 1770                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1583                                                                                |
| Q Serve(g_s), s              | 6.5                                                                                                                                                                 | 17.8                                                                                                                                                                | 9.7                                                                               | 8.4                                                                               | 8.5                                                                                                                                                                                                                                                   | 8.8                                                                               | 9.5                                                                                | 16.9                                                                                                                                                                    | 6.5                                                                                 | 7.0                                                                                 | 17.5                                                                                                                                                                    | 5.6                                                                                 |
| Cycle Q Clear(g_c), s        | 6.5                                                                                                                                                                 | 17.8                                                                                                                                                                | 9.7                                                                               | 8.4                                                                               | 8.5                                                                                                                                                                                                                                                   | 8.8                                                                               | 9.5                                                                                | 16.9                                                                                                                                                                    | 6.5                                                                                 | 7.0                                                                                 | 17.5                                                                                                                                                                    | 5.6                                                                                 |
| Prop In Lane                 | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                                                                                                       | 0.53                                                                              | 1.00                                                                               |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 372                                                                                                                                                                 | 845                                                                                                                                                                 | 378                                                                               | 188                                                                               | 803                                                                                                                                                                                                                                                   | 404                                                                               | 211                                                                                | 926                                                                                                                                                                     | 414                                                                                 | 210                                                                                 | 925                                                                                                                                                                     | 414                                                                                 |
| V/C Ratio(X)                 | 0.77                                                                                                                                                                | 0.95                                                                                                                                                                | 0.81                                                                              | 0.99                                                                              | 0.52                                                                                                                                                                                                                                                  | 0.53                                                                              | 1.00                                                                               | 0.85                                                                                                                                                                    | 0.38                                                                                | 0.76                                                                                | 0.87                                                                                                                                                                    | 0.33                                                                                |
| Avail Cap(c_a), veh/h        | 452                                                                                                                                                                 | 845                                                                                                                                                                 | 378                                                                               | 188                                                                               | 803                                                                                                                                                                                                                                                   | 404                                                                               | 211                                                                                | 1013                                                                                                                                                                    | 453                                                                                 | 210                                                                                 | 925                                                                                                                                                                     | 414                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 0.75                                                                              | 0.75                                                                                                                                                                                                                                                  | 0.75                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 34.7                                                                                                                                                                | 30.0                                                                                                                                                                | 12.6                                                                              | 35.7                                                                              | 26.5                                                                                                                                                                                                                                                  | 26.6                                                                              | 35.3                                                                               | 28.0                                                                                                                                                                    | 24.2                                                                                | 34.2                                                                                | 28.3                                                                                                                                                                    | 23.9                                                                                |
| Incr Delay (d2), s/veh       | 6.4                                                                                                                                                                 | 19.7                                                                                                                                                                | 12.4                                                                              | 54.5                                                                              | 0.4                                                                                                                                                                                                                                                   | 1.0                                                                               | 62.4                                                                               | 9.7                                                                                                                                                                     | 2.7                                                                                 | 15.1                                                                                | 11.2                                                                                                                                                                    | 2.1                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.4                                                                                                                                                                 | 11.0                                                                                                                                                                | 6.3                                                                               | 7.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.2                                                                               | 8.3                                                                                | 9.5                                                                                                                                                                     | 3.2                                                                                 | 4.3                                                                                 | 10.0                                                                                                                                                                    | 2.7                                                                                 |
| LnGrp Delay(d),s/veh         | 41.1                                                                                                                                                                | 49.6                                                                                                                                                                | 25.0                                                                              | 90.2                                                                              | 27.0                                                                                                                                                                                                                                                  | 27.6                                                                              | 97.7                                                                               | 37.7                                                                                                                                                                    | 26.9                                                                                | 49.3                                                                                | 39.5                                                                                                                                                                    | 26.0                                                                                |
| LnGrp LOS                    | D                                                                                                                                                                   | D                                                                                                                                                                   | C                                                                                 | F                                                                                 | C                                                                                                                                                                                                                                                     | C                                                                                 | F                                                                                  | D                                                                                                                                                                       | C                                                                                   | D                                                                                   | D                                                                                                                                                                       | C                                                                                   |
| Approach Vol, veh/h          | 1394                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   | 815                                                                                                                                                                                                                                                   |                                                                                   |                                                                                    | 1157                                                                                                                                                                    |                                                                                     |                                                                                     | 1103                                                                                                                                                                    |                                                                                     |
| Approach Delay, s/veh        | 42.5                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   | 41.6                                                                                                                                                                                                                                                  |                                                                                   |                                                                                    | 47.2                                                                                                                                                                    |                                                                                     |                                                                                     | 39.2                                                                                                                                                                    |                                                                                     |
| Approach LOS                 | D                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   | D                                                                                                                                                                                                                                                     |                                                                                   |                                                                                    | D                                                                                                                                                                       |                                                                                     |                                                                                     | D                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                                                                                                     | 6                                                                                 | 7                                                                                  | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                                                                                                     | 6                                                                                 | 7                                                                                  | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 15.0                                                                                                                                                                | 26.4                                                                                                                                                                | 14.0                                                                              | 24.6                                                                              | 15.0                                                                                                                                                                                                                                                  | 26.4                                                                              | 14.2                                                                               | 24.4                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                                                                                                                 | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                                                                                                                                                                                   | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 7.5                                                                                                                                                                 | 22.9                                                                                                                                                                | 8.5                                                                               | 19.1                                                                              | 9.5                                                                                                                                                                                                                                                   | 20.9                                                                              | 10.5                                                                               | 17.1                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 9.0                                                                                                                                                                 | 18.9                                                                                                                                                                | 10.4                                                                              | 19.8                                                                              | 11.5                                                                                                                                                                                                                                                  | 19.5                                                                              | 8.5                                                                                | 10.8                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                                                                                                                 | 2.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.8                                                                               | 0.2                                                                                | 1.9                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          | 42.7                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 | D                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 2: Alessandro Blvd & Kitching St

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 159                                                                               | 805                                                                               | 118                                                                               | 30                                                                                | 451                                                                               | 87                                                                                | 113                                                                                | 164                                                                                 | 16                                                                                  | 32                                                                                  | 199                                                                                 | 99                                                                                  |
| Future Volume (veh/h)        | 159                                                                               | 805                                                                               | 118                                                                               | 30                                                                                | 451                                                                               | 87                                                                                | 113                                                                                | 164                                                                                 | 16                                                                                  | 32                                                                                  | 199                                                                                 | 99                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 175                                                                               | 885                                                                               | 130                                                                               | 33                                                                                | 496                                                                               | 96                                                                                | 124                                                                                | 180                                                                                 | 18                                                                                  | 35                                                                                  | 219                                                                                 | 109                                                                                 |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 1                                                                                 | 2                                                                                  | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                              | 0.91                                                                               | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 210                                                                               | 1021                                                                              | 547                                                                               | 52                                                                                | 705                                                                               | 363                                                                               | 196                                                                                | 628                                                                                 | 63                                                                                  | 54                                                                                  | 813                                                                                 | 390                                                                                 |
| Arrive On Green              | 0.24                                                                              | 0.58                                                                              | 0.58                                                                              | 0.03                                                                              | 0.20                                                                              | 0.20                                                                              | 0.06                                                                               | 0.38                                                                                | 0.38                                                                                | 0.03                                                                                | 0.35                                                                                | 0.35                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 3539                                                                              | 1583                                                                              | 1774                                                                              | 3539                                                                              | 1583                                                                              | 3442                                                                               | 1667                                                                                | 167                                                                                 | 1774                                                                                | 2321                                                                                | 1114                                                                                |
| Grp Volume(v), veh/h         | 175                                                                               | 885                                                                               | 130                                                                               | 33                                                                                | 496                                                                               | 96                                                                                | 124                                                                                | 0                                                                                   | 198                                                                                 | 35                                                                                  | 165                                                                                 | 163                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                              | 1583                                                                              | 1774                                                                              | 1770                                                                              | 1583                                                                              | 1721                                                                               | 0                                                                                   | 1833                                                                                | 1774                                                                                | 1770                                                                                | 1666                                                                                |
| Q Serve(g_s), s              | 7.5                                                                               | 16.9                                                                              | 2.0                                                                               | 1.5                                                                               | 10.4                                                                              | 4.0                                                                               | 2.8                                                                                | 0.0                                                                                 | 6.0                                                                                 | 1.6                                                                                 | 5.3                                                                                 | 5.6                                                                                 |
| Cycle Q Clear(g_c), s        | 7.5                                                                               | 16.9                                                                              | 2.0                                                                               | 1.5                                                                               | 10.4                                                                              | 4.0                                                                               | 2.8                                                                                | 0.0                                                                                 | 6.0                                                                                 | 1.6                                                                                 | 5.3                                                                                 | 5.6                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.09                                                                                | 1.00                                                                                |                                                                                     | 0.67                                                                                |
| Lane Grp Cap(c), veh/h       | 210                                                                               | 1021                                                                              | 547                                                                               | 52                                                                                | 705                                                                               | 363                                                                               | 196                                                                                | 0                                                                                   | 691                                                                                 | 54                                                                                  | 620                                                                                 | 584                                                                                 |
| V/C Ratio(X)                 | 0.83                                                                              | 0.87                                                                              | 0.24                                                                              | 0.64                                                                              | 0.70                                                                              | 0.26                                                                              | 0.63                                                                               | 0.00                                                                                | 0.29                                                                                | 0.65                                                                                | 0.27                                                                                | 0.28                                                                                |
| Avail Cap(c_a), veh/h        | 322                                                                               | 1261                                                                              | 654                                                                               | 122                                                                               | 863                                                                               | 434                                                                               | 280                                                                                | 0                                                                                   | 691                                                                                 | 122                                                                                 | 620                                                                                 | 584                                                                                 |
| HCM Platoon Ratio            | 2.00                                                                              | 2.00                                                                              | 2.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 0.44                                                                              | 0.44                                                                              | 0.44                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 29.8                                                                              | 15.6                                                                              | 4.7                                                                               | 38.4                                                                              | 29.8                                                                              | 25.3                                                                              | 36.9                                                                               | 0.0                                                                                 | 17.4                                                                                | 38.4                                                                                | 18.6                                                                                | 18.7                                                                                |
| Incr Delay (d2), s/veh       | 5.0                                                                               | 2.6                                                                               | 0.1                                                                               | 12.2                                                                              | 2.0                                                                               | 0.4                                                                               | 3.3                                                                                | 0.0                                                                                 | 1.0                                                                                 | 12.4                                                                                | 1.1                                                                                 | 1.2                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.9                                                                               | 8.2                                                                               | 0.9                                                                               | 0.9                                                                               | 5.3                                                                               | 1.8                                                                               | 1.4                                                                                | 0.0                                                                                 | 3.2                                                                                 | 1.0                                                                                 | 2.8                                                                                 | 2.8                                                                                 |
| LnGrp Delay(d),s/veh         | 34.7                                                                              | 18.2                                                                              | 4.8                                                                               | 50.6                                                                              | 31.8                                                                              | 25.7                                                                              | 40.2                                                                               | 0.0                                                                                 | 18.5                                                                                | 50.7                                                                                | 19.7                                                                                | 19.9                                                                                |
| LnGrp LOS                    | C                                                                                 | B                                                                                 | A                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | D                                                                                  |                                                                                     | B                                                                                   | D                                                                                   | B                                                                                   | B                                                                                   |
| Approach Vol, veh/h          | 1190                                                                              |                                                                                   |                                                                                   |                                                                                   | 625                                                                               |                                                                                   |                                                                                    |                                                                                     | 322                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 19.1                                                                              |                                                                                   |                                                                                   |                                                                                   | 31.9                                                                              |                                                                                   |                                                                                    |                                                                                     | 26.8                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.9                                                                               | 35.7                                                                              | 7.8                                                                               | 28.6                                                                              | 10.1                                                                              | 33.5                                                                              | 15.0                                                                               | 21.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 18.5                                                                              | 5.5                                                                               | 28.5                                                                              | 6.5                                                                               | 17.5                                                                              | 14.5                                                                               | 19.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.6                                                                               | 8.0                                                                               | 3.5                                                                               | 18.9                                                                              | 4.8                                                                               | 7.6                                                                               | 9.5                                                                                | 12.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.7                                                                               | 0.0                                                                               | 4.1                                                                               | 0.1                                                                               | 1.2                                                                               | 0.2                                                                                | 1.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          | 23.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 3: Lasselle St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 78                                                                                | 474                                                                               | 258                                                                               | 99                                                                                | 319                                                                               | 16                                                                                | 163                                                                                | 302                                                                                 | 119                                                                                 | 25                                                                                  | 339                                                                                 | 33                                                                                  |
| Future Volume (veh/h)        | 78                                                                                | 474                                                                               | 258                                                                               | 99                                                                                | 319                                                                               | 16                                                                                | 163                                                                                | 302                                                                                 | 119                                                                                 | 25                                                                                  | 339                                                                                 | 33                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 87                                                                                | 527                                                                               | 287                                                                               | 110                                                                               | 354                                                                               | 18                                                                                | 181                                                                                | 336                                                                                 | 132                                                                                 | 28                                                                                  | 377                                                                                 | 37                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                  | 1                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                               | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 148                                                                               | 559                                                                               | 441                                                                               | 152                                                                               | 563                                                                               | 488                                                                               | 213                                                                                | 628                                                                                 | 670                                                                                 | 86                                                                                  | 444                                                                                 | 44                                                                                  |
| Arrive On Green              | 0.08                                                                              | 0.30                                                                              | 0.28                                                                              | 0.09                                                                              | 0.30                                                                              | 0.28                                                                              | 0.24                                                                               | 0.67                                                                                | 0.67                                                                                | 0.05                                                                                | 0.27                                                                                | 0.24                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 1670                                                                                | 164                                                                                 |
| Grp Volume(v), veh/h         | 87                                                                                | 527                                                                               | 287                                                                               | 110                                                                               | 354                                                                               | 18                                                                                | 181                                                                                | 336                                                                                 | 132                                                                                 | 28                                                                                  | 0                                                                                   | 414                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 0                                                                                   | 1834                                                                                |
| Q Serve(g_s), s              | 3.3                                                                               | 19.3                                                                              | 11.2                                                                              | 4.2                                                                               | 11.5                                                                              | 0.6                                                                               | 6.8                                                                                | 6.4                                                                                 | 0.3                                                                                 | 1.1                                                                                 | 0.0                                                                                 | 15.0                                                                                |
| Cycle Q Clear(g_c), s        | 3.3                                                                               | 19.3                                                                              | 11.2                                                                              | 4.2                                                                               | 11.5                                                                              | 0.6                                                                               | 6.8                                                                                | 6.4                                                                                 | 0.3                                                                                 | 1.1                                                                                 | 0.0                                                                                 | 15.0                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.09                                                                                |
| Lane Grp Cap(c), veh/h       | 148                                                                               | 559                                                                               | 441                                                                               | 152                                                                               | 563                                                                               | 488                                                                               | 213                                                                                | 628                                                                                 | 670                                                                                 | 86                                                                                  | 0                                                                                   | 487                                                                                 |
| V/C Ratio(X)                 | 0.59                                                                              | 0.94                                                                              | 0.65                                                                              | 0.72                                                                              | 0.63                                                                              | 0.04                                                                              | 0.85                                                                               | 0.53                                                                                | 0.20                                                                                | 0.33                                                                                | 0.00                                                                                | 0.85                                                                                |
| Avail Cap(c_a), veh/h        | 152                                                                               | 559                                                                               | 441                                                                               | 152                                                                               | 563                                                                               | 488                                                                               | 213                                                                                | 628                                                                                 | 670                                                                                 | 152                                                                                 | 0                                                                                   | 498                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                               | 2.00                                                                                | 2.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.83                                                                              | 0.83                                                                              | 0.83                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 30.9                                                                              | 23.9                                                                              | 22.2                                                                              | 31.2                                                                              | 21.0                                                                              | 17.0                                                                              | 26.0                                                                               | 8.6                                                                                 | 2.1                                                                                 | 32.2                                                                                | 0.0                                                                                 | 24.4                                                                                |
| Incr Delay (d2), s/veh       | 5.6                                                                               | 24.7                                                                              | 3.4                                                                               | 13.2                                                                              | 1.9                                                                               | 0.0                                                                               | 26.3                                                                               | 3.2                                                                                 | 0.7                                                                                 | 2.2                                                                                 | 0.0                                                                                 | 16.8                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.8                                                                               | 13.6                                                                              | 5.2                                                                               | 2.6                                                                               | 6.2                                                                               | 0.2                                                                               | 4.9                                                                                | 3.7                                                                                 | 0.6                                                                                 | 0.6                                                                                 | 0.0                                                                                 | 9.9                                                                                 |
| LnGrp Delay(d),s/veh         | 36.5                                                                              | 48.6                                                                              | 25.6                                                                              | 44.4                                                                              | 22.9                                                                              | 17.0                                                                              | 52.3                                                                               | 11.8                                                                                | 2.8                                                                                 | 34.4                                                                                | 0.0                                                                                 | 41.2                                                                                |
| LnGrp LOS                    | D                                                                                 | D                                                                                 | C                                                                                 | D                                                                                 | C                                                                                 | B                                                                                 | D                                                                                  | B                                                                                   | A                                                                                   | C                                                                                   |                                                                                     | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 901                                                                               |                                                                                   |                                                                                   | 482                                                                               |                                                                                   |                                                                                    | 649                                                                                 |                                                                                     |                                                                                     | 442                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 40.1                                                                              |                                                                                   |                                                                                   | 27.6                                                                              |                                                                                   |                                                                                    | 21.3                                                                                |                                                                                     |                                                                                     | 40.8                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.4                                                                               | 27.6                                                                              | 10.0                                                                              | 25.0                                                                              | 12.4                                                                              | 22.6                                                                              | 9.8                                                                                | 25.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 19.5                                                                              | 4.5                                                                               | 19.5                                                                              | 6.5                                                                               | 17.5                                                                              | 4.5                                                                                | 19.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.1                                                                               | 8.4                                                                               | 6.2                                                                               | 21.3                                                                              | 8.8                                                                               | 17.0                                                                              | 5.3                                                                                | 13.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.4                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.1                                                                               | 0.0                                                                                | 0.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   | 32.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 4: Nason St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 119                                                                               | 337                                                                               | 60                                                                                | 24                                                                                | 262                                                                               | 76                                                                                | 70                                                                                 | 631                                                                                 | 72                                                                                  | 98                                                                                  | 758                                                                                 | 85                                                                                  |
| Future Volume (veh/h)        | 119                                                                               | 337                                                                               | 60                                                                                | 24                                                                                | 262                                                                               | 76                                                                                | 70                                                                                 | 631                                                                                 | 72                                                                                  | 98                                                                                  | 758                                                                                 | 85                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 121                                                                               | 344                                                                               | 61                                                                                | 24                                                                                | 267                                                                               | 78                                                                                | 71                                                                                 | 644                                                                                 | 73                                                                                  | 100                                                                                 | 773                                                                                 | 87                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                  | 2                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                               | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 154                                                                               | 454                                                                               | 386                                                                               | 44                                                                                | 339                                                                               | 288                                                                               | 93                                                                                 | 921                                                                                 | 104                                                                                 | 128                                                                                 | 1087                                                                                | 486                                                                                 |
| Arrive On Green              | 0.09                                                                              | 0.24                                                                              | 0.24                                                                              | 0.02                                                                              | 0.18                                                                              | 0.18                                                                              | 0.05                                                                               | 0.29                                                                                | 0.29                                                                                | 0.07                                                                                | 0.31                                                                                | 0.31                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 3205                                                                                | 363                                                                                 | 1774                                                                                | 3539                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 121                                                                               | 344                                                                               | 61                                                                                | 24                                                                                | 267                                                                               | 78                                                                                | 71                                                                                 | 355                                                                                 | 362                                                                                 | 100                                                                                 | 773                                                                                 | 87                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1770                                                                                | 1799                                                                                | 1774                                                                                | 1770                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 4.0                                                                               | 10.1                                                                              | 1.8                                                                               | 0.8                                                                               | 8.1                                                                               | 2.5                                                                               | 2.3                                                                                | 10.6                                                                                | 10.6                                                                                | 3.3                                                                                 | 11.5                                                                                | 2.4                                                                                 |
| Cycle Q Clear(g_c), s        | 4.0                                                                               | 10.1                                                                              | 1.8                                                                               | 0.8                                                                               | 8.1                                                                               | 2.5                                                                               | 2.3                                                                                | 10.6                                                                                | 10.6                                                                                | 3.3                                                                                 | 11.5                                                                                | 2.4                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 0.20                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 154                                                                               | 454                                                                               | 386                                                                               | 44                                                                                | 339                                                                               | 288                                                                               | 93                                                                                 | 509                                                                                 | 517                                                                                 | 128                                                                                 | 1087                                                                                | 486                                                                                 |
| V/C Ratio(X)                 | 0.79                                                                              | 0.76                                                                              | 0.16                                                                              | 0.55                                                                              | 0.79                                                                              | 0.27                                                                              | 0.76                                                                               | 0.70                                                                                | 0.70                                                                                | 0.78                                                                                | 0.71                                                                                | 0.18                                                                                |
| Avail Cap(c_a), veh/h        | 165                                                                               | 535                                                                               | 455                                                                               | 135                                                                               | 504                                                                               | 428                                                                               | 135                                                                                | 509                                                                                 | 517                                                                                 | 135                                                                                 | 1087                                                                                | 486                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 26.5                                                                              | 20.7                                                                              | 17.6                                                                              | 28.5                                                                              | 23.1                                                                              | 20.8                                                                              | 27.7                                                                               | 18.8                                                                                | 18.8                                                                                | 27.0                                                                                | 18.2                                                                                | 15.0                                                                                |
| Incr Delay (d2), s/veh       | 20.5                                                                              | 5.2                                                                               | 0.2                                                                               | 10.1                                                                              | 5.0                                                                               | 0.5                                                                               | 14.2                                                                               | 7.7                                                                                 | 7.7                                                                                 | 24.2                                                                                | 4.0                                                                                 | 0.8                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.8                                                                               | 5.8                                                                               | 0.8                                                                               | 0.5                                                                               | 4.6                                                                               | 1.1                                                                               | 1.5                                                                                | 6.2                                                                                 | 6.3                                                                                 | 2.5                                                                                 | 6.2                                                                                 | 1.1                                                                                 |
| LnGrp Delay(d),s/veh         | 47.0                                                                              | 25.9                                                                              | 17.8                                                                              | 38.6                                                                              | 28.1                                                                              | 21.3                                                                              | 41.9                                                                               | 26.5                                                                                | 26.5                                                                                | 51.2                                                                                | 22.1                                                                                | 15.8                                                                                |
| LnGrp LOS                    | D                                                                                 | C                                                                                 | B                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | D                                                                                  | C                                                                                   | C                                                                                   | D                                                                                   | C                                                                                   | B                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 526                                                                               |                                                                                   |                                                                                   | 369                                                                               |                                                                                   |                                                                                    | 788                                                                                 |                                                                                     |                                                                                     | 960                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 29.8                                                                              |                                                                                   |                                                                                   | 27.3                                                                              |                                                                                   |                                                                                    | 27.9                                                                                |                                                                                     |                                                                                     | 24.6                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 9.8                                                                               | 22.5                                                                              | 7.0                                                                               | 19.9                                                                              | 8.6                                                                               | 23.7                                                                              | 10.6                                                                               | 16.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 17.0                                                                              | 4.5                                                                               | 17.0                                                                              | 4.5                                                                               | 17.0                                                                              | 5.5                                                                                | 16.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 5.3                                                                               | 12.6                                                                              | 2.8                                                                               | 12.1                                                                              | 4.3                                                                               | 13.5                                                                              | 6.0                                                                                | 10.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.2                                                                               | 0.0                                                                               | 0.7                                                                               | 0.0                                                                               | 1.4                                                                               | 0.0                                                                                | 0.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 27.0                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 5: Lassell St & Cottonwood Ave

