KUNZMAN ASSOCIATES, INC.

MAJESTIC MORENO MEDICAL CAMPUS

TRAFFIC IMPACT ANALYSIS

October 31, 2017

Traffic Engineering | Transportation Planning | Parking | Noise/Vibration | Expert Witness
Air Quality | Global Climate Change | Health Risk Assessment

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Prepared by:

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I. INTRODUCTION AND SUMMARY

A. Purpose of Report and Study Objectives

The purpose of this traffic impact analysis is to evaluate the development of the proposed Majestic Moreno Medical Campus project. This traffic report presents the traffic impact study methodology, analysis, findings, recommendations, and supporting data.

Study objectives include documentation of existing traffic conditions in the vicinity of the site; evaluation of traffic conditions for existing plus the phase I, II, and III of the proposed project; (3) evaluation of traffic conditions for the phase I year at opening (2020) of the proposed project; (4) evaluation of traffic conditions for the phases I and II year at opening (2021) of the proposed project; (5) evaluation of traffic conditions for the phases I, II, and III year at opening (2022) of the proposed project; (6) evaluation of traffic conditions for the Year 2040; and (7) determination of on-site and off-site improvements and system management actions needed to achieve City of Moreno Valley level of service requirements.

Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to transportation engineering, a glossary of terms is provided within Appendix A.

B. Executive Summary

1. Site Location and Study Area

The project site is located east of Nason Street between Brodiaea Avenue and Hospital Road in the City of Moreno Valley.

Pursuant to the scoping discussions with City of Moreno Valley staff, the study area includes the following roadway segments and intersections (see Appendix B):

Roadway Segments:

Nason Street north of SR-60 Freeway WB Ramps
Nason Street between SR-60 Freeway WB Ramps and SR-60 EB Ramps
Nason Street between SR-60 EB Ramps and Fir Avenue
Nason Street between Fir Avenue and Eucalyptus Avenue
Nason Street south of Eucalyptus Avenue
Nason Street north of Cottonwood Avenue
Nason Street between Cottonwood Avenue and Alessandro Boulevard
Nason Street between Alessandro Boulevard and Brodiaea Avenue
Nason Street between Brodiaea Avenue and Hospital Road
Nason Street between Hospital Road and Cactus Avenue
Nason Street south of Cactus Avenue
Fir Avenue west of Nason Street
Eucalyptus Avenue west of Nason Street

Eucalyptus Avenue east of Nason Street
Cottonwood Avenue west of Nason Street
Alessandro Boulevard west of Nason Street
Brodiaea Avenue west of Nason Street
Brodiaea Avenue east of Nason Street
Cactus Avenue west of Nason Street
Cactus Avenue east of Nason Street

Intersections:

Nason Street (NS) at:
- SR-60 Freeway WB Ramps (EW) - #1
- SR-60 Freeway EB Ramps (EW) - #2
- Fir Avenue (EW) - #3
- Eucalyptus Avenue (EW) - #4
- Dracaea Avenue (EW) - #5
- Cottonwood Avenue (EW) - #6
- Alessandro Boulevard (EW) - #7
- Brodiaea Avenue (EW) - #8
- Project Access (EW) - #9
- Hospital Road/Project Access (EW) - #10
- Cactus Avenue (EW) - #11
- Iris Avenue (EW) - #12

Project West Access (NS) at:
- Brodiaea Avenue (EW) - #13

Project Central Access (NS) at:
- Brodiaea Avenue (EW) - #14

Project East Access (NS) at:
- Brodiaea Avenue (EW) - #15

2. Development Description

The project site is proposed to be developed with 114,480 square feet of medical office land use, 207 beds of assisted living land use, and 158 beds of nursing home land use. The project site is proposed to provide access to Nason Street, Brodiaea Avenue, and Hospital Road.

The site is proposed to be developed in three phases. Phase I consists of 207 beds of assisted living land use and is proposed to open in Year 2020. Phase II consists of 114,480 square feet of medical office land use and is proposed to open in Year 2021. Phase III consists of 158 beds of nursing home land use and is proposed to open in Year 2022.

The current General Plan zoning for the approximately 18.38 acre site is R2. The R2 zoning allows up to 2 residential dwelling units per acre. The project site could potentially be developed with 36 residential dwelling units.

3. Principal Findings

a. Required Level of Service: The City has established Level of Service requirements for all intersections within the City. Level of Service C will be the design objective for all movements and under no circumstance will be less than Level of Service D (during peak hour), volume-to-capacity of 0.90, for site and non-site traffic at the build-out of the study area.

b. For Existing traffic conditions, the study area intersections currently operate at acceptable Levels of Service during the peak hours.

For Existing traffic conditions, the study area roadway segments currently operate at acceptable Levels of Service.

c. The project is projected to generate a total of approximately 5,136 daily vehicle trips, 338 of which occur during the morning peak hour and 504 of which occur during the evening peak hour.

d. For Existing Plus Project Phase I, II, and III traffic conditions, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours.

For Existing Plus Project Phase I, II, and III traffic conditions, the study area roadway segments are projected to operate at acceptable Levels of Service.

e. For Opening Year (2020) Without Project traffic conditions, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours.

For Opening Year (2020) Without Project traffic conditions, the following study area roadway segment is projected to operate at an unacceptable Level of Service, without improvements:

Alessandro Boulevard west of Nason Street

For Opening Year (2020) Without Project traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

f. For Opening Year (2020) With Project Phase I traffic conditions, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours.

For Opening Year (2020) With Project Phase I traffic conditions, the following study area roadway segment is projected to operate at an unacceptable Level of Service, without improvements:

Alessandro Boulevard west of Nason Street

For Opening Year (2020) With Project Phase I traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

g. For Opening Year (2021) Without Project traffic conditions, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours.

For Opening Year (2021) Without Project traffic conditions, the following study area roadway segment is projected to operate at an unacceptable Level of Service, without improvements:

Alessandro Boulevard west of Nason Street

For Opening Year (2021) Without Project traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

h. For Opening Year (2021) With Project Phases I and II traffic conditions, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours.

For Opening Year (2021) With Project Phases I and II traffic conditions, the following study area roadway segment is projected to operate at an unacceptable Level of Service, without improvements:

Alessandro Boulevard west of Nason Street

For Opening Year (2021) With Project Phases I and II traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

i. For Opening Year (2022) Without Project traffic conditions, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours.

For Opening Year (2022) Without Project traffic conditions, the following study area roadway segment is projected to operate at an unacceptable Level of Service, without improvements:

Alessandro Boulevard west of Nason Street

For Opening Year (2022) Without Project traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

j. For Opening Year (2022) With Project Phases I, II and III traffic conditions, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours.

For Opening Year (2022) With Project Phases I, II and III traffic conditions, the following study area roadway segment is projected to operate at an unacceptable Level of Service, without improvements:

Alessandro Boulevard west of Nason Street

For Opening Year (2022) With Project Phases I, II and III traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

k. For Year 2040 Without Project traffic conditions, the following study area intersections are projected to operate at unacceptable Levels of Service during the peak hours, without improvements:

Nason Street (NS) at:
Eucalyptus Avenue (EW) - #4
Alessandro Boulevard (EW) - #7

For Year 2040 Without Project traffic conditions, the study area intersections are projected to operate within acceptable Levels of Service during the peak hours, with improvements.

For Year 2040 Without Project traffic conditions, the following study area roadway segments are projected to operate at unacceptable Levels of Service, without improvements:

Nason Street south of Eucalyptus Avenue
Nason Street north of Cottonwood Avenue
Alessandro Boulevard west of Nason Street
Cactus Avenue east of Nason Street

For Year 2040 Without Project traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

l. For Year 2040 With Project Phases I, II and III traffic conditions, the following study area intersections are projected to operate at unacceptable Levels of Service during the peak hours, without improvements:

Nason Street (NS) at:
Eucalyptus Avenue (EW) - #4
Alessandro Boulevard (EW) - #7

For Year 2040 With Project Phases I, II and III traffic conditions, the study area intersections are projected to operate within acceptable Levels of Service during the peak hours, with improvements.

For Year 2040 With Project Phases I, II and III traffic conditions, the following study area roadway segments are projected to operate at unacceptable Levels of Service, without improvements:

Nason Street south of Eucalyptus Avenue
Nason Street north of Cottonwood Avenue
Nason Street between Cottonwood Avenue and Alessandro Boulevard
Alessandro Boulevard west of Nason Street
Cactus Avenue east of Nason Street

For Year 2040 With Project traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

m. The vehicle queuing analysis from the Synchro software (see Appendix G) shows that all future vehicle queuing demands are able to be contained in the vehicle queuing storage areas.

4. Recommendations

Site-specific circulation and access recommendations are depicted on Figure 54.

Construct Nason Street from Brodiaea Avenue to Hospital Road its ultimate half-section width as a Divided Major Arterial (120 foot right-of-way) in conjunction with development, including landscaping and parkway improvements, as necessary

Construct Brodiaea Avenue from Nason Street to the east project boundary at its ultimate half-section width in conjunction with development, including landscaping and parkway improvements, as necessary.

Existing signing and striping along Nason Street adjacent to the project site needs to be modified to accommodate the proposed project access.

The existing traffic signal at Nason Street (NS) at Hospital Road (EW) - #10 needs to be modified to accommodate the proposed project access.

On-site traffic signing/striping should be implemented in conjunction with detailed construction plans for the project site.

Sight distance at project accesses shall comply with standard California Department of Transportation and City of Moreno Valley sight distance standards. The final grading, landscaping, and street improvement plans shall demonstrate that sight distance standards are met. Such plans must be reviewed by the City and approved as consistent with this measure prior to issue of grading permits.

Participate in the phased construction of off-site traffic signals through payment of traffic signal mitigation fees. The traffic signals within the study area at buildout should specifically include an interconnect of the traffic signals to function in a coordinated system.

As is the case for any roadway design, the City of Moreno Valley should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

II. PROPOSED DEVELOPMENT

A. Location

The project site is located east of Nason Street between Brodiaea Avenue and Hospital Road in the City of Moreno Valley. Figure 1 shows the project location map.

B. Land Use and Intensity

The project site is proposed to be developed with 114,480 square feet of medical office land use, 207 beds of assisted living land use, and 158 beds of nursing home land use. The project site is proposed to provide access to Nason Street, Brodiaea Avenue, and Hospital Road.

The site is proposed to be developed in three phases. Phase I consists of 207 beds of assisted living land use and is proposed to open in Year 2020. Phase II consists of 114,480 square feet of medical office land use and is proposed to open in Year 2021. Phase III consists of 158 beds of nursing home land use and is proposed to open in Year 2022.

C. Site Plan

Figure 2 illustrates the project site plan.

Figure 1
Project Location Map

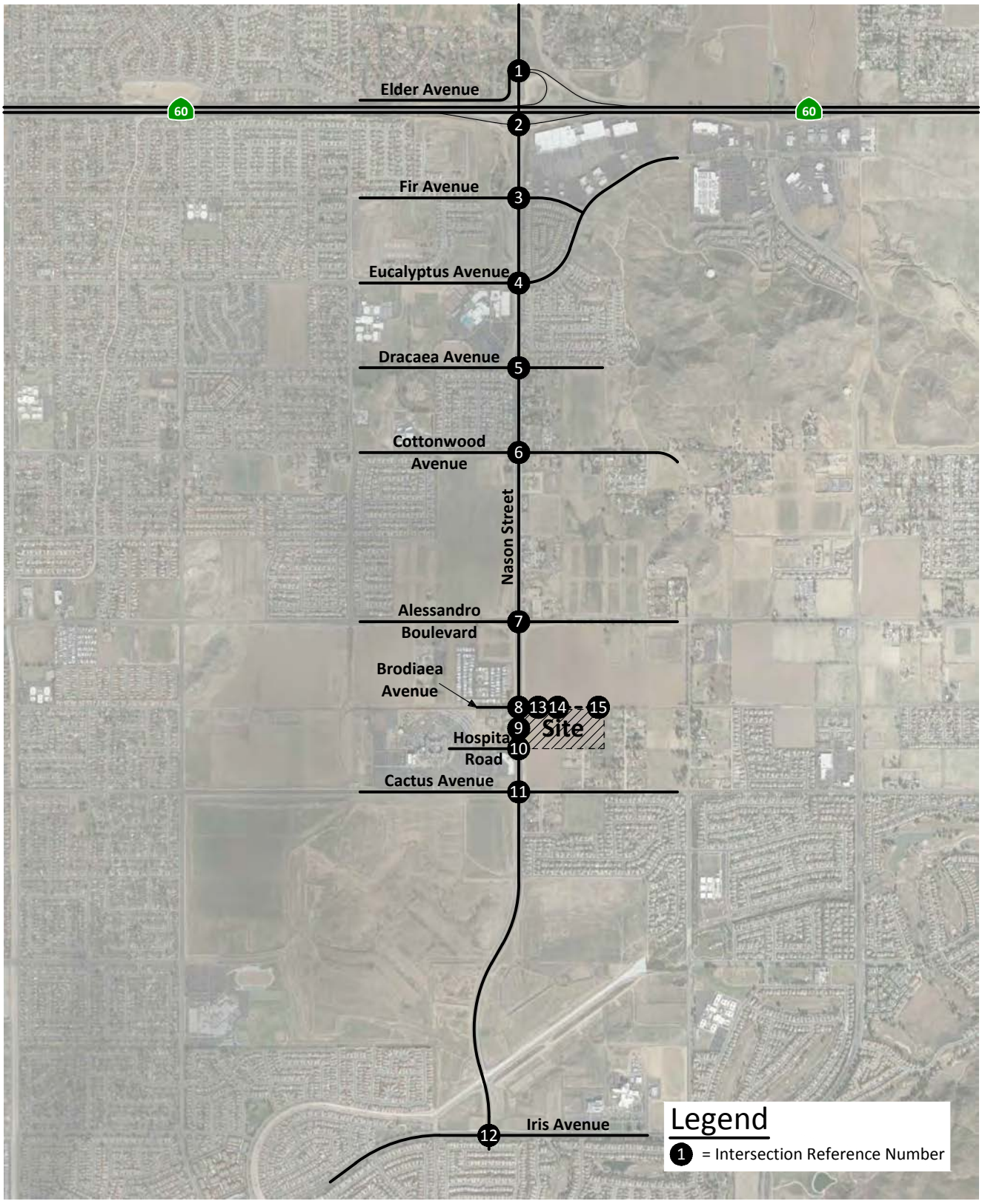

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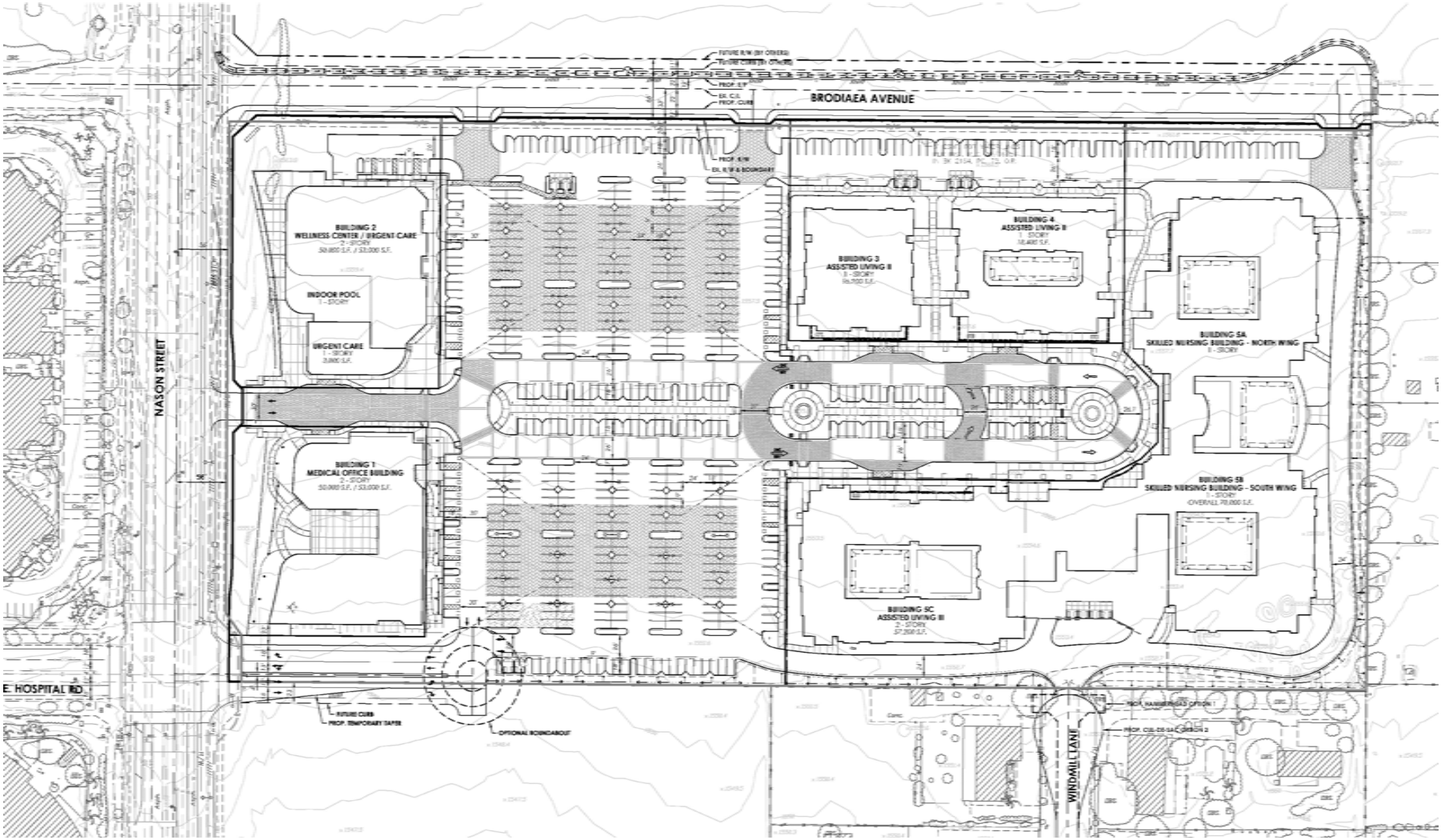
Figure 2
Site Plan