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 21                                                                                | 163                                                                               | 71                                                                                | 26                                                                                | 136                                                                               | 11                                                                                | 43                                                                                 | 283                                                                                 | 30                                                                                  | 14                                                                                  | 272                                                                                 | 31                                                                                  |
| Future Volume (veh/h)        | 21                                                                                | 163                                                                               | 71                                                                                | 26                                                                                | 136                                                                               | 11                                                                                | 43                                                                                 | 283                                                                                 | 30                                                                                  | 14                                                                                  | 272                                                                                 | 31                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 22                                                                                | 172                                                                               | 75                                                                                | 27                                                                                | 143                                                                               | 12                                                                                | 45                                                                                 | 298                                                                                 | 32                                                                                  | 15                                                                                  | 286                                                                                 | 33                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                 | 1                                                                                  | 1                                                                                   | 0                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 39                                                                                | 207                                                                               | 90                                                                                | 45                                                                                | 569                                                                               | 47                                                                                | 609                                                                                | 852                                                                                 | 92                                                                                  | 28                                                                                  | 351                                                                                 | 298                                                                                 |
| Arrive On Green              | 0.02                                                                              | 0.17                                                                              | 0.17                                                                              | 0.03                                                                              | 0.17                                                                              | 0.17                                                                              | 0.34                                                                               | 0.52                                                                                | 0.52                                                                                | 0.02                                                                                | 0.19                                                                                | 0.19                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1231                                                                              | 537                                                                               | 1774                                                                              | 3309                                                                              | 275                                                                               | 1774                                                                               | 1654                                                                                | 178                                                                                 | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 22                                                                                | 0                                                                                 | 247                                                                               | 27                                                                                | 76                                                                                | 79                                                                                | 45                                                                                 | 0                                                                                   | 330                                                                                 | 15                                                                                  | 286                                                                                 | 33                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 0                                                                                 | 1768                                                                              | 1774                                                                              | 1770                                                                              | 1814                                                                              | 1774                                                                               | 0                                                                                   | 1831                                                                                | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 1.0                                                                               | 0.0                                                                               | 10.8                                                                              | 1.2                                                                               | 3.0                                                                               | 3.0                                                                               | 1.4                                                                                | 0.0                                                                                 | 8.5                                                                                 | 0.7                                                                                 | 11.8                                                                                | 1.1                                                                                 |
| Cycle Q Clear(g_c), s        | 1.0                                                                               | 0.0                                                                               | 10.8                                                                              | 1.2                                                                               | 3.0                                                                               | 3.0                                                                               | 1.4                                                                                | 0.0                                                                                 | 8.5                                                                                 | 0.7                                                                                 | 11.8                                                                                | 1.1                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.30                                                                              | 1.00                                                                              |                                                                                   | 0.15                                                                              | 1.00                                                                               |                                                                                     | 0.10                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 39                                                                                | 0                                                                                 | 297                                                                               | 45                                                                                | 304                                                                               | 312                                                                               | 609                                                                                | 0                                                                                   | 944                                                                                 | 28                                                                                  | 351                                                                                 | 298                                                                                 |
| V/C Ratio(X)                 | 0.57                                                                              | 0.00                                                                              | 0.83                                                                              | 0.60                                                                              | 0.25                                                                              | 0.25                                                                              | 0.07                                                                               | 0.00                                                                                | 0.35                                                                                | 0.53                                                                                | 0.82                                                                                | 0.11                                                                                |
| Avail Cap(c_a), veh/h        | 100                                                                               | 0                                                                                 | 431                                                                               | 122                                                                               | 453                                                                               | 465                                                                               | 609                                                                                | 0                                                                                   | 944                                                                                 | 100                                                                                 | 640                                                                                 | 544                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 38.8                                                                              | 0.0                                                                               | 32.2                                                                              | 38.6                                                                              | 28.7                                                                              | 28.7                                                                              | 17.7                                                                               | 0.0                                                                                 | 11.5                                                                                | 39.1                                                                                | 31.1                                                                                | 17.4                                                                                |
| Incr Delay (d2), s/veh       | 12.6                                                                              | 0.0                                                                               | 8.8                                                                               | 12.1                                                                              | 0.4                                                                               | 0.4                                                                               | 0.1                                                                                | 0.0                                                                                 | 1.0                                                                                 | 14.5                                                                                | 18.5                                                                                | 0.7                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.6                                                                               | 0.0                                                                               | 6.0                                                                               | 0.7                                                                               | 1.5                                                                               | 1.6                                                                               | 0.7                                                                                | 0.0                                                                                 | 4.6                                                                                 | 0.4                                                                                 | 7.8                                                                                 | 0.6                                                                                 |
| LnGrp Delay(d),s/veh         | 51.3                                                                              | 0.0                                                                               | 41.0                                                                              | 50.7                                                                              | 29.1                                                                              | 29.1                                                                              | 17.8                                                                               | 0.0                                                                                 | 12.5                                                                                | 53.6                                                                                | 49.7                                                                                | 18.1                                                                                |
| LnGrp LOS                    | D                                                                                 |                                                                                   | D                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | B                                                                                  |                                                                                     | B                                                                                   | D                                                                                   | D                                                                                   | B                                                                                   |
| Approach Vol, veh/h          | 269                                                                               |                                                                                   |                                                                                   |                                                                                   | 182                                                                               |                                                                                   | 375                                                                                |                                                                                     |                                                                                     |                                                                                     | 334                                                                                 |                                                                                     |
| Approach Delay, s/veh        | 41.8                                                                              |                                                                                   |                                                                                   |                                                                                   | 32.3                                                                              |                                                                                   | 13.1                                                                               |                                                                                     |                                                                                     |                                                                                     | 46.7                                                                                |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   | B                                                                                  |                                                                                     |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 6.8                                                                               | 46.7                                                                              | 7.5                                                                               | 19.0                                                                              | 32.9                                                                              | 20.6                                                                              | 7.2                                                                                | 19.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 28.5                                                                              | 5.5                                                                               | 19.5                                                                              | 5.5                                                                               | 27.5                                                                              | 4.5                                                                                | 20.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.7                                                                               | 10.5                                                                              | 3.2                                                                               | 12.8                                                                              | 3.4                                                                               | 13.8                                                                              | 3.0                                                                                | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.6                                                                               | 0.0                                                                               | 0.7                                                                               | 0.0                                                                               | 1.3                                                                               | 0.0                                                                                | 0.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   | 32.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 6: Lassell St & Bay Ave