III. EXISTING CONDITIONS

A. Study Area

1. Area of Significant Traffic Impact

Pursuant to the scoping discussions with City of Moreno Valley staff, the study area includes the following roadway segments and intersections (see Appendix B):

Roadway Segments:

Nason Street north of SR-60 Freeway WB Ramps
Nason Street between SR-60 Freeway WB Ramps and SR-60 EB Ramps
Nason Street between SR-60 EB Ramps and Fir Avenue
Nason Street between Fir Avenue and Eucalyptus Avenue
Nason Street south of Eucalyptus Avenue
Nason Street north of Cottonwood Avenue
Nason Street between Cottonwood Avenue and Alessandro Boulevard
Nason Street between Alessandro Boulevard and Brodiaea Avenue
Nason Street between Brodiaea Avenue and Hospital Road
Nason Street between Hospital Road and Cactus Avenue
Nason Street south of Cactus Avenue
Fir Avenue west of Nason Street
Eucalyptus Avenue west of Nason Street
Eucalyptus Avenue east of Nason Street
Cottonwood Avenue west of Nason Street
Alessandro Boulevard west of Nason Street
Brodiaea Avenue west of Nason Street
Brodiaea Avenue east of Nason Street
Cactus Avenue west of Nason Street
Cactus Avenue east of Nason Street

Intersections:

Nason Street (NS) at:
- SR-60 Freeway WB Ramps (EW) - #1
- SR-60 Freeway EB Ramps (EW) - #2
- Fir Avenue (EW) - #3
- Eucalyptus Avenue (EW) - #4
- Dracaea Avenue (EW) - #5
- Cottonwood Avenue (EW) - #6
- Alessandro Boulevard (EW) - #7
- Brodiaea Avenue (EW) - #8
- Project Access (EW) - #9
- Hospital Road/Project Access (EW) - #10
- Cactus Avenue (EW) - #11
- Iris Avenue (EW) - #12

Project West Access (NS) at:
Brodiaea Avenue (EW) - #13

Project Central Access (NS) at:
Brodiaea Avenue (EW) - #14

Project East Access (NS) at:
Brodiaea Avenue (EW) - #15

B. Study Area Land Use

1. Existing Land Uses

The project site is currently undeveloped and does not generate significant vehicle trips. The properties adjacent to the project site are currently partially developed. The properties north and south of the project are undeveloped. The property east of the project is developed with residential dwelling units. The property west of the project is developed with the RUHS Medical Center and Integrated Care Communities.

C. Site Accessibility

1. Area Roadway System

Figure 3 identifies the existing roadway conditions for study area roadways. The number of through lanes for existing roadways and the existing intersection controls are identified.

2. Existing Traffic Volumes and Level of Service

Figure 4 depicts the Existing average daily traffic volumes. Existing average daily traffic volumes were obtained from manual 24-hour directional tube counts made for Kunzman Associates, Inc. in October 2016 (see Appendix C) and from the California Department of Transportation, Annual Average Daily Traffic, dated 2015.

Existing volume to capacity ratios and levels of service have been calculated for the study area roadways and are shown in Table 1. Roadway capacity is generally defined as the number of vehicles that can be reasonably expected to pass over a given section of road in a given time period, and is defined below:

Roadway Type	Design Capacity (Level of Service C)	Maximum Capacity (Level of Service E)
Divided Major Arterial	45,000	56,250
Modified Divided Major Arterial	30,000	37,500
Arterial	30,000	37,500
Minor Arterial	20,000	25,000

For roadway segment volume to capacity ratios, the following Level of Service definitions have been used:

Level of Service A = Volume to Capacity Ratio 0.000 to 0.600
Level of Service B = Volume to Capacity Ratio 0.601 to 0.700
Level of Service C = Volume to Capacity Ratio 0.701 to 0.800
Level of Service D = Volume to Capacity Ratio 0.801 to 0.900
Level of Service E = Volume to Capacity Ratio 0.901 to 1.000
Level of Service F = Volume to Capacity Ratio 1.001 and up

For Existing traffic conditions, the study area roadway segments currently operate at acceptable Levels of Service (see Table 1).

The technique used to assess the capacity needs of an intersection is known as the Intersection Delay Method (see Appendix F) based on the Highway Capacity Manual – Transportation Research Board Special Report 209. To calculate delay, the volume of traffic using the intersection is compared with the capacity of the intersection. It should be noted that the signalized intersections are considered deficient (Level of Service F) if the overall intersection critical volume to capacity ratio equals or exceeds 1.0, even if the level of service defined by the delay value is below the defined Level of Service standard. The volume to capacity ratio is defined as the critical volumes divided by the intersection capacity. A volume to capacity ratio greater than 1.0 implies that the traffic volume demand is greater than the capacity of the intersection and as a result traffic may begin to queue during the analyzed peak hour.

The existing delay and Level of Service for intersections in the vicinity of the project are shown in Table 2. Existing delay is based upon manual morning and evening peak hour turning movement counts made for Kunzman Associates, Inc. in October 2016 (see Figures 5 and 6). Traffic count worksheets are provided in Appendix C.

For Existing traffic conditions, the study area intersections currently operate at acceptable Levels of Service during the peak hours (see Table 2). Existing delay worksheets are provided in Appendix F.

3. General Plan Circulation Element

Figure 7 exhibits the current City of Moreno Valley General Plan Circulation Element. Existing and future roadways are included in the Circulation Element of the General Plan and are graphically depicted on Figure 7. This figure shows the nature and extent of arterial highways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan. The City of Moreno Valley General Plan roadway cross-sections are shown on Figure 8.

4. Transit Service

The study area is currently served by Riverside Transit Agency Routes 20, 35, 41, and 210 along Nason Street, Eucalyptus Avenue, Alessandro Boulevard, Cactus Avenue,

and Iris Avenue. The existing bus routes provided within the study area are shown on Figure 9.

5. Bicycle Facilities

The City of Moreno Valley bike paths are illustrated on Figure 10. Class II bike lanes exist on both sides of Nason Street along the project frontage.

6. Pedestrian Facilities

Existing pedestrian facilities are illustrated on Figure 11.

Table 1

Existing Roadway Segment Level of Service

Roadway	Segment	Number of Lanes[1]	Maximum Capacity at Level of Service E	Average Daily Traffic Volume	Volume to Capacity	Level of Service[2]
Nason Street	north of SR-60 Freeway WB Ramps	4D	37,500	6,000	0.160	A
	between SR-60 Freeway WB Ramps and SR-60 Freeway EB Ramps	4D	37,500	17,200	0.459	A
	between SR-60 Freeway EB Ramps and Fir Avenue	4D	37,500	17,600	0.469	A
	between Fir Avenue and Eucalyptus Avenue	4D	37,500	19,700	0.525	A
	south of Eucalyptus Avenue	4D	37,500	22,100	0.589	A
	north of Cottonwood Avenue	4D	37,500	20,000	0.533	A
	between Cottonwood Avenue and Alessandro Boulevard	4D	37,500	17,400	0.464	A
	between Alessandro Boulevard and Brodiaea Avenue	5D	46,850	16,400	0.350	A
	between Brodiaea Avenue and Hospital Road	4D	37,500	16,200	0.432	A
	between Hospital Road and Cactus Avenue	4D	37,500	13,200	0.352	A
	south of Cactus Avenue	4D	37,500	9,800	0.261	A
Fir Avenue	west of Nason Street	2U	12,500	6,900	0.552	A
Eucalyptus Avenue	west of Nason Street	4D	37,500	6,400	0.171	A
	east of Nason Street	4D	37,500	7,400	0.197	A
Cottonwood Avenue	west of Nason Street	2U	12,500	4,500	0.360	A
Alessandro Boulevard	west of Nason Street	2U	12,500	9,600	0.768	C
Brodiaea Avenue	west of Nason Street	2U	12,500	300	0.024	A
Cactus Avenue	west of Nason Street	4D	37,500	13,000	0.347	A
	east of Nason Street	2U	12,500	9,300	0.744	C

[1] #D = #-Lane Divided Roadway; #U = #-Lane Undivided Roadway.

[2] Level of Service, which is based on maximum capacity (Level of Service E).

Volume to Capacity Ratio
0.000 - 0.600
0.601 - 0.700
0.701 - 0.800
0.801 - 0.900
0.901 - 1.000
>1.000

Table 2

Existing Intersection Delay and Level of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Nason Street (NS) at:																
SR-60 Freeway WB Ramps (EW) - #1	California Department of Transportation	TS	1	2	1>	1	1.5	0.5	1	1	1>	1	1	1>	14.3-B	14.3-B
SR-60 Freeway EB Ramps (EW) - #2	California Department of Transportation	TS	0	2	d	1	2	0	1	0.5	1.5	0	0	0	14.2-B	15.2-B
Fir Avenue (EW) - #3	City of Moreno Valley	TS	1	2	d	1	2	1	1	0.5	0.5	1	1	1>	19.0-B	19.9-B
Eucalyptus Avenue (EW) - #4	City of Moreno Valley	TS	1	2	1	1	2	d	1	2	d	1	2	d	20.6-C	14.3-B
Dracaea Avenue (EW) - #5	City of Moreno Valley	TS	1	2	d	1	2	d	1	0.5	0.5	1	0.5	0.5	16.5-B	9.8-A
Cottonwood Avenue (EW) - #6	City of Moreno Valley	TS	1	2	d	1	2	1	1	1	1	1	1.5	0.5	15.9-B	12.1-B
Alessandro Boulevard (EW) - #7	City of Moreno Valley	TS	1	2	1	1	3	1	2	2	1	2	1	1	20.2-C	17.9-B
Brodiaea Avenue (EW) - #8	City of Moreno Valley	CSS	1	2	0	0	2.5	0.5	0	0	1	0	0	0	12.2-B	10.6-B
Hospital Road/Project Access (EW) - #10	City of Moreno Valley	TS	1	2	0	1	2	1	1	0	1	0	0	0	9.6-A	13.3-B
Cactus Avenue (EW) - #11	City of Moreno Valley	TS	2	2	1	1	2	1	1	1	1	1	0.5	0.5	28.3-C	20.7-C
Iris Avenue (EW) - #12	City of Moreno Valley	TS	1	0.5	0.5	1	1	1>	2	3	d	1	3	1	20.9-C	19.7-B

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right Turn Overlap; d = De Facto Right Turn

[2] Delay and level of service calculated using the following analysis software: Vistro version 4.00-00. Per the Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or a stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Figure 3
Existing Through Travel Lanes and Intersection Controls