02/22/2021

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 7                                                                                 | 22                                                                                | 5                                                                                 | 18                                                                                | 22                                                                                | 29                                                                                | 5                                                                                   | 339                                                                                 | 22                                                                                  | 22                                                                                  | 348                                                                                 | 8                                                                                   |
| Future Volume (veh/h)        | 7                                                                                 | 22                                                                                | 5                                                                                 | 18                                                                                | 22                                                                                | 29                                                                                | 5                                                                                   | 339                                                                                 | 22                                                                                  | 22                                                                                  | 348                                                                                 | 8                                                                                   |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                   | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                                | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 8                                                                                 | 24                                                                                | 5                                                                                 | 19                                                                                | 24                                                                                | 31                                                                                | 5                                                                                   | 365                                                                                 | 24                                                                                  | 24                                                                                  | 374                                                                                 | 9                                                                                   |
| Adj No. of Lanes             | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                   | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 70                                                                                | 85                                                                                | 16                                                                                | 78                                                                                | 41                                                                                | 45                                                                                | 10                                                                                  | 433                                                                                 | 28                                                                                  | 848                                                                                 | 2553                                                                                | 61                                                                                  |
| Arrive On Green              | 0.07                                                                              | 0.07                                                                              | 0.07                                                                              | 0.07                                                                              | 0.07                                                                              | 0.07                                                                              | 0.01                                                                                | 0.25                                                                                | 0.25                                                                                | 0.48                                                                                | 0.72                                                                                | 0.72                                                                                |
| Sat Flow, veh/h              | 242                                                                               | 1298                                                                              | 241                                                                               | 324                                                                               | 633                                                                               | 690                                                                               | 1774                                                                                | 1729                                                                                | 114                                                                                 | 1774                                                                                | 3532                                                                                | 85                                                                                  |
| Grp Volume(v), veh/h         | 37                                                                                | 0                                                                                 | 0                                                                                 | 74                                                                                | 0                                                                                 | 0                                                                                 | 5                                                                                   | 0                                                                                   | 389                                                                                 | 24                                                                                  | 187                                                                                 | 196                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1780                                                                              | 0                                                                                 | 0                                                                                 | 1647                                                                              | 0                                                                                 | 0                                                                                 | 1774                                                                                | 0                                                                                   | 1843                                                                                | 1774                                                                                | 1770                                                                                | 1848                                                                                |
| Q Serve(g_s), s              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 1.9                                                                               | 0.0                                                                               | 0.0                                                                               | 0.2                                                                                 | 0.0                                                                                 | 16.0                                                                                | 0.6                                                                                 | 2.6                                                                                 | 2.6                                                                                 |
| Cycle Q Clear(g_c), s        | 1.6                                                                               | 0.0                                                                               | 0.0                                                                               | 3.5                                                                               | 0.0                                                                               | 0.0                                                                               | 0.2                                                                                 | 0.0                                                                                 | 16.0                                                                                | 0.6                                                                                 | 2.6                                                                                 | 2.6                                                                                 |
| Prop In Lane                 | 0.22                                                                              |                                                                                   | 0.14                                                                              | 0.26                                                                              |                                                                                   | 0.42                                                                              | 1.00                                                                                |                                                                                     | 0.06                                                                                | 1.00                                                                                |                                                                                     | 0.05                                                                                |
| Lane Grp Cap(c), veh/h       | 171                                                                               | 0                                                                                 | 0                                                                                 | 164                                                                               | 0                                                                                 | 0                                                                                 | 10                                                                                  | 0                                                                                   | 462                                                                                 | 848                                                                                 | 1279                                                                                | 1335                                                                                |
| V/C Ratio(X)                 | 0.22                                                                              | 0.00                                                                              | 0.00                                                                              | 0.45                                                                              | 0.00                                                                              | 0.00                                                                              | 0.48                                                                                | 0.00                                                                                | 0.84                                                                                | 0.03                                                                                | 0.15                                                                                | 0.15                                                                                |
| Avail Cap(c_a), veh/h        | 471                                                                               | 0                                                                                 | 0                                                                                 | 449                                                                               | 0                                                                                 | 0                                                                                 | 144                                                                                 | 0                                                                                   | 864                                                                                 | 848                                                                                 | 1279                                                                                | 1335                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 35.7                                                                              | 0.0                                                                               | 0.0                                                                               | 36.5                                                                              | 0.0                                                                               | 0.0                                                                               | 39.6                                                                                | 0.0                                                                                 | 28.5                                                                                | 11.1                                                                                | 3.4                                                                                 | 3.4                                                                                 |
| Incr Delay (d2), s/veh       | 0.6                                                                               | 0.0                                                                               | 0.0                                                                               | 1.9                                                                               | 0.0                                                                               | 0.0                                                                               | 29.9                                                                                | 0.0                                                                                 | 16.8                                                                                | 0.0                                                                                 | 0.2                                                                                 | 0.2                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.8                                                                               | 0.0                                                                               | 0.0                                                                               | 1.7                                                                               | 0.0                                                                               | 0.0                                                                               | 0.2                                                                                 | 0.0                                                                                 | 10.3                                                                                | 0.3                                                                                 | 1.3                                                                                 | 1.4                                                                                 |
| LnGrp Delay(d),s/veh         | 36.3                                                                              | 0.0                                                                               | 0.0                                                                               | 38.5                                                                              | 0.0                                                                               | 0.0                                                                               | 69.6                                                                                | 0.0                                                                                 | 45.3                                                                                | 11.1                                                                                | 3.7                                                                                 | 3.7                                                                                 |
| LnGrp LOS                    | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                   |                                                                                     | D                                                                                   | B                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 37                                                                                |                                                                                   |                                                                                   | 74                                                                                |                                                                                   |                                                                                   | 394                                                                                 |                                                                                     |                                                                                     | 407                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 36.3                                                                              |                                                                                   |                                                                                   | 38.5                                                                              |                                                                                   |                                                                                   | 45.6                                                                                |                                                                                     |                                                                                     | 4.1                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 43.7                                                                              | 25.6                                                                              |                                                                                   | 10.7                                                                              | 6.0                                                                               | 63.3                                                                              |                                                                                     | 10.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               |                                                                                   | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               |                                                                                     | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 6.5                                                                               | 37.5                                                                              |                                                                                   | 19.5                                                                              | 6.5                                                                               | 37.5                                                                              |                                                                                     | 19.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.6                                                                               | 18.0                                                                              |                                                                                   | 3.6                                                                               | 2.2                                                                               | 4.6                                                                               |                                                                                     | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 2.0                                                                               |                                                                                   | 0.1                                                                               | 0.0                                                                               | 2.1                                                                               |                                                                                     | 0.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 26.1                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 0.5                                                                               |      |                                                                                   |                                                                                   |                                                                                   |      |
| Movement                 | EBL                                                                               | EBR  | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
| Lane Configurations      |  |      |  |  |  |      |
| Traffic Vol, veh/h       | 15                                                                                | 15   | 6                                                                                 | 590                                                                               | 640                                                                               | 13   |
| Future Vol, veh/h        | 15                                                                                | 15   | 6                                                                                 | 590                                                                               | 640                                                                               | 13   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -    | 200                                                                               | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 89                                                                                | 89   | 89                                                                                | 89                                                                                | 89                                                                                | 89   |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 17                                                                                | 17   | 7                                                                                 | 663                                                                               | 719                                                                               | 15   |

| Major/Minor          | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 1073   | 367    | 734    |
| Stage 1              | 727    | -      | -      |
| Stage 2              | 346    | -      | -      |
| Critical Hdwy        | 6.84   | 6.94   | 4.14   |
| Critical Hdwy Stg 1  | 5.84   | -      | -      |
| Critical Hdwy Stg 2  | 5.84   | -      | -      |
| Follow-up Hdwy       | 3.52   | 3.32   | 2.22   |
| Pot Cap-1 Maneuver   | 215    | 630    | 867    |
| Stage 1              | 439    | -      | -      |
| Stage 2              | 688    | -      | -      |
| Platoon blocked, %   |        |        |        |
| Mov Cap-1 Maneuver   | 213    | 630    | 867    |
| Mov Cap-2 Maneuver   | 213    | -      | -      |
| Stage 1              | 435    | -      | -      |
| Stage 2              | 688    | -      | -      |

| Approach             | EB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 17.7 | 0.1 | 0  |
| HCM LOS              | C    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 867   | -   | 318   | -   | -   |
| HCM Lane V/C Ratio    | 0.008 | -   | 0.106 | -   | -   |
| HCM Control Delay (s) | 9.2   | -   | 17.7  | -   | -   |
| HCM Lane LOS          | A     | -   | C     | -   | -   |
| HCM 95th %tile Q(veh) | 0     | -   | 0.4   | -   | -   |

# HCM 2010 Signalized Intersection Summary

## 8: Lassell St & Catcus Ave

02/22/2021

|                              |  |                                                                                    |  |  |                                                                                    |  |   |                                                                                      |  |  |                                                                                      |  |
|------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |  |   |                                                                                   |  |   |  |  |   |  |  |   |  |
| Traffic Volume (veh/h)       | 38                                                                                | 412                                                                                                                                                                 | 168                                                                               | 184                                                                               | 350                                                                                                                                                                 | 49                                                                                | 91                                                                                  | 470                                                                                                                                                                     | 155                                                                                 | 54                                                                                  | 548                                                                                                                                                                     | 29                                                                                  |
| Future Volume (veh/h)        | 38                                                                                | 412                                                                                                                                                                 | 168                                                                               | 184                                                                               | 350                                                                                                                                                                 | 49                                                                                | 91                                                                                  | 470                                                                                                                                                                     | 155                                                                                 | 54                                                                                  | 548                                                                                                                                                                     | 29                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                                                                                                   | 14                                                                                | 3                                                                                 | 8                                                                                                                                                                   | 18                                                                                | 5                                                                                   | 2                                                                                                                                                                       | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                                                                                                                | 1900                                                                              | 1863                                                                              | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                                | 1863                                                                                                                                                                    | 1863                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1900                                                                                |
| Adj Flow Rate, veh/h         | 40                                                                                | 429                                                                                                                                                                 | 175                                                                               | 192                                                                               | 365                                                                                                                                                                 | 51                                                                                | 95                                                                                  | 490                                                                                                                                                                     | 0                                                                                   | 56                                                                                  | 571                                                                                                                                                                     | 30                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                                                                                                   | 0                                                                                 | 1                                                                                 | 2                                                                                                                                                                   | 1                                                                                 | 1                                                                                   | 2                                                                                                                                                                       | 1                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 0                                                                                   |
| Peak Hour Factor             | 0.96                                                                              | 0.96                                                                                                                                                                | 0.96                                                                              | 0.96                                                                              | 0.96                                                                                                                                                                | 0.96                                                                              | 0.96                                                                                | 0.96                                                                                                                                                                    | 0.96                                                                                | 0.96                                                                                | 0.96                                                                                                                                                                    | 0.96                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 372                                                                               | 555                                                                                                                                                                 | 224                                                                               | 267                                                                               | 588                                                                                                                                                                 | 263                                                                               | 325                                                                                 | 1174                                                                                                                                                                    | 525                                                                                 | 114                                                                                 | 727                                                                                                                                                                     | 38                                                                                  |
| Arrive On Green              | 0.21                                                                              | 0.23                                                                                                                                                                | 0.20                                                                              | 0.15                                                                              | 0.17                                                                                                                                                                | 0.17                                                                              | 0.18                                                                                | 0.33                                                                                                                                                                    | 0.00                                                                                | 0.13                                                                                | 0.42                                                                                                                                                                    | 0.38                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 2462                                                                                                                                                                | 995                                                                               | 1774                                                                              | 3539                                                                                                                                                                | 1583                                                                              | 1774                                                                                | 3539                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 3421                                                                                                                                                                    | 180                                                                                 |
| Grp Volume(v), veh/h         | 40                                                                                | 307                                                                                                                                                                 | 297                                                                               | 192                                                                               | 365                                                                                                                                                                 | 51                                                                                | 95                                                                                  | 490                                                                                                                                                                     | 0                                                                                   | 56                                                                                  | 295                                                                                                                                                                     | 306                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                                                                                                                | 1687                                                                              | 1774                                                                              | 1770                                                                                                                                                                | 1583                                                                              | 1774                                                                                | 1770                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1831                                                                                |
| Q Serve(g_s), s              | 1.3                                                                               | 11.4                                                                                                                                                                | 11.6                                                                              | 7.2                                                                               | 6.7                                                                                                                                                                 | 1.4                                                                               | 3.2                                                                                 | 7.5                                                                                                                                                                     | 0.0                                                                                 | 2.1                                                                                 | 10.1                                                                                                                                                                    | 10.1                                                                                |
| Cycle Q Clear(g_c), s        | 1.3                                                                               | 11.4                                                                                                                                                                | 11.6                                                                              | 7.2                                                                               | 6.7                                                                                                                                                                 | 1.4                                                                               | 3.2                                                                                 | 7.5                                                                                                                                                                     | 0.0                                                                                 | 2.1                                                                                 | 10.1                                                                                                                                                                    | 10.1                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                                                                                                     | 0.59                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 0.10                                                                                |
| Lane Grp Cap(c), veh/h       | 372                                                                               | 399                                                                                                                                                                 | 380                                                                               | 267                                                                               | 588                                                                                                                                                                 | 263                                                                               | 325                                                                                 | 1174                                                                                                                                                                    | 525                                                                                 | 114                                                                                 | 376                                                                                                                                                                     | 389                                                                                 |
| V/C Ratio(X)                 | 0.11                                                                              | 0.77                                                                                                                                                                | 0.78                                                                              | 0.72                                                                              | 0.62                                                                                                                                                                | 0.19                                                                              | 0.29                                                                                | 0.42                                                                                                                                                                    | 0.00                                                                                | 0.49                                                                                | 0.78                                                                                                                                                                    | 0.79                                                                                |
| Avail Cap(c_a), veh/h        | 372                                                                               | 442                                                                                                                                                                 | 422                                                                               | 279                                                                               | 1138                                                                                                                                                                | 509                                                                               | 325                                                                                 | 1174                                                                                                                                                                    | 525                                                                                 | 152                                                                                 | 493                                                                                                                                                                     | 510                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 2.00                                                                                | 2.00                                                                                                                                                                    | 2.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                                                                                                    | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 22.4                                                                              | 25.4                                                                                                                                                                | 25.9                                                                              | 28.3                                                                              | 27.1                                                                                                                                                                | 13.6                                                                              | 24.7                                                                                | 18.1                                                                                                                                                                    | 0.0                                                                                 | 29.5                                                                                | 18.8                                                                                                                                                                    | 18.9                                                                                |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 7.3                                                                                                                                                                 | 8.3                                                                               | 8.4                                                                               | 1.1                                                                                                                                                                 | 0.4                                                                               | 0.5                                                                                 | 1.1                                                                                                                                                                     | 0.0                                                                                 | 3.3                                                                                 | 15.1                                                                                                                                                                    | 14.8                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.6                                                                               | 6.4                                                                                                                                                                 | 6.3                                                                               | 4.1                                                                               | 3.4                                                                                                                                                                 | 0.8                                                                               | 1.6                                                                                 | 3.9                                                                                                                                                                     | 0.0                                                                                 | 1.1                                                                                 | 6.3                                                                                                                                                                     | 6.5                                                                                 |
| LnGrp Delay(d),s/veh         | 22.5                                                                              | 32.8                                                                                                                                                                | 34.2                                                                              | 36.7                                                                              | 28.2                                                                                                                                                                | 13.9                                                                              | 25.2                                                                                | 19.2                                                                                                                                                                    | 0.0                                                                                 | 32.7                                                                                | 33.9                                                                                                                                                                    | 33.7                                                                                |
| LnGrp LOS                    | C                                                                                 | C                                                                                                                                                                   | C                                                                                 | D                                                                                 | C                                                                                                                                                                   | B                                                                                 | C                                                                                   | B                                                                                                                                                                       |                                                                                     | C                                                                                   | C                                                                                                                                                                       | C                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 644                                                                                                                                                                 |                                                                                   |                                                                                   | 608                                                                                                                                                                 |                                                                                   |                                                                                     | 585                                                                                                                                                                     |                                                                                     |                                                                                     | 657                                                                                                                                                                     |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 32.8                                                                                                                                                                |                                                                                   |                                                                                   | 29.7                                                                                                                                                                |                                                                                   |                                                                                     | 20.2                                                                                                                                                                    |                                                                                     |                                                                                     | 33.7                                                                                                                                                                    |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                                                                                                   |                                                                                   |                                                                                   | C                                                                                                                                                                   |                                                                                   |                                                                                     | C                                                                                                                                                                       |                                                                                     |                                                                                     | C                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                   | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                   | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.5                                                                               | 27.2                                                                                                                                                                | 14.5                                                                              | 19.8                                                                              | 16.8                                                                                                                                                                | 18.9                                                                              | 18.7                                                                                | 15.6                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                                 | 5.5                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 18.0                                                                                                                                                                | 9.5                                                                               | 16.0                                                                              | 4.5                                                                                                                                                                 | 18.0                                                                              | 4.5                                                                                 | 21.0                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 4.1                                                                               | 9.5                                                                                                                                                                 | 9.2                                                                               | 13.6                                                                              | 5.2                                                                                                                                                                 | 12.1                                                                              | 3.3                                                                                 | 8.7                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.4                                                                                                                                                                 | 0.0                                                                               | 0.7                                                                               | 0.0                                                                                                                                                                 | 1.2                                                                               | 0.0                                                                                 | 1.4                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                                                                                                     |                                                                                   | 29.3                                                                              |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                                                                                                     |                                                                                   | C                                                                                 |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 1: Alessandro Blvd & Perris Blvd