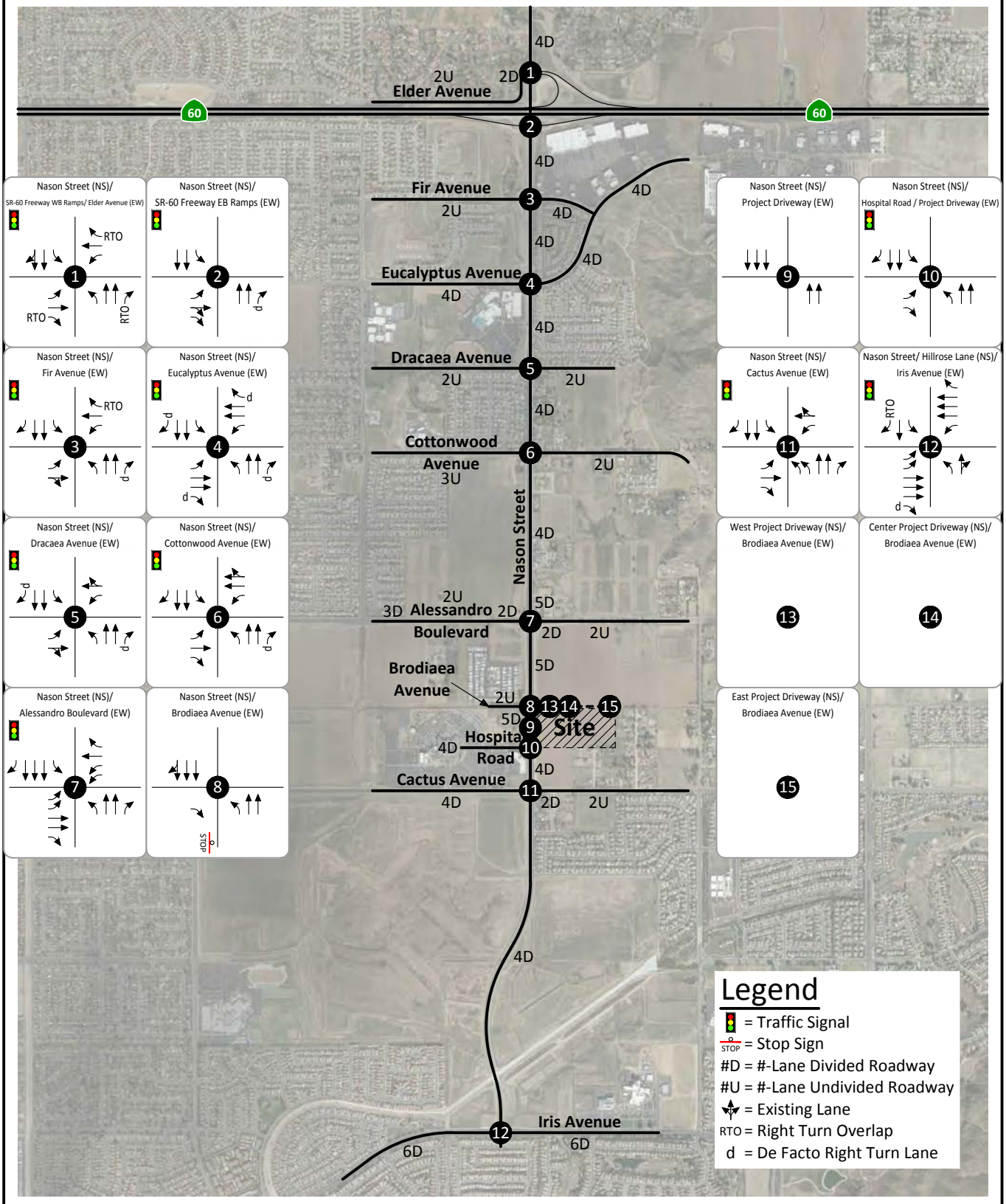


Figure 4
Existing Average Daily Traffic Volumes

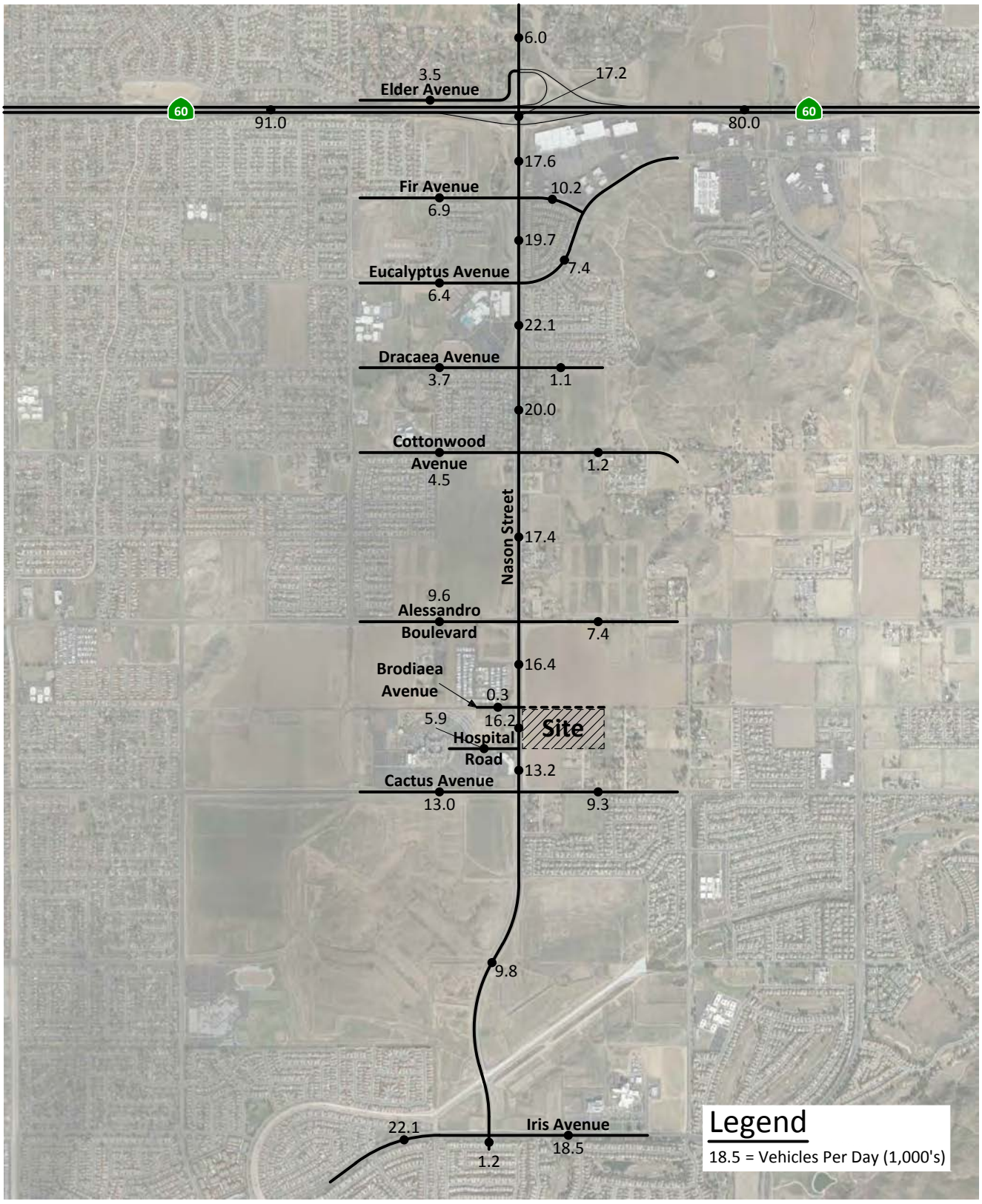


Figure 5
Existing Morning Peak Hour Intersection Turning Movement Volumes

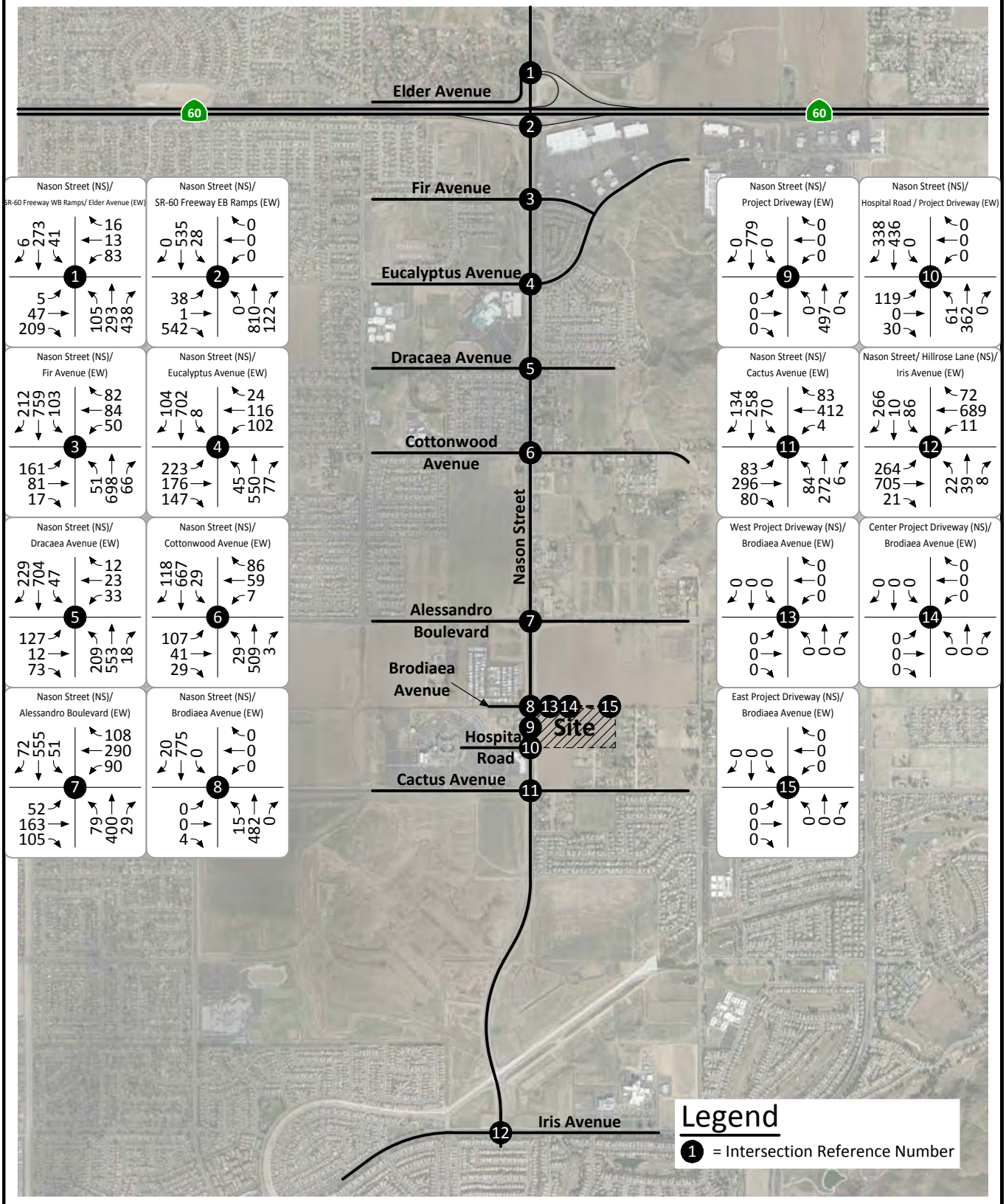


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Figure 6
Existing Evening Peak Hour Intersection Turning Movement Volumes