02/22/2021

|                              |                                                                                    |                                                                                    |  |  |                                                                                                                                                                      |  |  |                                                                                      |  |  |                                                                                      |  |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                                                                                                                 | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |   |   |  |  |    |                                                                                   |  |   |  |  |   |  |
| Traffic Volume (veh/h)       | 272                                                                                                                                                                 | 779                                                                                                                                                                 | 291                                                                               | 190                                                                               | 505                                                                                                                                                                                                                                                   | 119                                                                               | 200                                                                                | 749                                                                                                                                                                     | 163                                                                                 | 165                                                                                 | 767                                                                                                                                                                     | 129                                                                                 |
| Future Volume (veh/h)        | 272                                                                                                                                                                 | 779                                                                                                                                                                 | 291                                                                               | 190                                                                               | 505                                                                                                                                                                                                                                                   | 119                                                                               | 200                                                                                | 749                                                                                                                                                                     | 163                                                                                 | 165                                                                                 | 767                                                                                                                                                                     | 129                                                                                 |
| Number                       | 7                                                                                                                                                                   | 4                                                                                                                                                                   | 14                                                                                | 3                                                                                 | 8                                                                                                                                                                                                                                                     | 18                                                                                | 5                                                                                  | 2                                                                                                                                                                       | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                                                                                                   | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                  | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                                                                                                       | 1.00                                                                              | 1.00                                                                               |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                                                                                                                | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                              | 1863                                                                                                                                                                                                                                                  | 1900                                                                              | 1863                                                                               | 1863                                                                                                                                                                    | 1863                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1863                                                                                |
| Adj Flow Rate, veh/h         | 286                                                                                                                                                                 | 820                                                                                                                                                                 | 306                                                                               | 200                                                                               | 532                                                                                                                                                                                                                                                   | 125                                                                               | 211                                                                                | 788                                                                                                                                                                     | 172                                                                                 | 174                                                                                 | 807                                                                                                                                                                     | 136                                                                                 |
| Adj No. of Lanes             | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 1                                                                                 | 1                                                                                 | 3                                                                                                                                                                                                                                                     | 0                                                                                 | 1                                                                                  | 2                                                                                                                                                                       | 1                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 1                                                                                   |
| Peak Hour Factor             | 0.95                                                                                                                                                                | 0.95                                                                                                                                                                | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                                                                                                                                                                                  | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                                                                                                    | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                                                                                                    | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                                                                                                   | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                                                                                                     | 2                                                                                 | 2                                                                                  | 2                                                                                                                                                                       | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 651                                                                                                                                                                 | 863                                                                                                                                                                 | 386                                                                               | 211                                                                               | 716                                                                                                                                                                                                                                                   | 165                                                                               | 211                                                                                | 882                                                                                                                                                                     | 395                                                                                 | 201                                                                                 | 863                                                                                                                                                                     | 386                                                                                 |
| Arrive On Green              | 0.19                                                                                                                                                                | 0.24                                                                                                                                                                | 0.24                                                                              | 0.12                                                                              | 0.17                                                                                                                                                                                                                                                  | 0.17                                                                              | 0.12                                                                               | 0.25                                                                                                                                                                    | 0.25                                                                                | 0.11                                                                                | 0.24                                                                                                                                                                    | 0.24                                                                                |
| Sat Flow, veh/h              | 3442                                                                                                                                                                | 3539                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 4135                                                                                                                                                                                                                                                  | 950                                                                               | 1774                                                                               | 3539                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 3539                                                                                                                                                                    | 1583                                                                                |
| Grp Volume(v), veh/h         | 286                                                                                                                                                                 | 820                                                                                                                                                                 | 306                                                                               | 200                                                                               | 434                                                                                                                                                                                                                                                   | 223                                                                               | 211                                                                                | 788                                                                                                                                                                     | 172                                                                                 | 174                                                                                 | 807                                                                                                                                                                     | 136                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1721                                                                                                                                                                | 1770                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 1695                                                                                                                                                                                                                                                  | 1695                                                                              | 1774                                                                               | 1770                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1583                                                                                |
| Q Serve(g_s), s              | 5.9                                                                                                                                                                 | 18.2                                                                                                                                                                | 9.6                                                                               | 9.0                                                                               | 9.7                                                                                                                                                                                                                                                   | 10.0                                                                              | 9.5                                                                                | 17.2                                                                                                                                                                    | 7.3                                                                                 | 7.7                                                                                 | 17.9                                                                                                                                                                    | 3.2                                                                                 |
| Cycle Q Clear(g_c), s        | 5.9                                                                                                                                                                 | 18.2                                                                                                                                                                | 9.6                                                                               | 9.0                                                                               | 9.7                                                                                                                                                                                                                                                   | 10.0                                                                              | 9.5                                                                                | 17.2                                                                                                                                                                    | 7.3                                                                                 | 7.7                                                                                 | 17.9                                                                                                                                                                    | 3.2                                                                                 |
| Prop In Lane                 | 1.00                                                                                                                                                                |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                                                                                                       | 0.56                                                                              | 1.00                                                                               |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 651                                                                                                                                                                 | 863                                                                                                                                                                 | 386                                                                               | 211                                                                               | 587                                                                                                                                                                                                                                                   | 294                                                                               | 211                                                                                | 882                                                                                                                                                                     | 395                                                                                 | 201                                                                                 | 863                                                                                                                                                                     | 386                                                                                 |
| V/C Ratio(X)                 | 0.44                                                                                                                                                                | 0.95                                                                                                                                                                | 0.79                                                                              | 0.95                                                                              | 0.74                                                                                                                                                                                                                                                  | 0.76                                                                              | 1.00                                                                               | 0.89                                                                                                                                                                    | 0.44                                                                                | 0.87                                                                                | 0.94                                                                                                                                                                    | 0.35                                                                                |
| Avail Cap(c_a), veh/h        | 651                                                                                                                                                                 | 863                                                                                                                                                                 | 386                                                                               | 211                                                                               | 742                                                                                                                                                                                                                                                   | 371                                                                               | 211                                                                                | 907                                                                                                                                                                     | 406                                                                                 | 201                                                                                 | 863                                                                                                                                                                     | 386                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                                                                                                                | 1.00                                                                                                                                                                | 1.00                                                                              | 0.72                                                                              | 0.72                                                                                                                                                                                                                                                  | 0.72                                                                              | 1.00                                                                               | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 28.7                                                                                                                                                                | 29.8                                                                                                                                                                | 12.4                                                                              | 35.0                                                                              | 31.4                                                                                                                                                                                                                                                  | 31.5                                                                              | 35.3                                                                               | 29.0                                                                                                                                                                    | 25.3                                                                                | 34.9                                                                                | 29.6                                                                                                                                                                    | 8.1                                                                                 |
| Incr Delay (d2), s/veh       | 0.5                                                                                                                                                                 | 19.6                                                                                                                                                                | 10.8                                                                              | 39.1                                                                              | 2.1                                                                                                                                                                                                                                                   | 5.0                                                                               | 62.4                                                                               | 13.3                                                                                                                                                                    | 3.5                                                                                 | 30.5                                                                                | 18.5                                                                                                                                                                    | 2.5                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.8                                                                                                                                                                 | 11.2                                                                                                                                                                | 6.2                                                                               | 6.7                                                                               | 4.7                                                                                                                                                                                                                                                   | 5.1                                                                               | 8.3                                                                                | 10.1                                                                                                                                                                    | 3.6                                                                                 | 5.5                                                                                 | 11.0                                                                                                                                                                    | 2.5                                                                                 |
| LnGrp Delay(d),s/veh         | 29.1                                                                                                                                                                | 49.4                                                                                                                                                                | 23.2                                                                              | 74.1                                                                              | 33.5                                                                                                                                                                                                                                                  | 36.5                                                                              | 97.7                                                                               | 42.3                                                                                                                                                                    | 28.8                                                                                | 65.4                                                                                | 48.1                                                                                                                                                                    | 10.6                                                                                |
| LnGrp LOS                    | C                                                                                                                                                                   | D                                                                                                                                                                   | C                                                                                 | E                                                                                 | C                                                                                                                                                                                                                                                     | D                                                                                 | F                                                                                  | D                                                                                                                                                                       | C                                                                                   | E                                                                                   | D                                                                                                                                                                       | B                                                                                   |
| Approach Vol, veh/h          | 1412                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   | 857                                                                                                                                                                                                                                                   |                                                                                   |                                                                                    | 1171                                                                                                                                                                    |                                                                                     |                                                                                     | 1117                                                                                                                                                                    |                                                                                     |
| Approach Delay, s/veh        | 39.6                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   | 43.7                                                                                                                                                                                                                                                  |                                                                                   |                                                                                    | 50.3                                                                                                                                                                    |                                                                                     |                                                                                     | 46.2                                                                                                                                                                    |                                                                                     |
| Approach LOS                 | D                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   | D                                                                                                                                                                                                                                                     |                                                                                   |                                                                                    | D                                                                                                                                                                       |                                                                                     |                                                                                     | D                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                                                                                                     | 6                                                                                 | 7                                                                                  | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                                                                                                   | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                                                                                                     | 6                                                                                 | 7                                                                                  | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 14.6                                                                                                                                                                | 25.4                                                                                                                                                                | 15.0                                                                              | 25.0                                                                              | 15.0                                                                                                                                                                                                                                                  | 25.0                                                                              | 20.6                                                                               | 19.4                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                                                                                                                 | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                                                                                                                                                                                   | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 8.5                                                                                                                                                                 | 20.5                                                                                                                                                                | 9.5                                                                               | 19.5                                                                              | 9.5                                                                                                                                                                                                                                                   | 19.5                                                                              | 11.5                                                                               | 17.5                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 9.7                                                                                                                                                                 | 19.2                                                                                                                                                                | 11.0                                                                              | 20.2                                                                              | 11.5                                                                                                                                                                                                                                                  | 19.9                                                                              | 7.9                                                                                | 12.0                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                                                                                                                 | 0.7                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.3                                                                                | 1.8                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                                                                                                     |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          | 44.8                                                                                                                                                                |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 | D                                                                                                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                    |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