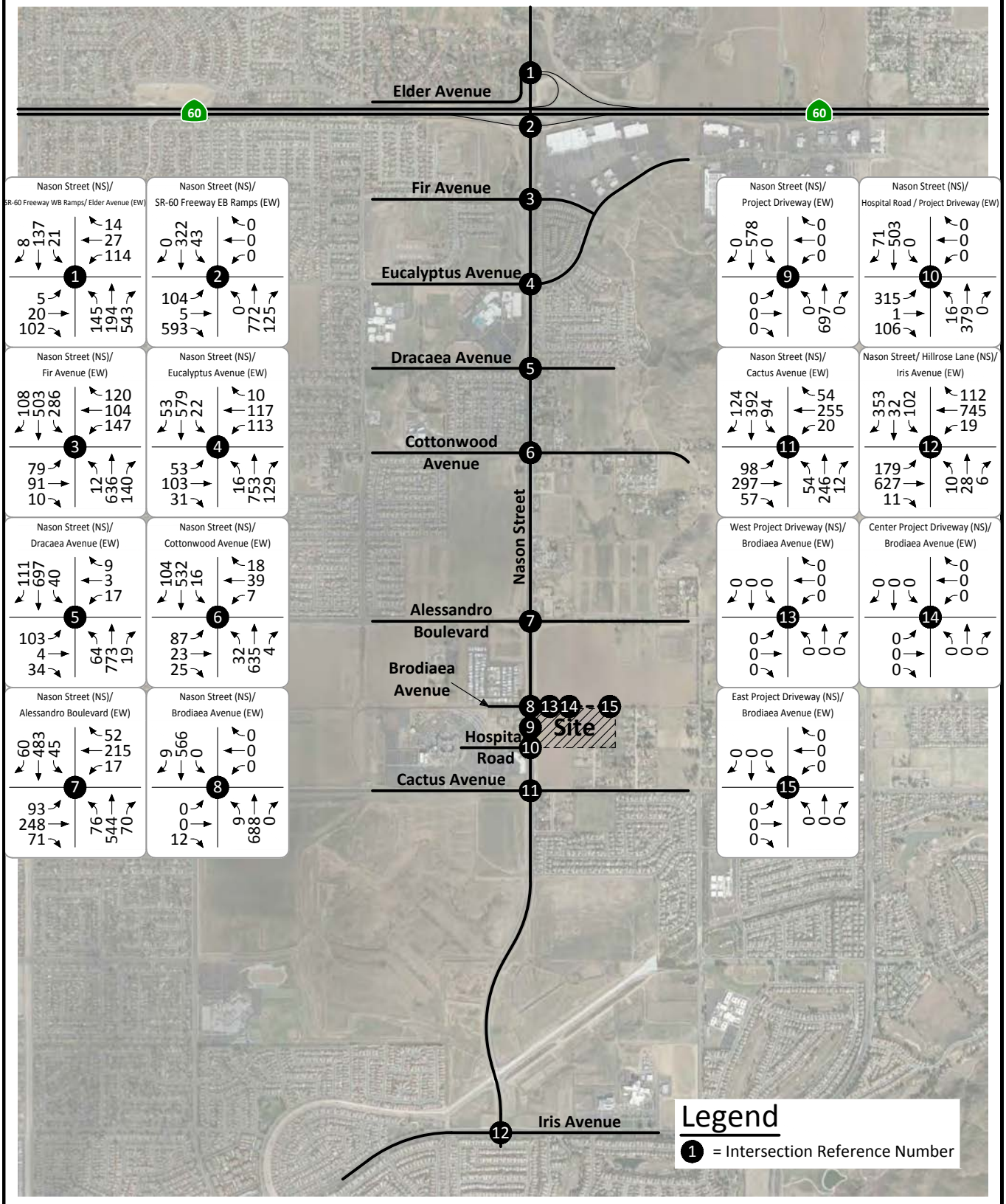

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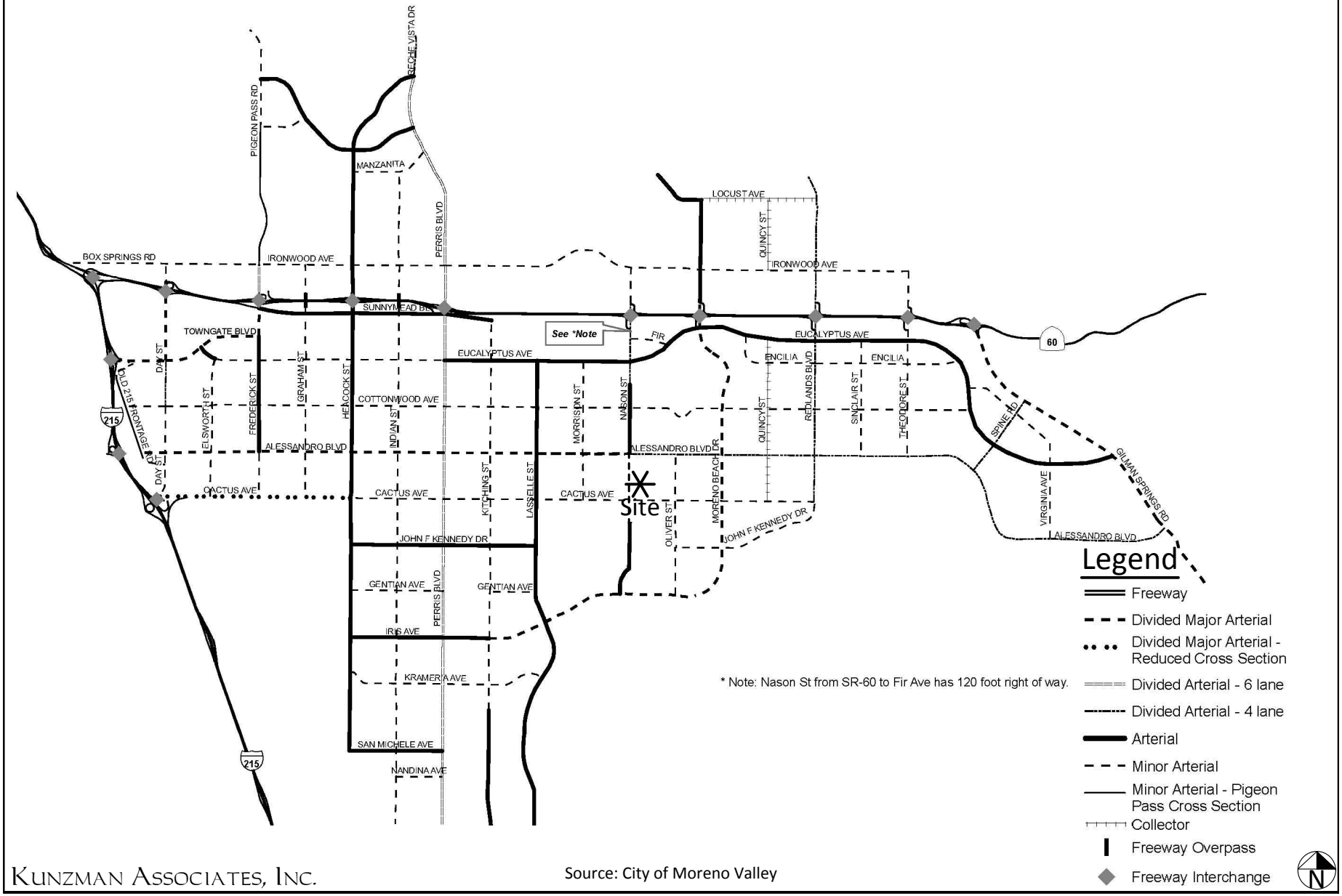
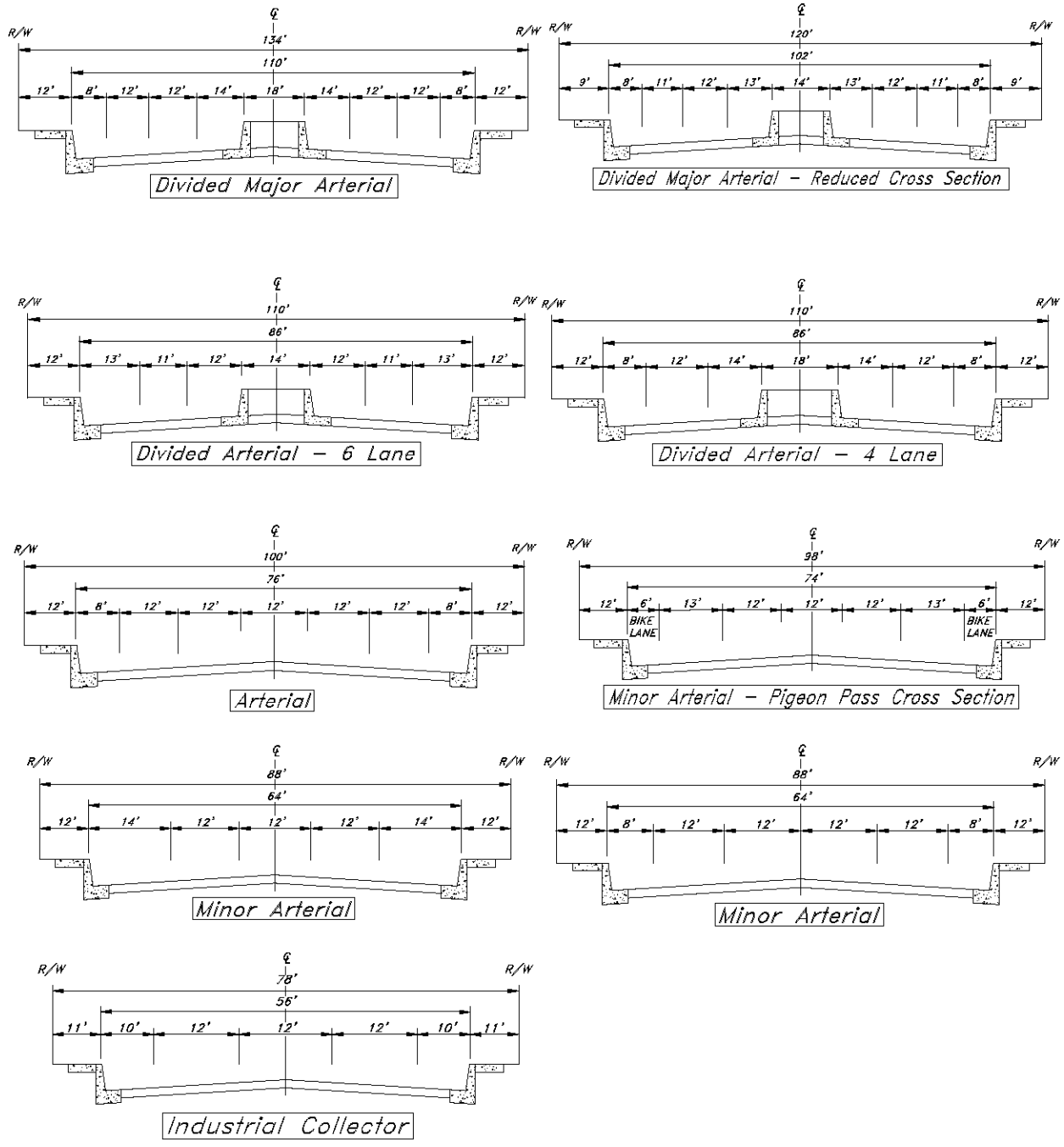
Figure 7
City of Moreno Valley General Plan Circulation Element



Source: City of Moreno Valley

Figure 8
City of Moreno Valley General Plan Roadway Cross-Sections



KUNZMAN ASSOCIATES, INC.

Source: City of Moreno Valley

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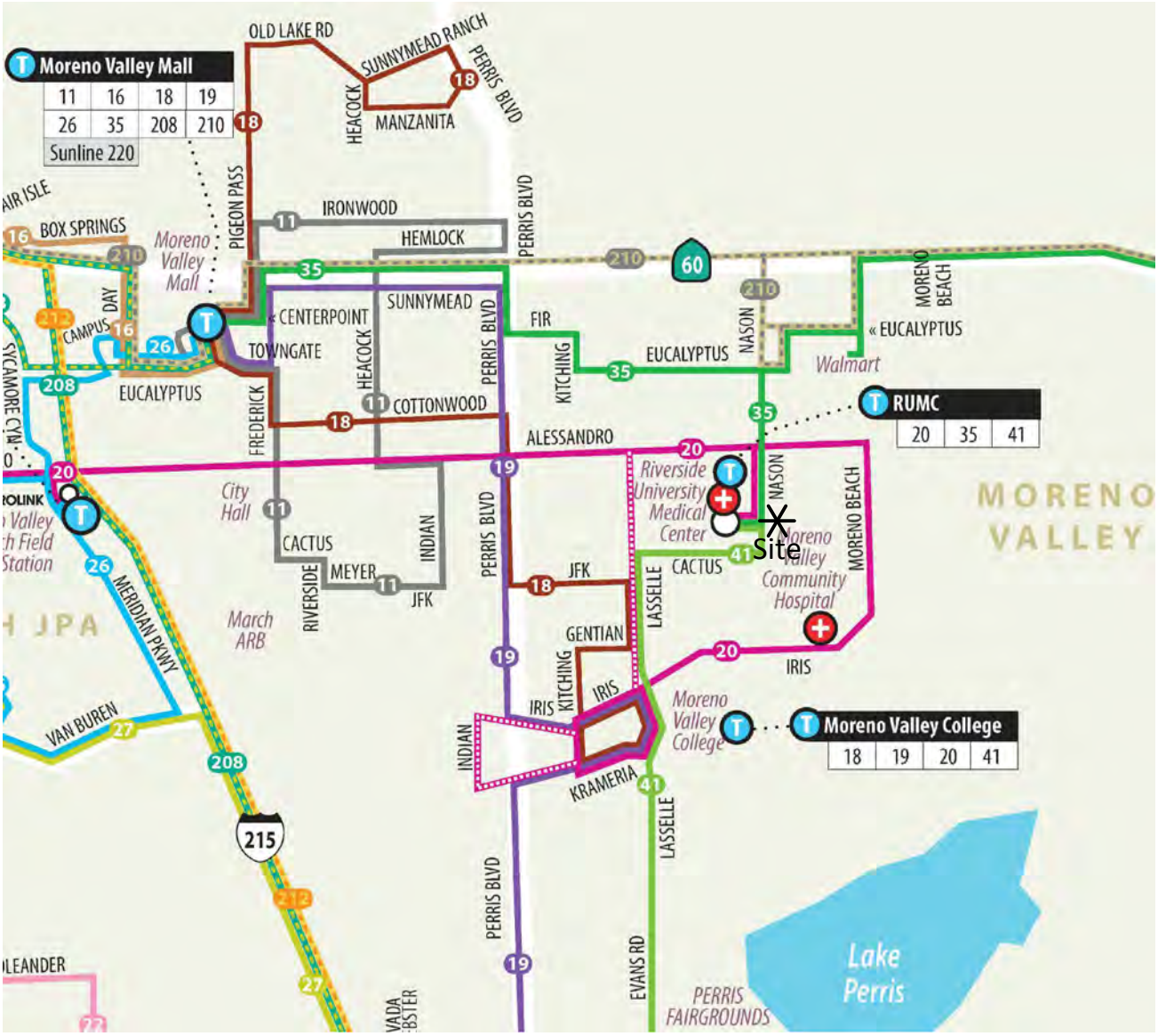
Figure 9
City of Moreno Valley Transit Routes



Legend

- Route Number
- Route Path
- Commuter Routing
- Alternate Routing
- Point of Interest
- Medical Facility
- Transfer Point
- Metrolink Station
- Interstate
- State Highway
- Main Road
- Water

KUNZMAN ASSOCIATES, INC.

Source: City of Moreno Valley

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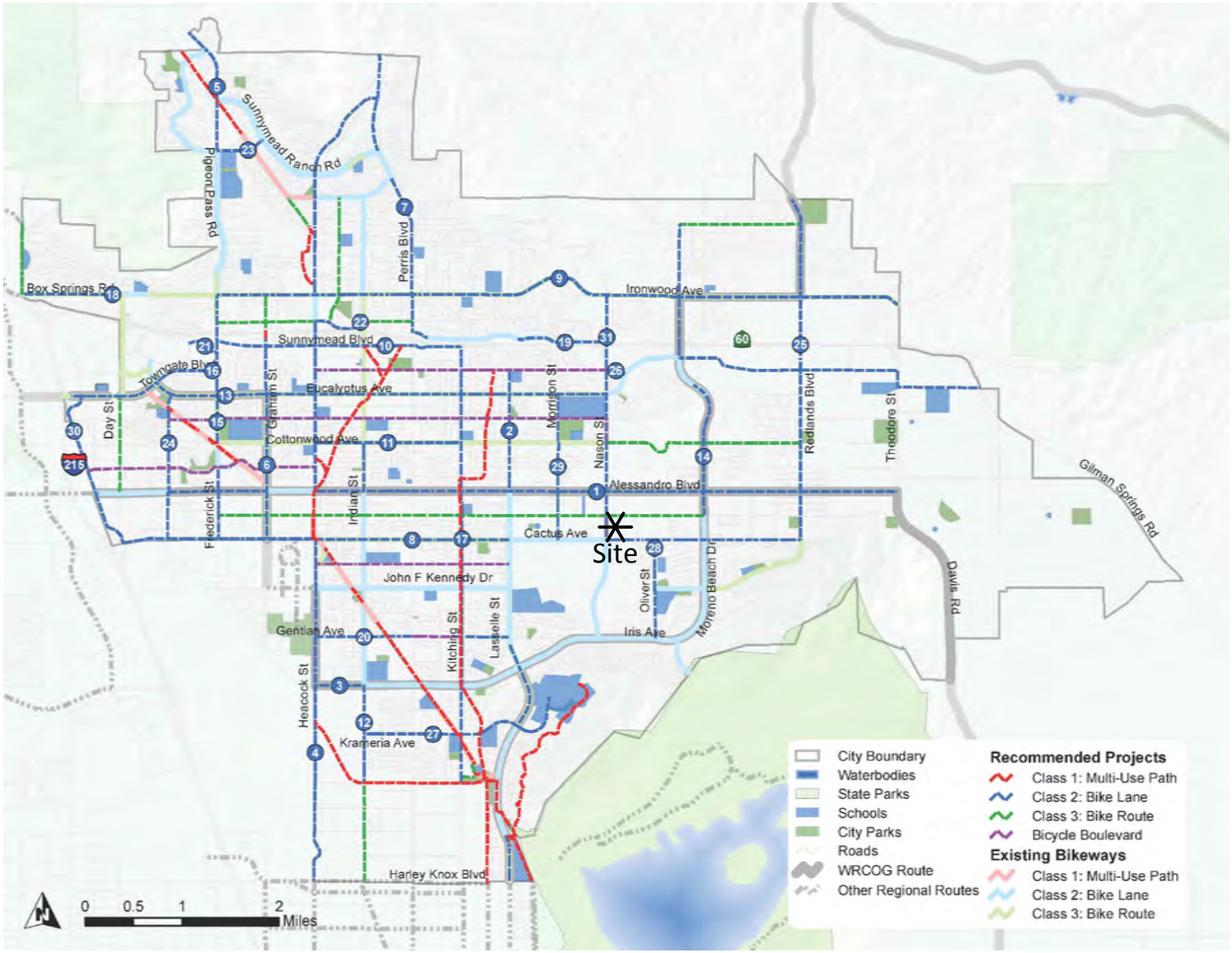
Figure 10
City of Moreno Valley Bikeways



Source: City of Moreno Valley

Figure 11
Existing Pedestrian Facilities

IV. PROJECT TRIPS

The project site is proposed to be developed with 114,480 square feet of medical office land use, 207 beds of assisted living land use, and 158 beds of nursing home land use. The project site is proposed to provide access to Nason Street, Brodiaea Avenue, and Hospital Road.