## HCM 2010 Signalized Intersection Summary

### 2: Alessandro Blvd & Kitching St

02/22/2021

|                              |  |                                                                                    |  |  |                                                                                    |  |                                                                                      |  |  |  |                                                                                      |  |
|------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                                                                                                    | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |  |   |  |  |   |  |   |  |                                                                                     |  |   |                                                                                     |
| Traffic Volume (veh/h)       | 159                                                                               | 847                                                                                                                                                                 | 118                                                                               | 40                                                                                | 491                                                                                                                                                                 | 97                                                                                | 113                                                                                                                                                                    | 164                                                                                 | 26                                                                                  | 42                                                                                  | 199                                                                                                                                                                     | 99                                                                                  |
| Future Volume (veh/h)        | 159                                                                               | 847                                                                                                                                                                 | 118                                                                               | 40                                                                                | 491                                                                                                                                                                 | 97                                                                                | 113                                                                                                                                                                    | 164                                                                                 | 26                                                                                  | 42                                                                                  | 199                                                                                                                                                                     | 99                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                                                                                                   | 14                                                                                | 3                                                                                 | 8                                                                                                                                                                   | 18                                                                                | 5                                                                                                                                                                      | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                                                                                                      | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                                                                                                   |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                              | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                                                                                                                   | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1900                                                                                |
| Adj Flow Rate, veh/h         | 175                                                                               | 931                                                                                                                                                                 | 130                                                                               | 44                                                                                | 540                                                                                                                                                                 | 107                                                                               | 124                                                                                                                                                                    | 180                                                                                 | 29                                                                                  | 46                                                                                  | 219                                                                                                                                                                     | 109                                                                                 |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                                                                                                   | 1                                                                                 | 1                                                                                 | 2                                                                                                                                                                   | 1                                                                                 | 2                                                                                                                                                                      | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 0                                                                                   |
| Peak Hour Factor             | 0.91                                                                              | 0.91                                                                                                                                                                | 0.91                                                                              | 0.91                                                                              | 0.91                                                                                                                                                                | 0.91                                                                              | 0.91                                                                                                                                                                   | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                | 0.91                                                                                                                                                                    | 0.91                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                                                                                                      | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 254                                                                               | 1066                                                                                                                                                                | 883                                                                               | 62                                                                                | 684                                                                                                                                                                 | 694                                                                               | 882                                                                                                                                                                    | 225                                                                                 | 36                                                                                  | 435                                                                                 | 307                                                                                                                                                                     | 148                                                                                 |
| Arrive On Green              | 0.29                                                                              | 0.60                                                                                                                                                                | 0.60                                                                              | 0.04                                                                              | 0.19                                                                                                                                                                | 0.19                                                                              | 0.26                                                                                                                                                                   | 0.14                                                                                | 0.14                                                                                | 0.25                                                                                | 0.13                                                                                                                                                                    | 0.13                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 3539                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 3539                                                                                                                                                                | 1583                                                                              | 3442                                                                                                                                                                   | 1566                                                                                | 252                                                                                 | 1774                                                                                | 2321                                                                                                                                                                    | 1114                                                                                |
| Grp Volume(v), veh/h         | 175                                                                               | 931                                                                                                                                                                 | 130                                                                               | 44                                                                                | 540                                                                                                                                                                 | 107                                                                               | 124                                                                                                                                                                    | 0                                                                                   | 209                                                                                 | 46                                                                                  | 165                                                                                                                                                                     | 163                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                                                                                                                | 1583                                                                              | 1774                                                                              | 1770                                                                                                                                                                | 1583                                                                              | 1721                                                                                                                                                                   | 0                                                                                   | 1818                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1666                                                                                |
| Q Serve(g_s), s              | 7.0                                                                               | 17.7                                                                                                                                                                | 0.0                                                                               | 2.0                                                                               | 11.6                                                                                                                                                                | 0.0                                                                               | 2.2                                                                                                                                                                    | 0.0                                                                                 | 8.9                                                                                 | 1.6                                                                                 | 7.1                                                                                                                                                                     | 7.5                                                                                 |
| Cycle Q Clear(g_c), s        | 7.0                                                                               | 17.7                                                                                                                                                                | 0.0                                                                               | 2.0                                                                               | 11.6                                                                                                                                                                | 0.0                                                                               | 2.2                                                                                                                                                                    | 0.0                                                                                 | 8.9                                                                                 | 1.6                                                                                 | 7.1                                                                                                                                                                     | 7.5                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                                                                                                   |                                                                                     | 0.14                                                                                | 1.00                                                                                |                                                                                                                                                                         | 0.67                                                                                |
| Lane Grp Cap(c), veh/h       | 254                                                                               | 1066                                                                                                                                                                | 883                                                                               | 62                                                                                | 684                                                                                                                                                                 | 694                                                                               | 882                                                                                                                                                                    | 0                                                                                   | 261                                                                                 | 435                                                                                 | 234                                                                                                                                                                     | 221                                                                                 |
| V/C Ratio(X)                 | 0.69                                                                              | 0.87                                                                                                                                                                | 0.15                                                                              | 0.71                                                                              | 0.79                                                                                                                                                                | 0.15                                                                              | 0.14                                                                                                                                                                   | 0.00                                                                                | 0.80                                                                                | 0.11                                                                                | 0.70                                                                                                                                                                    | 0.74                                                                                |
| Avail Cap(c_a), veh/h        | 322                                                                               | 1305                                                                                                                                                                | 990                                                                               | 100                                                                               | 863                                                                                                                                                                 | 774                                                                               | 882                                                                                                                                                                    | 0                                                                                   | 420                                                                                 | 435                                                                                 | 387                                                                                                                                                                     | 364                                                                                 |
| HCM Platoon Ratio            | 2.00                                                                              | 2.00                                                                                                                                                                | 2.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Upstream Filter(I)           | 0.41                                                                              | 0.41                                                                                                                                                                | 0.41                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                                                                                                   | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 27.0                                                                              | 14.6                                                                                                                                                                | 4.7                                                                               | 38.2                                                                              | 30.7                                                                                                                                                                | 13.5                                                                              | 22.9                                                                                                                                                                   | 0.0                                                                                 | 33.2                                                                                | 23.4                                                                                | 33.2                                                                                                                                                                    | 33.4                                                                                |
| Incr Delay (d2), s/veh       | 1.8                                                                               | 2.5                                                                                                                                                                 | 0.0                                                                               | 13.6                                                                              | 3.9                                                                                                                                                                 | 0.1                                                                               | 0.1                                                                                                                                                                    | 0.0                                                                                 | 22.2                                                                                | 0.1                                                                                 | 16.3                                                                                                                                                                    | 19.8                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                                                                                                    | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.5                                                                               | 8.6                                                                                                                                                                 | 0.7                                                                               | 1.2                                                                               | 6.1                                                                                                                                                                 | 1.4                                                                               | 1.1                                                                                                                                                                    | 0.0                                                                                 | 6.1                                                                                 | 0.8                                                                                 | 4.5                                                                                                                                                                     | 4.7                                                                                 |
| LnGrp Delay(d),s/veh         | 28.8                                                                              | 17.2                                                                                                                                                                | 4.7                                                                               | 51.8                                                                              | 34.7                                                                                                                                                                | 13.6                                                                              | 23.0                                                                                                                                                                   | 0.0                                                                                 | 55.4                                                                                | 23.5                                                                                | 49.5                                                                                                                                                                    | 53.1                                                                                |
| LnGrp LOS                    | C                                                                                 | B                                                                                                                                                                   | A                                                                                 | D                                                                                 | C                                                                                                                                                                   | B                                                                                 | C                                                                                                                                                                      |                                                                                     | E                                                                                   | C                                                                                   | D                                                                                                                                                                       | D                                                                                   |
| Approach Vol, veh/h          | 1236                                                                              |                                                                                                                                                                     |                                                                                   |                                                                                   | 691                                                                                                                                                                 |                                                                                   |                                                                                                                                                                        | 333                                                                                 |                                                                                     |                                                                                     | 374                                                                                                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 17.5                                                                              |                                                                                                                                                                     |                                                                                   |                                                                                   | 32.5                                                                                                                                                                |                                                                                   |                                                                                                                                                                        | 43.3                                                                                |                                                                                     |                                                                                     | 47.9                                                                                                                                                                    |                                                                                     |
| Approach LOS                 | B                                                                                 |                                                                                                                                                                     |                                                                                   |                                                                                   | C                                                                                                                                                                   |                                                                                   |                                                                                                                                                                        | D                                                                                   |                                                                                     |                                                                                     | D                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                                                                                                      | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                                                                                                      | 8                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 25.1                                                                              | 17.0                                                                                                                                                                | 8.3                                                                               | 29.6                                                                              | 26.0                                                                                                                                                                | 16.1                                                                              | 16.9                                                                                                                                                                   | 21.0                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                                                                                                                    | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 18.5                                                                                                                                                                | 4.5                                                                               | 29.5                                                                              | 6.5                                                                                                                                                                 | 17.5                                                                              | 14.5                                                                                                                                                                   | 19.5                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.6                                                                               | 10.9                                                                                                                                                                | 4.0                                                                               | 19.7                                                                              | 4.2                                                                                                                                                                 | 9.5                                                                               | 9.0                                                                                                                                                                    | 13.6                                                                                |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.6                                                                                                                                                                 | 0.0                                                                               | 4.4                                                                               | 0.1                                                                                                                                                                 | 1.1                                                                               | 0.2                                                                                                                                                                    | 1.8                                                                                 |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                        |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          | 29.0                                                                              |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                        |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 | C                                                                                 |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                                                                                                        |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 3: Lasselle St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 202                                                                               | 474                                                                               | 258                                                                               | 99                                                                                | 380                                                                               | 36                                                                                | 203                                                                                | 342                                                                                 | 119                                                                                 | 101                                                                                 | 415                                                                                 | 33                                                                                  |
| Future Volume (veh/h)        | 202                                                                               | 474                                                                               | 258                                                                               | 99                                                                                | 380                                                                               | 36                                                                                | 203                                                                                | 342                                                                                 | 119                                                                                 | 101                                                                                 | 415                                                                                 | 33                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 224                                                                               | 527                                                                               | 287                                                                               | 110                                                                               | 422                                                                               | 40                                                                                | 226                                                                                | 380                                                                                 | 132                                                                                 | 112                                                                                 | 461                                                                                 | 37                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                  | 1                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                               | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 266                                                                               | 631                                                                               | 507                                                                               | 133                                                                               | 491                                                                               | 595                                                                               | 351                                                                                | 441                                                                                 | 493                                                                                 | 266                                                                                 | 626                                                                                 | 50                                                                                  |
| Arrive On Green              | 0.15                                                                              | 0.34                                                                              | 0.32                                                                              | 0.08                                                                              | 0.26                                                                              | 0.24                                                                              | 0.40                                                                               | 0.47                                                                                | 0.47                                                                                | 0.05                                                                                | 0.06                                                                                | 0.06                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 3320                                                                                | 266                                                                                 |
| Grp Volume(v), veh/h         | 224                                                                               | 527                                                                               | 287                                                                               | 110                                                                               | 422                                                                               | 40                                                                                | 226                                                                                | 380                                                                                 | 132                                                                                 | 112                                                                                 | 245                                                                                 | 253                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 1770                                                                                | 1816                                                                                |
| Q Serve(g_s), s              | 9.8                                                                               | 20.9                                                                              | 6.4                                                                               | 4.9                                                                               | 17.3                                                                              | 0.0                                                                               | 8.3                                                                                | 14.5                                                                                | 2.0                                                                                 | 4.9                                                                                 | 10.9                                                                                | 11.0                                                                                |
| Cycle Q Clear(g_c), s        | 9.8                                                                               | 20.9                                                                              | 6.4                                                                               | 4.9                                                                               | 17.3                                                                              | 0.0                                                                               | 8.3                                                                                | 14.5                                                                                | 2.0                                                                                 | 4.9                                                                                 | 10.9                                                                                | 11.0                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.15                                                                                |
| Lane Grp Cap(c), veh/h       | 266                                                                               | 631                                                                               | 507                                                                               | 133                                                                               | 491                                                                               | 595                                                                               | 351                                                                                | 441                                                                                 | 493                                                                                 | 266                                                                                 | 334                                                                                 | 342                                                                                 |
| V/C Ratio(X)                 | 0.84                                                                              | 0.84                                                                              | 0.57                                                                              | 0.83                                                                              | 0.86                                                                              | 0.07                                                                              | 0.64                                                                               | 0.86                                                                                | 0.27                                                                                | 0.42                                                                                | 0.73                                                                                | 0.74                                                                                |
| Avail Cap(c_a), veh/h        | 266                                                                               | 661                                                                               | 532                                                                               | 133                                                                               | 522                                                                               | 621                                                                               | 351                                                                                | 526                                                                                 | 566                                                                                 | 266                                                                                 | 389                                                                                 | 399                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                               | 2.00                                                                                | 2.00                                                                                | 0.33                                                                                | 0.33                                                                                | 0.33                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 33.1                                                                              | 24.4                                                                              | 6.5                                                                               | 36.5                                                                              | 28.0                                                                              | 16.0                                                                              | 21.9                                                                               | 19.9                                                                                | 5.0                                                                                 | 34.7                                                                                | 35.5                                                                                | 35.6                                                                                |
| Incr Delay (d2), s/veh       | 20.9                                                                              | 8.8                                                                               | 1.3                                                                               | 27.8                                                                              | 10.7                                                                              | 0.0                                                                               | 4.0                                                                                | 19.5                                                                                | 1.3                                                                                 | 1.1                                                                                 | 13.4                                                                                | 13.4                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 6.3                                                                               | 12.2                                                                              | 4.4                                                                               | 3.4                                                                               | 10.3                                                                              | 0.6                                                                               | 4.4                                                                                | 9.6                                                                                 | 1.2                                                                                 | 2.5                                                                                 | 6.6                                                                                 | 6.8                                                                                 |
| LnGrp Delay(d),s/veh         | 54.0                                                                              | 33.2                                                                              | 7.7                                                                               | 64.2                                                                              | 38.8                                                                              | 16.0                                                                              | 25.9                                                                               | 39.4                                                                                | 6.3                                                                                 | 35.7                                                                                | 49.0                                                                                | 49.0                                                                                |
| LnGrp LOS                    | D                                                                                 | C                                                                                 | A                                                                                 | E                                                                                 | D                                                                                 | B                                                                                 | C                                                                                  | D                                                                                   | A                                                                                   | D                                                                                   | D                                                                                   | D                                                                                   |
| Approach Vol, veh/h          | 1038                                                                              |                                                                                   |                                                                                   |                                                                                   | 572                                                                               |                                                                                   |                                                                                    |                                                                                     | 738                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 30.7                                                                              |                                                                                   |                                                                                   |                                                                                   | 42.1                                                                              |                                                                                   |                                                                                    |                                                                                     | 29.3                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                    |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 16.0                                                                              | 22.9                                                                              | 10.0                                                                              | 31.1                                                                              | 19.8                                                                              | 19.1                                                                              | 16.0                                                                               | 25.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 21.1                                                                              | 4.5                                                                               | 26.9                                                                              | 10.5                                                                              | 16.1                                                                              | 10.5                                                                               | 20.9                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 6.9                                                                               | 16.5                                                                              | 6.9                                                                               | 22.9                                                                              | 10.3                                                                              | 13.0                                                                              | 11.8                                                                               | 19.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.9                                                                               | 0.0                                                                               | 1.4                                                                               | 0.0                                                                               | 0.6                                                                               | 0.0                                                                                | 0.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          | 35.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 4: Nason St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |  |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 131                                                                               | 353                                                                               | 72                                                                                | 24                                                                                | 279                                                                               | 76                                                                                | 83                                                                                  | 631                                                                                 | 72                                                                                  | 98                                                                                  | 758                                                                                 | 98                                                                                  |
| Future Volume (veh/h)        | 131                                                                               | 353                                                                               | 72                                                                                | 24                                                                                | 279                                                                               | 76                                                                                | 83                                                                                  | 631                                                                                 | 72                                                                                  | 98                                                                                  | 758                                                                                 | 98                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                   | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                                | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 134                                                                               | 360                                                                               | 73                                                                                | 24                                                                                | 285                                                                               | 78                                                                                | 85                                                                                  | 644                                                                                 | 73                                                                                  | 100                                                                                 | 773                                                                                 | 100                                                                                 |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                   | 2                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 162                                                                               | 478                                                                               | 406                                                                               | 44                                                                                | 354                                                                               | 301                                                                               | 108                                                                                 | 904                                                                                 | 102                                                                                 | 128                                                                                 | 1037                                                                                | 464                                                                                 |
| Arrive On Green              | 0.09                                                                              | 0.26                                                                              | 0.26                                                                              | 0.02                                                                              | 0.19                                                                              | 0.19                                                                              | 0.06                                                                                | 0.28                                                                                | 0.28                                                                                | 0.07                                                                                | 0.29                                                                                | 0.29                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                                | 3205                                                                                | 363                                                                                 | 1774                                                                                | 3539                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 134                                                                               | 360                                                                               | 73                                                                                | 24                                                                                | 285                                                                               | 78                                                                                | 85                                                                                  | 355                                                                                 | 362                                                                                 | 100                                                                                 | 773                                                                                 | 100                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                                | 1770                                                                                | 1799                                                                                | 1774                                                                                | 1770                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 4.5                                                                               | 10.7                                                                              | 2.2                                                                               | 0.8                                                                               | 8.8                                                                               | 2.5                                                                               | 2.8                                                                                 | 10.9                                                                                | 10.9                                                                                | 3.3                                                                                 | 11.9                                                                                | 2.9                                                                                 |
| Cycle Q Clear(g_c), s        | 4.5                                                                               | 10.7                                                                              | 2.2                                                                               | 0.8                                                                               | 8.8                                                                               | 2.5                                                                               | 2.8                                                                                 | 10.9                                                                                | 10.9                                                                                | 3.3                                                                                 | 11.9                                                                                | 2.9                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 0.20                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 162                                                                               | 478                                                                               | 406                                                                               | 44                                                                                | 354                                                                               | 301                                                                               | 108                                                                                 | 499                                                                                 | 507                                                                                 | 128                                                                                 | 1037                                                                                | 464                                                                                 |
| V/C Ratio(X)                 | 0.83                                                                              | 0.75                                                                              | 0.18                                                                              | 0.55                                                                              | 0.81                                                                              | 0.26                                                                              | 0.78                                                                                | 0.71                                                                                | 0.71                                                                                | 0.78                                                                                | 0.75                                                                                | 0.22                                                                                |
| Avail Cap(c_a), veh/h        | 162                                                                               | 525                                                                               | 446                                                                               | 132                                                                               | 494                                                                               | 420                                                                               | 132                                                                                 | 499                                                                                 | 507                                                                                 | 132                                                                                 | 1037                                                                                | 464                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 26.9                                                                              | 20.7                                                                              | 17.5                                                                              | 29.1                                                                              | 23.4                                                                              | 20.8                                                                              | 27.9                                                                                | 19.4                                                                                | 19.5                                                                                | 27.5                                                                                | 19.3                                                                                | 16.1                                                                                |
| Incr Delay (d2), s/veh       | 28.6                                                                              | 5.6                                                                               | 0.2                                                                               | 10.2                                                                              | 6.6                                                                               | 0.5                                                                               | 21.7                                                                                | 8.4                                                                                 | 8.3                                                                                 | 24.9                                                                                | 4.9                                                                                 | 1.1                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.5                                                                               | 6.2                                                                               | 1.0                                                                               | 0.5                                                                               | 5.2                                                                               | 1.1                                                                               | 2.0                                                                                 | 6.4                                                                                 | 6.5                                                                                 | 2.5                                                                                 | 6.5                                                                                 | 1.4                                                                                 |
| LnGrp Delay(d),s/veh         | 55.5                                                                              | 26.2                                                                              | 17.7                                                                              | 39.3                                                                              | 29.9                                                                              | 21.3                                                                              | 49.6                                                                                | 27.8                                                                                | 27.8                                                                                | 52.5                                                                                | 24.2                                                                                | 17.2                                                                                |
| LnGrp LOS                    | E                                                                                 | C                                                                                 | B                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | D                                                                                   | C                                                                                   | C                                                                                   | D                                                                                   | C                                                                                   | B                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 567                                                                               |                                                                                   |                                                                                   | 387                                                                               |                                                                                   |                                                                                     | 802                                                                                 |                                                                                     |                                                                                     | 973                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 32.0                                                                              |                                                                                   |                                                                                   | 28.8                                                                              |                                                                                   |                                                                                     | 30.1                                                                                |                                                                                     |                                                                                     | 26.4                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 9.8                                                                               | 22.5                                                                              | 7.0                                                                               | 21.0                                                                              | 9.2                                                                               | 23.2                                                                              | 11.0                                                                                | 17.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                 | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 17.0                                                                              | 4.5                                                                               | 17.0                                                                              | 4.5                                                                               | 17.0                                                                              | 5.5                                                                                 | 16.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 5.3                                                                               | 12.9                                                                              | 2.8                                                                               | 12.7                                                                              | 4.8                                                                               | 13.9                                                                              | 6.5                                                                                 | 10.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.2                                                                               | 0.0                                                                               | 0.7                                                                               | 0.0                                                                               | 1.3                                                                               | 0.0                                                                                 | 0.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 29.0                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 5: Lassell St & Cottonwood Ave

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 21                                                                                | 163                                                                               | 84                                                                                | 39                                                                                | 136                                                                               | 11                                                                                | 55                                                                                 | 299                                                                                 | 42                                                                                  | 14                                                                                  | 289                                                                                 | 31                                                                                  |
| Future Volume (veh/h)        | 21                                                                                | 163                                                                               | 84                                                                                | 39                                                                                | 136                                                                               | 11                                                                                | 55                                                                                 | 299                                                                                 | 42                                                                                  | 14                                                                                  | 289                                                                                 | 31                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                               | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                |
| Adj Flow Rate, veh/h         | 22                                                                                | 172                                                                               | 88                                                                                | 41                                                                                | 143                                                                               | 12                                                                                | 58                                                                                 | 315                                                                                 | 44                                                                                  | 15                                                                                  | 304                                                                                 | 33                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                 | 1                                                                                  | 1                                                                                   | 0                                                                                   | 1                                                                                   | 1                                                                                   | 1                                                                                   |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 39                                                                                | 205                                                                               | 105                                                                               | 60                                                                                | 622                                                                               | 52                                                                                | 563                                                                                | 799                                                                                 | 112                                                                                 | 28                                                                                  | 368                                                                                 | 313                                                                                 |
| Arrive On Green              | 0.02                                                                              | 0.18                                                                              | 0.18                                                                              | 0.03                                                                              | 0.19                                                                              | 0.19                                                                              | 0.32                                                                               | 0.50                                                                                | 0.50                                                                                | 0.02                                                                                | 0.20                                                                                | 0.20                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1163                                                                              | 595                                                                               | 1774                                                                              | 3309                                                                              | 275                                                                               | 1774                                                                               | 1600                                                                                | 223                                                                                 | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Grp Volume(v), veh/h         | 22                                                                                | 0                                                                                 | 260                                                                               | 41                                                                                | 76                                                                                | 79                                                                                | 58                                                                                 | 0                                                                                   | 359                                                                                 | 15                                                                                  | 304                                                                                 | 33                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 0                                                                                 | 1758                                                                              | 1774                                                                              | 1770                                                                              | 1814                                                                              | 1774                                                                               | 0                                                                                   | 1823                                                                                | 1774                                                                                | 1863                                                                                | 1583                                                                                |
| Q Serve(g_s), s              | 1.0                                                                               | 0.0                                                                               | 11.4                                                                              | 1.8                                                                               | 2.9                                                                               | 3.0                                                                               | 1.8                                                                                | 0.0                                                                                 | 9.8                                                                                 | 0.7                                                                                 | 12.5                                                                                | 1.1                                                                                 |
| Cycle Q Clear(g_c), s        | 1.0                                                                               | 0.0                                                                               | 11.4                                                                              | 1.8                                                                               | 2.9                                                                               | 3.0                                                                               | 1.8                                                                                | 0.0                                                                                 | 9.8                                                                                 | 0.7                                                                                 | 12.5                                                                                | 1.1                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.34                                                                              | 1.00                                                                              |                                                                                   | 0.15                                                                              | 1.00                                                                               |                                                                                     | 0.12                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 39                                                                                | 0                                                                                 | 310                                                                               | 60                                                                                | 333                                                                               | 341                                                                               | 563                                                                                | 0                                                                                   | 910                                                                                 | 28                                                                                  | 368                                                                                 | 313                                                                                 |
| V/C Ratio(X)                 | 0.57                                                                              | 0.00                                                                              | 0.84                                                                              | 0.69                                                                              | 0.23                                                                              | 0.23                                                                              | 0.10                                                                               | 0.00                                                                                | 0.39                                                                                | 0.53                                                                                | 0.83                                                                                | 0.11                                                                                |
| Avail Cap(c_a), veh/h        | 100                                                                               | 0                                                                                 | 428                                                                               | 122                                                                               | 453                                                                               | 465                                                                               | 563                                                                                | 0                                                                                   | 910                                                                                 | 100                                                                                 | 617                                                                                 | 524                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 38.8                                                                              | 0.0                                                                               | 31.9                                                                              | 38.2                                                                              | 27.6                                                                              | 27.6                                                                              | 19.3                                                                               | 0.0                                                                                 | 12.5                                                                                | 39.1                                                                                | 30.8                                                                                | 16.9                                                                                |
| Incr Delay (d2), s/veh       | 12.6                                                                              | 0.0                                                                               | 10.2                                                                              | 13.1                                                                              | 0.3                                                                               | 0.3                                                                               | 0.1                                                                                | 0.0                                                                                 | 1.3                                                                                 | 14.5                                                                                | 18.7                                                                                | 0.7                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.6                                                                               | 0.0                                                                               | 6.4                                                                               | 1.1                                                                               | 1.4                                                                               | 1.5                                                                               | 0.9                                                                                | 0.0                                                                                 | 5.2                                                                                 | 0.4                                                                                 | 8.3                                                                                 | 0.6                                                                                 |
| LnGrp Delay(d),s/veh         | 51.3                                                                              | 0.0                                                                               | 42.1                                                                              | 51.3                                                                              | 27.9                                                                              | 27.9                                                                              | 19.3                                                                               | 0.0                                                                                 | 13.8                                                                                | 53.6                                                                                | 49.5                                                                                | 17.6                                                                                |
| LnGrp LOS                    | D                                                                                 |                                                                                   | D                                                                                 | D                                                                                 | C                                                                                 | C                                                                                 | B                                                                                  |                                                                                     | B                                                                                   | D                                                                                   | D                                                                                   | B                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 282                                                                               |                                                                                   |                                                                                   | 196                                                                               |                                                                                   |                                                                                    | 417                                                                                 |                                                                                     |                                                                                     | 352                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 42.8                                                                              |                                                                                   |                                                                                   | 32.8                                                                              |                                                                                   |                                                                                    | 14.5                                                                                |                                                                                     |                                                                                     | 46.7                                                                                |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | B                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 6.8                                                                               | 45.4                                                                              | 8.2                                                                               | 19.6                                                                              | 30.9                                                                              | 21.3                                                                              | 7.2                                                                                | 20.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 4.5                                                                               | 28.5                                                                              | 5.5                                                                               | 19.5                                                                              | 6.5                                                                               | 26.5                                                                              | 4.5                                                                                | 20.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.7                                                                               | 11.8                                                                              | 3.8                                                                               | 13.4                                                                              | 3.8                                                                               | 14.5                                                                              | 3.0                                                                                | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.7                                                                               | 0.0                                                                               | 0.7                                                                               | 0.0                                                                               | 1.3                                                                               | 0.0                                                                                | 0.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 32.9                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 2010 Signalized Intersection Summary

## 6: Lassell St & Bay Ave

02/22/2021

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 7                                                                                 | 22                                                                                | 15                                                                                | 28                                                                                | 22                                                                                | 29                                                                                | 15                                                                                  | 379                                                                                 | 32                                                                                  | 22                                                                                  | 390                                                                                 | 8                                                                                   |
| Future Volume (veh/h)        | 7                                                                                 | 22                                                                                | 15                                                                                | 28                                                                                | 22                                                                                | 29                                                                                | 15                                                                                  | 379                                                                                 | 32                                                                                  | 22                                                                                  | 390                                                                                 | 8                                                                                   |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                   | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1900                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                                | 1863                                                                                | 1900                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 8                                                                                 | 24                                                                                | 16                                                                                | 30                                                                                | 24                                                                                | 31                                                                                | 16                                                                                  | 408                                                                                 | 34                                                                                  | 24                                                                                  | 419                                                                                 | 9                                                                                   |
| Adj No. of Lanes             | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 | 1                                                                                   | 1                                                                                   | 0                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 65                                                                                | 73                                                                                | 43                                                                                | 96                                                                                | 42                                                                                | 44                                                                                | 30                                                                                  | 492                                                                                 | 41                                                                                  | 764                                                                                 | 2492                                                                                | 53                                                                                  |
| Arrive On Green              | 0.07                                                                              | 0.07                                                                              | 0.07                                                                              | 0.07                                                                              | 0.07                                                                              | 0.07                                                                              | 0.01                                                                                | 0.10                                                                                | 0.10                                                                                | 0.43                                                                                | 0.70                                                                                | 0.70                                                                                |
| Sat Flow, veh/h              | 172                                                                               | 994                                                                               | 583                                                                               | 472                                                                               | 571                                                                               | 599                                                                               | 1774                                                                                | 1696                                                                                | 141                                                                                 | 1774                                                                                | 3543                                                                                | 76                                                                                  |
| Grp Volume(v), veh/h         | 48                                                                                | 0                                                                                 | 0                                                                                 | 85                                                                                | 0                                                                                 | 0                                                                                 | 16                                                                                  | 0                                                                                   | 442                                                                                 | 24                                                                                  | 209                                                                                 | 219                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1749                                                                              | 0                                                                                 | 0                                                                                 | 1642                                                                              | 0                                                                                 | 0                                                                                 | 1774                                                                                | 0                                                                                   | 1838                                                                                | 1774                                                                                | 1770                                                                                | 1849                                                                                |
| Q Serve(g_s), s              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 1.9                                                                               | 0.0                                                                               | 0.0                                                                               | 0.7                                                                                 | 0.0                                                                                 | 18.9                                                                                | 0.6                                                                                 | 3.2                                                                                 | 3.2                                                                                 |
| Cycle Q Clear(g_c), s        | 2.1                                                                               | 0.0                                                                               | 0.0                                                                               | 3.9                                                                               | 0.0                                                                               | 0.0                                                                               | 0.7                                                                                 | 0.0                                                                                 | 18.9                                                                                | 0.6                                                                                 | 3.2                                                                                 | 3.2                                                                                 |
| Prop In Lane                 | 0.17                                                                              |                                                                                   | 0.33                                                                              | 0.35                                                                              |                                                                                   | 0.36                                                                              | 1.00                                                                                |                                                                                     | 0.08                                                                                | 1.00                                                                                |                                                                                     | 0.04                                                                                |
| Lane Grp Cap(c), veh/h       | 181                                                                               | 0                                                                                 | 0                                                                                 | 182                                                                               | 0                                                                                 | 0                                                                                 | 30                                                                                  | 0                                                                                   | 533                                                                                 | 764                                                                                 | 1245                                                                                | 1301                                                                                |
| V/C Ratio(X)                 | 0.27                                                                              | 0.00                                                                              | 0.00                                                                              | 0.47                                                                              | 0.00                                                                              | 0.00                                                                              | 0.54                                                                                | 0.00                                                                                | 0.83                                                                                | 0.03                                                                                | 0.17                                                                                | 0.17                                                                                |
| Avail Cap(c_a), veh/h        | 443                                                                               | 0                                                                                 | 0                                                                                 | 428                                                                               | 0                                                                                 | 0                                                                                 | 100                                                                                 | 0                                                                                   | 884                                                                                 | 764                                                                                 | 1245                                                                                | 1301                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.33                                                                                | 0.33                                                                                | 0.33                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 35.3                                                                              | 0.0                                                                               | 0.0                                                                               | 36.1                                                                              | 0.0                                                                               | 0.0                                                                               | 39.5                                                                                | 0.0                                                                                 | 34.2                                                                                | 13.2                                                                                | 4.0                                                                                 | 4.0                                                                                 |
| Incr Delay (d2), s/veh       | 0.8                                                                               | 0.0                                                                               | 0.0                                                                               | 1.9                                                                               | 0.0                                                                               | 0.0                                                                               | 14.1                                                                                | 0.0                                                                                 | 13.9                                                                                | 0.0                                                                                 | 0.3                                                                                 | 0.3                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.1                                                                               | 0.0                                                                               | 0.0                                                                               | 1.9                                                                               | 0.0                                                                               | 0.0                                                                               | 0.5                                                                                 | 0.0                                                                                 | 11.7                                                                                | 0.3                                                                                 | 1.6                                                                                 | 1.7                                                                                 |
| LnGrp Delay(d),s/veh         | 36.1                                                                              | 0.0                                                                               | 0.0                                                                               | 38.0                                                                              | 0.0                                                                               | 0.0                                                                               | 53.6                                                                                | 0.0                                                                                 | 48.2                                                                                | 13.2                                                                                | 4.3                                                                                 | 4.3                                                                                 |
| LnGrp LOS                    | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                   |                                                                                     | D                                                                                   | B                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 48                                                                                |                                                                                   |                                                                                   | 85                                                                                |                                                                                   |                                                                                     | 458                                                                                 |                                                                                     |                                                                                     | 452                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 36.1                                                                              |                                                                                   |                                                                                   | 38.0                                                                              |                                                                                   |                                                                                     | 48.4                                                                                |                                                                                     |                                                                                     | 4.7                                                                                 |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 39.9                                                                              | 28.7                                                                              |                                                                                   | 11.4                                                                              | 6.8                                                                               | 61.8                                                                              |                                                                                     | 11.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               |                                                                                   | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               |                                                                                     | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 6.5                                                                               | 38.5                                                                              |                                                                                   | 18.5                                                                              | 4.5                                                                               | 40.5                                                                              |                                                                                     | 18.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.6                                                                               | 20.9                                                                              |                                                                                   | 4.1                                                                               | 2.7                                                                               | 5.2                                                                               |                                                                                     | 5.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 2.3                                                                               |                                                                                   | 0.1                                                                               | 0.0                                                                               | 2.4                                                                               |                                                                                     | 0.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                   |                                                                                   | 28.0                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

**Intersection**

Int Delay, s/veh 0.7

| Movement                 | EBL                                                                               | EBR  | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |  |      |  |  |  |      |
| Traffic Vol, veh/h       | 25                                                                                | 15   | 6                                                                                 | 621                                                                               | 670                                                                               | 23   |
| Future Vol, veh/h        | 25                                                                                | 15   | 6                                                                                 | 621                                                                               | 670                                                                               | 23   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -    | 200                                                                               | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 89                                                                                | 89   | 89                                                                                | 89                                                                                | 89                                                                                | 89   |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 28                                                                                | 17   | 7                                                                                 | 698                                                                               | 753                                                                               | 26   |

| Major/Minor          | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 1129   | 390    | 779    |
| Stage 1              | 766    | -      | -      |
| Stage 2              | 363    | -      | -      |
| Critical Hdwy        | 6.84   | 6.94   | 4.14   |
| Critical Hdwy Stg 1  | 5.84   | -      | -      |
| Critical Hdwy Stg 2  | 5.84   | -      | -      |
| Follow-up Hdwy       | 3.52   | 3.32   | 2.22   |
| Pot Cap-1 Maneuver   | 198    | 609    | 834    |
| Stage 1              | 419    | -      | -      |
| Stage 2              | 674    | -      | -      |
| Platoon blocked, %   |        |        |        |
| Mov Cap-1 Maneuver   | 196    | 609    | 834    |
| Mov Cap-2 Maneuver   | 196    | -      | -      |
| Stage 1              | 416    | -      | -      |
| Stage 2              | 674    | -      | -      |

| Approach             | EB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 21.5 | 0.1 | 0  |
| HCM LOS              | C    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 834   | -   | 263   | -   | -   |
| HCM Lane V/C Ratio    | 0.008 | -   | 0.171 | -   | -   |
| HCM Control Delay (s) | 9.4   | -   | 21.5  | -   | -   |
| HCM Lane LOS          | A     | -   | C     | -   | -   |
| HCM 95th %tile Q(veh) | 0     | -   | 0.6   | -   | -   |

# HCM 2010 Signalized Intersection Summary

## 8: Lassell St & Catcus Ave

02/22/2021

|                              |  |                                                                                    |  |  |                                                                                    |  |   |                                                                                      |  |  |                                                                                      |  |
|------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                                                                                                                 | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                 | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations          |  |   |                                                                                   |  |   |  |  |   |  |  |   |  |
| Traffic Volume (veh/h)       | 48                                                                                | 412                                                                                                                                                                 | 168                                                                               | 184                                                                               | 350                                                                                                                                                                 | 59                                                                                | 91                                                                                  | 480                                                                                                                                                                     | 155                                                                                 | 64                                                                                  | 558                                                                                                                                                                     | 39                                                                                  |
| Future Volume (veh/h)        | 48                                                                                | 412                                                                                                                                                                 | 168                                                                               | 184                                                                               | 350                                                                                                                                                                 | 59                                                                                | 91                                                                                  | 480                                                                                                                                                                     | 155                                                                                 | 64                                                                                  | 558                                                                                                                                                                     | 39                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                                                                                                   | 14                                                                                | 3                                                                                 | 8                                                                                                                                                                   | 18                                                                                | 5                                                                                   | 2                                                                                                                                                                       | 12                                                                                  | 1                                                                                   | 6                                                                                                                                                                       | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                   | 0                                                                                 | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                                                                                                                | 1900                                                                              | 1863                                                                              | 1863                                                                                                                                                                | 1863                                                                              | 1863                                                                                | 1863                                                                                                                                                                    | 1863                                                                                | 1863                                                                                | 1863                                                                                                                                                                    | 1900                                                                                |
| Adj Flow Rate, veh/h         | 50                                                                                | 429                                                                                                                                                                 | 175                                                                               | 192                                                                               | 365                                                                                                                                                                 | 61                                                                                | 95                                                                                  | 500                                                                                                                                                                     | 0                                                                                   | 67                                                                                  | 581                                                                                                                                                                     | 41                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 2                                                                                                                                                                   | 0                                                                                 | 1                                                                                 | 2                                                                                                                                                                   | 1                                                                                 | 1                                                                                   | 2                                                                                                                                                                       | 1                                                                                   | 1                                                                                   | 2                                                                                                                                                                       | 0                                                                                   |
| Peak Hour Factor             | 0.96                                                                              | 0.96                                                                                                                                                                | 0.96                                                                              | 0.96                                                                              | 0.96                                                                                                                                                                | 0.96                                                                              | 0.96                                                                                | 0.96                                                                                                                                                                    | 0.96                                                                                | 0.96                                                                                | 0.96                                                                                                                                                                    | 0.96                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                 | 2                                                                                                                                                                   | 2                                                                                 | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   | 2                                                                                   | 2                                                                                                                                                                       | 2                                                                                   |
| Cap, veh/h                   | 100                                                                               | 544                                                                                                                                                                 | 220                                                                               | 261                                                                               | 1103                                                                                                                                                                | 493                                                                               | 388                                                                                 | 1296                                                                                                                                                                    | 580                                                                                 | 116                                                                                 | 716                                                                                                                                                                     | 50                                                                                  |
| Arrive On Green              | 0.06                                                                              | 0.22                                                                                                                                                                | 0.20                                                                              | 0.15                                                                              | 0.31                                                                                                                                                                | 0.31                                                                              | 0.22                                                                                | 0.37                                                                                                                                                                    | 0.00                                                                                | 0.13                                                                                | 0.43                                                                                                                                                                    | 0.39                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 2462                                                                                                                                                                | 995                                                                               | 1774                                                                              | 3539                                                                                                                                                                | 1583                                                                              | 1774                                                                                | 3539                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 3354                                                                                                                                                                    | 236                                                                                 |
| Grp Volume(v), veh/h         | 50                                                                                | 307                                                                                                                                                                 | 297                                                                               | 192                                                                               | 365                                                                                                                                                                 | 61                                                                                | 95                                                                                  | 500                                                                                                                                                                     | 0                                                                                   | 67                                                                                  | 306                                                                                                                                                                     | 316                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1770                                                                                                                                                                | 1687                                                                              | 1774                                                                              | 1770                                                                                                                                                                | 1583                                                                              | 1774                                                                                | 1770                                                                                                                                                                    | 1583                                                                                | 1774                                                                                | 1770                                                                                                                                                                    | 1821                                                                                |
| Q Serve(g_s), s              | 2.2                                                                               | 13.1                                                                                                                                                                | 13.4                                                                              | 8.3                                                                               | 6.3                                                                                                                                                                 | 2.2                                                                               | 3.5                                                                                 | 8.3                                                                                                                                                                     | 0.0                                                                                 | 2.8                                                                                 | 12.1                                                                                                                                                                    | 12.2                                                                                |
| Cycle Q Clear(g_c), s        | 2.2                                                                               | 13.1                                                                                                                                                                | 13.4                                                                              | 8.3                                                                               | 6.3                                                                                                                                                                 | 2.2                                                                               | 3.5                                                                                 | 8.3                                                                                                                                                                     | 0.0                                                                                 | 2.8                                                                                 | 12.1                                                                                                                                                                    | 12.2                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                                                                                                     | 0.59                                                                              | 1.00                                                                              |                                                                                                                                                                     | 1.00                                                                              | 1.00                                                                                |                                                                                                                                                                         | 1.00                                                                                | 1.00                                                                                |                                                                                                                                                                         | 0.13                                                                                |
| Lane Grp Cap(c), veh/h       | 100                                                                               | 391                                                                                                                                                                 | 373                                                                               | 261                                                                               | 1103                                                                                                                                                                | 493                                                                               | 388                                                                                 | 1296                                                                                                                                                                    | 580                                                                                 | 116                                                                                 | 378                                                                                                                                                                     | 388                                                                                 |
| V/C Ratio(X)                 | 0.50                                                                              | 0.79                                                                                                                                                                | 0.80                                                                              | 0.74                                                                              | 0.33                                                                                                                                                                | 0.12                                                                              | 0.25                                                                                | 0.39                                                                                                                                                                    | 0.00                                                                                | 0.58                                                                                | 0.81                                                                                                                                                                    | 0.81                                                                                |
| Avail Cap(c_a), veh/h        | 133                                                                               | 442                                                                                                                                                                 | 422                                                                               | 310                                                                               | 1239                                                                                                                                                                | 554                                                                               | 388                                                                                 | 1296                                                                                                                                                                    | 580                                                                                 | 155                                                                                 | 487                                                                                                                                                                     | 501                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 2.00                                                                                | 2.00                                                                                                                                                                    | 2.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                                                                                                | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                                                                                                    | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 36.6                                                                              | 29.4                                                                                                                                                                | 29.9                                                                              | 32.6                                                                              | 21.1                                                                                                                                                                | 19.7                                                                              | 25.8                                                                                | 18.7                                                                                                                                                                    | 0.0                                                                                 | 33.7                                                                                | 21.5                                                                                                                                                                    | 21.7                                                                                |
| Incr Delay (d2), s/veh       | 3.8                                                                               | 8.1                                                                                                                                                                 | 9.2                                                                               | 7.3                                                                               | 0.2                                                                                                                                                                 | 0.1                                                                               | 0.3                                                                                 | 0.9                                                                                                                                                                     | 0.0                                                                                 | 4.4                                                                                 | 17.0                                                                                                                                                                    | 16.8                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.2                                                                               | 7.3                                                                                                                                                                 | 7.2                                                                               | 4.6                                                                               | 3.1                                                                                                                                                                 | 1.0                                                                               | 1.8                                                                                 | 4.2                                                                                                                                                                     | 0.0                                                                                 | 1.5                                                                                 | 7.6                                                                                                                                                                     | 7.8                                                                                 |
| LnGrp Delay(d),s/veh         | 40.4                                                                              | 37.5                                                                                                                                                                | 39.1                                                                              | 39.9                                                                              | 21.3                                                                                                                                                                | 19.8                                                                              | 26.1                                                                                | 19.6                                                                                                                                                                    | 0.0                                                                                 | 38.1                                                                                | 38.5                                                                                                                                                                    | 38.5                                                                                |
| LnGrp LOS                    | D                                                                                 | D                                                                                                                                                                   | D                                                                                 | D                                                                                 | C                                                                                                                                                                   | B                                                                                 | C                                                                                   | B                                                                                                                                                                       |                                                                                     | D                                                                                   | D                                                                                                                                                                       | D                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 654                                                                                                                                                                 |                                                                                   |                                                                                   | 618                                                                                                                                                                 |                                                                                   |                                                                                     | 595                                                                                                                                                                     |                                                                                     |                                                                                     | 689                                                                                                                                                                     |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 38.4                                                                                                                                                                |                                                                                   |                                                                                   | 26.9                                                                                                                                                                |                                                                                   |                                                                                     | 20.6                                                                                                                                                                    |                                                                                     |                                                                                     | 38.5                                                                                                                                                                    |                                                                                     |
| Approach LOS                 |                                                                                   | D                                                                                                                                                                   |                                                                                   |                                                                                   | C                                                                                                                                                                   |                                                                                   |                                                                                     | C                                                                                                                                                                       |                                                                                     |                                                                                     | D                                                                                                                                                                       |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                   | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                                                                                                   | 3                                                                                 | 4                                                                                 | 5                                                                                                                                                                   | 6                                                                                 | 7                                                                                   | 8                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 9.3                                                                               | 33.3                                                                                                                                                                | 15.8                                                                              | 21.7                                                                              | 21.5                                                                                                                                                                | 21.1                                                                              | 8.5                                                                                 | 28.9                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                                                                                                 | 5.5                                                                               | 5.5                                                                                 | 5.5                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 21.5                                                                                                                                                                | 12.5                                                                              | 18.5                                                                              | 6.5                                                                                                                                                                 | 20.5                                                                              | 4.5                                                                                 | 26.5                                                                                                                                                                    |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 4.8                                                                               | 10.3                                                                                                                                                                | 10.3                                                                              | 15.4                                                                              | 5.5                                                                                                                                                                 | 14.2                                                                              | 4.2                                                                                 | 8.3                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.7                                                                                                                                                                 | 0.1                                                                               | 0.8                                                                               | 0.0                                                                                                                                                                 | 1.4                                                                               | 0.0                                                                                 | 1.7                                                                                                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                   |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 Ctrl Delay          |                                                                                   |                                                                                                                                                                     |                                                                                   | 31.5                                                                              |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2010 LOS                 |                                                                                   |                                                                                                                                                                     |                                                                                   | C                                                                                 |                                                                                                                                                                     |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

HCM 2010 TWSC  
9: Alessandro Blvd & Driveway A

02/22/2021

Intersection

Int Delay, s/veh 0.3

| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      |      | ↑    | ↑↑   |      |      | ↑    |
| Traffic Vol, veh/h       | 0    | 811  | 516  | 20   | 0    | 38   |
| Future Vol, veh/h        | 0    | 811  | 516  | 20   | 0    | 38   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 0    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 0    | 882  | 561  | 22   | 0    | 41   |

| Major/Minor          | Major1 | Major2 | Minor2    |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | -      | 0      | - 0 - 292 |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |
| Critical Hdwy        | -      | -      | - - 6.93  |
| Critical Hdwy Stg 1  | -      | -      | - - -     |
| Critical Hdwy Stg 2  | -      | -      | - - -     |
| Follow-up Hdwy       | -      | -      | - - 3.319 |
| Pot Cap-1 Maneuver   | 0      | -      | - 0 705   |
| Stage 1              | 0      | -      | - 0 -     |
| Stage 2              | 0      | -      | - 0 -     |
| Platoon blocked, %   | -      | -      | -         |
| Mov Cap-1 Maneuver   | -      | -      | - - 705   |
| Mov Cap-2 Maneuver   | -      | -      | - - -     |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |

| Approach             | EB | WB | SB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 0  | 10.4 |
| HCM LOS              |    |    | B    |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h)      | -   | -   | -   | 705   |
| HCM Lane V/C Ratio    | -   | -   | -   | 0.059 |
| HCM Control Delay (s) | -   | -   | -   | 10.4  |
| HCM Lane LOS          | -   | -   | -   | B     |
| HCM 95th %tile Q(veh) | -   | -   | -   | 0.2   |

HCM 2010 TWSC  
10: Alessandro Blvd & Driveway B

02/22/2021

Intersection

Int Delay, s/veh 0.6

| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      |      | ↑    | ↑↑   |      |      | ↑    |
| Traffic Vol, veh/h       | 0    | 811  | 516  | 162  | 0    | 76   |
| Future Vol, veh/h        | 0    | 811  | 516  | 162  | 0    | 76   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | 0    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 0    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 0    | 882  | 561  | 176  | 0    | 83   |

| Major/Minor          | Major1 | Major2 | Minor2    |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | -      | 0      | - 0 - 369 |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |
| Critical Hdwy        | -      | -      | - - 6.93  |
| Critical Hdwy Stg 1  | -      | -      | - - -     |
| Critical Hdwy Stg 2  | -      | -      | - - -     |
| Follow-up Hdwy       | -      | -      | - - 3.319 |
| Pot Cap-1 Maneuver   | 0      | -      | - - 0 629 |
| Stage 1              | 0      | -      | - - 0 -   |
| Stage 2              | 0      | -      | - - 0 -   |
| Platoon blocked, %   | -      | -      | -         |
| Mov Cap-1 Maneuver   | -      | -      | - - 629   |
| Mov Cap-2 Maneuver   | -      | -      | - - -     |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |

| Approach             | EB | WB | SB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 0  | 11.6 |
| HCM LOS              |    |    | B    |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h)      | -   | -   | -   | 629   |
| HCM Lane V/C Ratio    | -   | -   | -   | 0.131 |
| HCM Control Delay (s) | -   | -   | -   | 11.6  |
| HCM Lane LOS          | -   | -   | -   | B     |
| HCM 95th %tile Q(veh) | -   | -   | -   | 0.5   |

HCM 2010 TWSC  
11: Lasselle St/Lassell St & Driveway C

02/22/2021

Intersection

Int Delay, s/veh 7.2

| Movement                 | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations      |  |  |  |  |  |  |
| Traffic Vol, veh/h       | 114                                                                               | 152                                                                               | 101                                                                               | 396                                                                               | 397                                                                               | 121                                                                               |
| Future Vol, veh/h        | 114                                                                               | 152                                                                               | 101                                                                               | 396                                                                               | 397                                                                               | 121                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Stop                                                                              | Stop                                                                              | Free                                                                              | Free                                                                              | Free                                                                              | Free                                                                              |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | None                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | 0                                                                                 | 0                                                                                 | 80                                                                                | -                                                                                 | -                                                                                 | -                                                                                 |
| Veh in Median Storage, # | 0                                                                                 | -                                                                                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | 0                                                                                 | -                                                                                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 124                                                                               | 165                                                                               | 110                                                                               | 430                                                                               | 432                                                                               | 132                                                                               |

| Major/Minor          | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 1148   | 282    | 564    |
| Stage 1              | 498    | -      | -      |
| Stage 2              | 650    | -      | -      |
| Critical Hdwy        | 6.63   | 6.93   | 4.13   |
| Critical Hdwy Stg 1  | 5.83   | -      | -      |
| Critical Hdwy Stg 2  | 5.43   | -      | -      |
| Follow-up Hdwy       | 3.519  | 3.319  | 2.219  |
| Pot Cap-1 Maneuver   | 205    | 716    | 1006   |
| Stage 1              | 577    | -      | -      |
| Stage 2              | 519    | -      | -      |
| Platoon blocked, %   |        |        |        |
| Mov Cap-1 Maneuver   | 183    | 716    | 1006   |
| Mov Cap-2 Maneuver   | 183    | -      | -      |
| Stage 1              | 514    | -      | -      |
| Stage 2              | 519    | -      | -      |

| Approach             | EB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 31.5 | 1.8 | 0  |
| HCM LOS              | D    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | EBLn2 | SBT | SBR |
|-----------------------|-------|-----|-------|-------|-----|-----|
| Capacity (veh/h)      | 1006  | -   | 183   | 716   | -   | -   |
| HCM Lane V/C Ratio    | 0.109 | -   | 0.677 | 0.231 | -   | -   |
| HCM Control Delay (s) | 9     | -   | 58.2  | 11.5  | -   | -   |
| HCM Lane LOS          | A     | -   | F     | B     | -   | -   |
| HCM 95th %tile Q(veh) | 0.4   | -   | 4.1   | 0.9   | -   | -   |

# HCM 2010 Signalized Intersection Summary

## 3: Lasselle St & Alessandro Blvd

02/22/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 202                                                                               | 474                                                                               | 258                                                                               | 99                                                                                | 380                                                                               | 36                                                                                | 203                                                                                | 342                                                                                 | 119                                                                                 | 101                                                                                 | 415                                                                                 | 33                                                                                  |
| Future Volume (veh/h)        | 202                                                                               | 474                                                                               | 258                                                                               | 99                                                                                | 380                                                                               | 36                                                                                | 203                                                                                | 342                                                                                 | 119                                                                                 | 101                                                                                 | 415                                                                                 | 33                                                                                  |
| Number                       | 7                                                                                 | 4                                                                                 | 14                                                                                | 3                                                                                 | 8                                                                                 | 18                                                                                | 5                                                                                  | 2                                                                                   | 12                                                                                  | 1                                                                                   | 6                                                                                   | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Adj Sat Flow, veh/h/ln       | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1863                                                                              | 1900                                                                              | 1863                                                                               | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1863                                                                                | 1900                                                                                |
| Adj Flow Rate, veh/h         | 224                                                                               | 527                                                                               | 287                                                                               | 110                                                                               | 422                                                                               | 40                                                                                | 226                                                                                | 380                                                                                 | 132                                                                                 | 112                                                                                 | 461                                                                                 | 37                                                                                  |
| Adj No. of Lanes             | 1                                                                                 | 1                                                                                 | 1                                                                                 | 1                                                                                 | 2                                                                                 | 0                                                                                 | 1                                                                                  | 1                                                                                   | 1                                                                                   | 1                                                                                   | 2                                                                                   | 0                                                                                   |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                               | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 390                                                                               | 607                                                                               | 486                                                                               | 133                                                                               | 591                                                                               | 56                                                                                | 374                                                                                | 441                                                                                 | 493                                                                                 | 288                                                                                 | 626                                                                                 | 50                                                                                  |
| Arrive On Green              | 0.22                                                                              | 0.33                                                                              | 0.31                                                                              | 0.08                                                                              | 0.18                                                                              | 0.16                                                                              | 0.42                                                                               | 0.47                                                                                | 0.47                                                                                | 0.05                                                                                | 0.06                                                                                | 0.06                                                                                |
| Sat Flow, veh/h              | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 3269                                                                              | 309                                                                               | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 3320                                                                                | 266                                                                                 |
| Grp Volume(v), veh/h         | 224                                                                               | 527                                                                               | 287                                                                               | 110                                                                               | 228                                                                               | 234                                                                               | 226                                                                                | 380                                                                                 | 132                                                                                 | 112                                                                                 | 245                                                                                 | 253                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1774                                                                              | 1863                                                                              | 1583                                                                              | 1774                                                                              | 1770                                                                              | 1808                                                                              | 1774                                                                               | 1863                                                                                | 1583                                                                                | 1774                                                                                | 1770                                                                                | 1816                                                                                |
| Q Serve(g_s), s              | 9.0                                                                               | 21.3                                                                              | 6.4                                                                               | 4.9                                                                               | 9.7                                                                               | 9.8                                                                               | 7.9                                                                                | 14.5                                                                                | 2.0                                                                                 | 4.9                                                                                 | 10.9                                                                                | 11.0                                                                                |
| Cycle Q Clear(g_c), s        | 9.0                                                                               | 21.3                                                                              | 6.4                                                                               | 4.9                                                                               | 9.7                                                                               | 9.8                                                                               | 7.9                                                                                | 14.5                                                                                | 2.0                                                                                 | 4.9                                                                                 | 10.9                                                                                | 11.0                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.17                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.15                                                                                |
| Lane Grp Cap(c), veh/h       | 390                                                                               | 607                                                                               | 486                                                                               | 133                                                                               | 320                                                                               | 327                                                                               | 374                                                                                | 441                                                                                 | 493                                                                                 | 288                                                                                 | 334                                                                                 | 342                                                                                 |
| V/C Ratio(X)                 | 0.57                                                                              | 0.87                                                                              | 0.59                                                                              | 0.83                                                                              | 0.71                                                                              | 0.72                                                                              | 0.60                                                                               | 0.86                                                                                | 0.27                                                                                | 0.39                                                                                | 0.73                                                                                | 0.74                                                                                |
| Avail Cap(c_a), veh/h        | 390                                                                               | 661                                                                               | 532                                                                               | 133                                                                               | 495                                                                               | 506                                                                               | 374                                                                                | 526                                                                                 | 566                                                                                 | 288                                                                                 | 389                                                                                 | 399                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 2.00                                                                               | 2.00                                                                                | 2.00                                                                                | 0.33                                                                                | 0.33                                                                                | 0.33                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 27.8                                                                              | 25.4                                                                              | 6.5                                                                               | 36.5                                                                              | 30.8                                                                              | 31.0                                                                              | 20.6                                                                               | 19.9                                                                                | 4.9                                                                                 | 34.0                                                                                | 35.5                                                                                | 35.6                                                                                |
| Incr Delay (d2), s/veh       | 2.0                                                                               | 11.2                                                                              | 1.5                                                                               | 27.8                                                                              | 2.4                                                                               | 2.4                                                                               | 2.8                                                                                | 19.5                                                                                | 1.3                                                                                 | 0.9                                                                                 | 13.4                                                                                | 13.4                                                                                |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 4.6                                                                               | 12.7                                                                              | 4.5                                                                               | 3.4                                                                               | 5.0                                                                               | 5.1                                                                               | 4.0                                                                                | 9.6                                                                                 | 1.1                                                                                 | 2.5                                                                                 | 6.6                                                                                 | 6.8                                                                                 |
| LnGrp Delay(d),s/veh         | 29.9                                                                              | 36.6                                                                              | 7.9                                                                               | 64.3                                                                              | 33.2                                                                              | 33.4                                                                              | 23.3                                                                               | 39.4                                                                                | 6.2                                                                                 | 34.9                                                                                | 49.0                                                                                | 49.0                                                                                |
| LnGrp LOS                    | C                                                                                 | D                                                                                 | A                                                                                 | E                                                                                 | C                                                                                 | C                                                                                 | C                                                                                  | D                                                                                   | A                                                                                   | C                                                                                   | D                                                                                   | D                                                                                   |
| Approach Vol, veh/h          | 1038                                                                              |                                                                                   |                                                                                   |                                                                                   | 572                                                                               |                                                                                   |                                                                                    | 738                                                                                 |                                                                                     |                                                                                     | 610                                                                                 |                                                                                     |
| Approach Delay, s/veh        | 27.2                                                                              |                                                                                   |                                                                                   |                                                                                   | 39.2                                                                              |                                                                                   |                                                                                    | 28.5                                                                                |                                                                                     |                                                                                     | 46.4                                                                                |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Timer                        | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Assigned Phs                 | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 17.0                                                                              | 22.9                                                                              | 10.0                                                                              | 30.1                                                                              | 20.9                                                                              | 19.1                                                                              | 21.6                                                                               | 18.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                               | 5.5                                                                                | 5.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 5.5                                                                               | 21.1                                                                              | 4.5                                                                               | 26.9                                                                              | 10.5                                                                              | 16.1                                                                              | 10.5                                                                               | 20.9                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 6.9                                                                               | 16.5                                                                              | 6.9                                                                               | 23.3                                                                              | 9.9                                                                               | 13.0                                                                              | 11.0                                                                               | 11.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 0.9                                                                               | 0.0                                                                               | 1.3                                                                               | 0.0                                                                               | 0.6                                                                               | 0.0                                                                                | 1.2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 Ctrl Delay          | 33.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2010 LOS                 | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

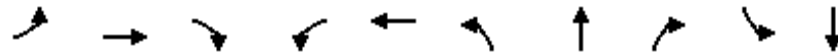
## **APPENDIX E**

### **QUEUE ANALYSIS**

## Queues

## 3: Lasselle St &amp; Alessandro Blvd

10/05/2020



| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 184  | 260  | 187  | 155  | 758  | 349  | 533  | 167  | 133  | 507  |
| v/c Ratio               | 0.80 | 0.67 | 0.34 | 0.41 | 0.74 | 1.02 | 0.91 | 0.17 | 0.88 | 0.69 |
| Control Delay           | 65.3 | 27.7 | 2.1  | 35.9 | 32.7 | 86.9 | 37.6 | 0.4  | 91.9 | 31.5 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 65.3 | 27.7 | 2.1  | 35.9 | 32.7 | 86.9 | 37.6 | 0.4  | 91.9 | 31.5 |
| Queue Length 50th (ft)  | 108  | 98   | 0    | 77   | 200  | ~227 | 288  | 0    | 80   | 133  |
| Queue Length 95th (ft)  | #260 | 151  | 1    | 136  | 231  | #396 | #435 | m0   | #180 | 188  |
| Internal Link Dist (ft) |      | 380  |      |      | 5194 |      | 1189 |      |      | 251  |
| Turn Bay Length (ft)    | 180  |      | 60   | 160  |      | 200  |      | 120  | 150  |      |
| Base Capacity (vph)     | 230  | 476  | 604  | 379  | 1213 | 341  | 600  | 978  | 151  | 824  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.80 | 0.55 | 0.31 | 0.41 | 0.62 | 1.02 | 0.89 | 0.17 | 0.88 | 0.62 |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

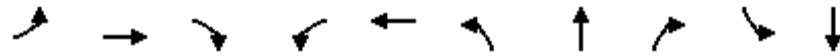
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

## Queues

## 3: Lasselle St &amp; Alessandro Blvd

10/05/2020



| Lane Group              | EBL   | EBT  | EBR  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|-------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 224   | 527  | 287  | 110  | 462  | 226  | 380  | 132  | 112  | 498  |
| v/c Ratio               | 0.62  | 0.85 | 0.46 | 0.75 | 0.62 | 0.82 | 0.73 | 0.19 | 0.61 | 0.62 |
| Control Delay           | 20.7  | 19.1 | 2.4  | 69.5 | 31.1 | 48.9 | 22.9 | 0.7  | 50.9 | 26.8 |
| Queue Delay             | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 20.7  | 19.1 | 2.4  | 69.5 | 31.1 | 48.9 | 22.9 | 0.7  | 50.9 | 26.8 |
| Queue Length 50th (ft)  | 70    | 46   | 0    | 55   | 107  | 114  | 54   | 0    | 57   | 125  |
| Queue Length 95th (ft)  | m#182 | #374 | m0   | #144 | 145  | #238 | #281 | 0    | #140 | 127  |
| Internal Link Dist (ft) |       | 380  |      |      | 5194 |      | 1189 |      |      | 251  |
| Turn Bay Length (ft)    | 180   |      | 60   | 160  |      | 200  |      | 120  | 150  |      |
| Base Capacity (vph)     | 362   | 661  | 654  | 146  | 986  | 276  | 526  | 690  | 183  | 802  |
| Starvation Cap Reductn  | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.62  | 0.80 | 0.44 | 0.75 | 0.47 | 0.82 | 0.72 | 0.19 | 0.61 | 0.62 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

**APPENDIX F**  
**PEAK-HOUR SIGNAL WARRANT**

**Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)**

|                                                                     |              |     |    |                                     |                    |
|---------------------------------------------------------------------|--------------|-----|----|-------------------------------------|--------------------|
|                                                                     |              |     |    | COUNT DATE                          | 8/23/18            |
| DIST                                                                | CO           | RTE | PM | CALC                                | jc                 |
|                                                                     |              |     |    | DATE                                | 9/25/18            |
|                                                                     |              |     |    | CHK                                 | kh                 |
|                                                                     |              |     |    | DATE                                | 9/25/18            |
| Major St:                                                           | Lasselle St  |     |    | Critical Approach Speed             | 45 mph             |
| Minor St:                                                           | Brodiaea Ave |     |    | Critical Approach Speed             | 25 mph             |
| Speed limit or critical speed on major street traffic > 40 mph..... |              |     |    | <input checked="" type="checkbox"/> | } <b>RURAL (R)</b> |
| In built up area of isolated community of < 10,000 population.....  |              |     |    | <input type="checkbox"/>            |                    |
|                                                                     |              |     |    | <input type="checkbox"/>            |                    |
|                                                                     |              |     |    |                                     | <b>URBAN (U)</b>   |

**INTERSECTION #7**

**Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)**

**WARRANT 3 - Peak Hour**  
(Part A or Part B must be satisfied)

SATISFIED YES ☐ NO ☒

**PART A**

SATISFIED YES ☐ NO ☒

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

|                                                                                                                                                                                                                                               |                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| 1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; <u>AND</u> | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| 2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; <u>AND</u>                                                                     | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| 3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.                                                            | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |

**PART B**

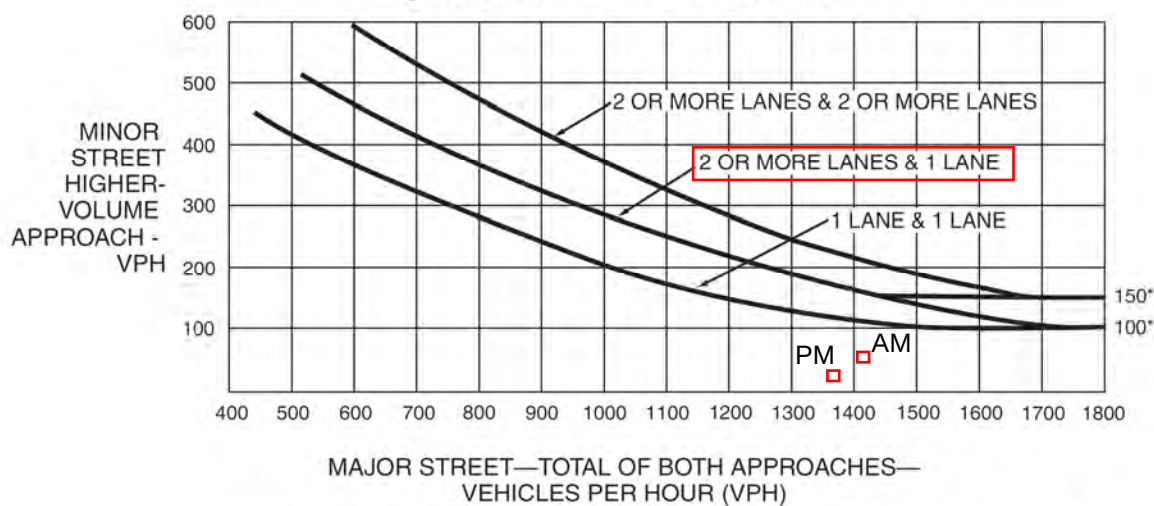
SATISFIED YES ☐ NO ☒

| APPROACH LANES                 | AM PM |           |
|--------------------------------|-------|-----------|
|                                | One   | 2 or More |
| Both Approaches - Major Street |       | 1476 1359 |
| Higher Approach - Minor Street | 74    | 40        |

|                                                                                              |                                                                     |
|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)             | Yes <input type="checkbox"/> No <input type="checkbox"/>            |
| <u>OR</u> , The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS) | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

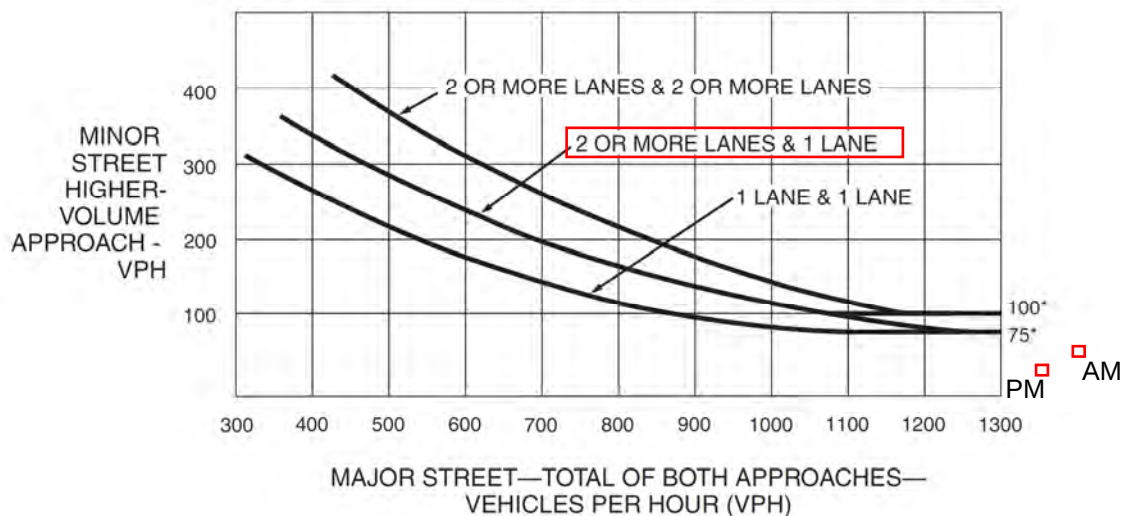
**Figure 4C-3. Warrant 3, Peak Hour**



\*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

**Figure 4C-4. Warrant 3, Peak Hour (70% Factor)**

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



\*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

#### **INTERSECTION #7**

MAJOR ST: Lasselle St

MINOR ST: Brodiaea Ave

Warrant 3: Peak Hour- NOT SATISFIED

Warrant 3: Peak Hour (70%)- NOT SATISFIED