The site is proposed to be developed in three phases. Phase I consists of 207 beds of assisted living land use and is proposed to open in Year 2020. Phase II consists of 114,480 square feet of medical office land use and is proposed to open in Year 2021. Phase III consists of 158 beds of nursing home land use and is proposed to open in Year 2022.

A. Site Traffic

1. Trip Generation

The trips generated by the project are determined by multiplying an appropriate trip generation rate by the quantity of land use. Trip generation rates are predicated on the assumption that energy costs, the availability of roadway capacity, the availability of vehicles to drive, and life styles remain similar to what are known today. A major change in these variables may affect trip generation rates.

Trip generation rates were determined for daily traffic, morning peak hour inbound and outbound traffic, and evening peak hour inbound and outbound traffic for the proposed land uses. By multiplying the trip generation rates by the land use quantities, the traffic volumes are determined. Table 3 exhibits the trip generation rates, project peak hour volumes, and project daily traffic volumes. The trip generation rates are from the Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012.

The project is projected to generate a total of approximately 5,136 daily vehicle trips, 338 of which occur during the morning peak hour and 504 of which occur during the evening peak hour.

The current General Plan zoning for the approximately 18.38 acre site is R2. The R2 zoning allows up to 2 residential dwelling units per acre. The project site could potentially be developed with 36 residential dwelling units.

If developed with the current General Plan zoning, the project would be expected to generate approximately 343 daily vehicle trips, 27 of which occur during the morning peak hour and 36 of which occur during the evening peak hour.

2. Trip Distribution

Figures 12 to 17 contain the directional distributions of the project trips for the proposed land use by phase.

To determine the trip distributions for the proposed project, peak hour and daily traffic counts of the existing directional distribution of traffic for existing areas in the vicinity of the site, and other additional information on future development and traffic impacts in the area were reviewed.

3. Trip Assignment

Based on the identified project trip generation and distributions, project average daily traffic volumes by phase have been calculated and shown on Figures 18 to 20, respectively. Morning and evening peak hour intersection turning movement volumes expected from the project phases are shown on Figures 21 to 26, respectively.

4. Modal Split

The trip reducing potential of public transit has not been considered in this report. Essentially the traffic projections are conservative in that public transit might be able to reduce the traffic volumes.

Table 3

Project Trip Generation[1]

Proposed Development Trips									
			Peak Hour						
			Morning			Evening			
Land Use	Quantity	Units[2]	Inbound	Outbound	Total	Inbound	Outbound	Total	Daily
Trip Generation Rates									
Medical Office Building		TSF	1.89	0.50	2.39	1.00	2.57	3.57	36.13
Assisted Living		BD	0.12	0.06	0.18	0.14	0.15	0.29	2.74
Nursing Home		BD	0.12	0.05	0.17	0.07	0.15	0.22	2.74
Trips Generated (Phase I)									
Assisted Living	207	BD	25	12	37	29	31	60	567
Trips Generated (Phase II)									
Medical Office Building	114.480	TSF	216	58	274	114	295	409	4,136
Trips Generated (Phase III)									
Nursing Home	158	BD	19	8	27	11	24	35	433
Total			260	78	338	154	350	504	5,136

General Plan Land Use Trips									
			Peak Hour						
			Morning			Evening			
Land Use	Quantity	Units[2]	Inbound	Outbound	Total	Inbound	Outbound	Total	Daily
Trip Generation Rates									
Single-Family Detached Residential		DU	0.19	0.56	0.75	0.63	0.37	1.00	9.52
Trips Generated									
Single-Family Detached Residential	36	DU	7	20	27	23	13	36	343

[1] Source: Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012, Land Use Codes 210, 254, 620, and 720.

[2] TSF = Thousand Square Feet; BD = Number of Beds; DU = Dwelling Units

Figure 12
Project Phase I Outbound Trip Distribution

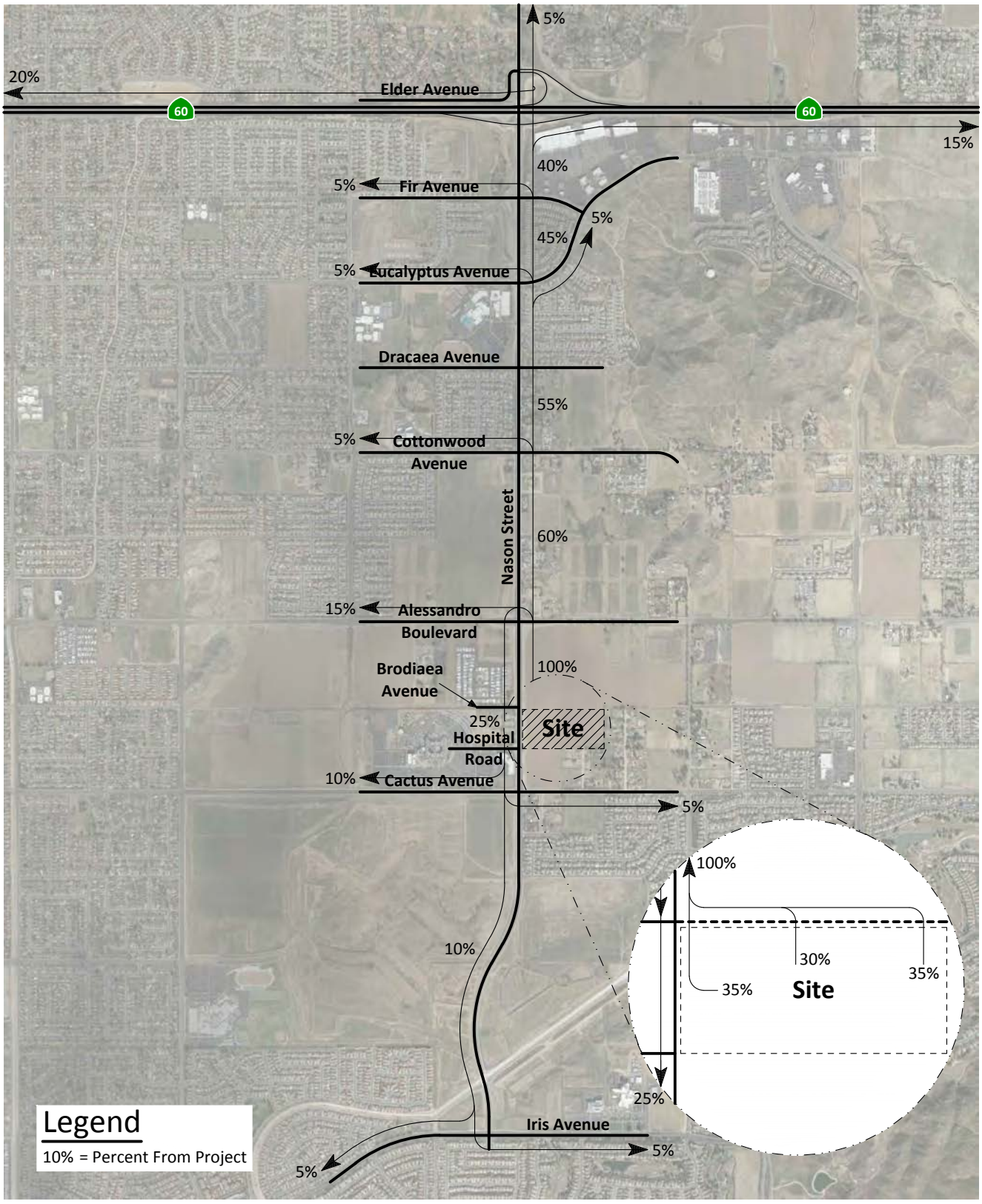


Figure 13
Project Phase I Inbound Trip Distribution

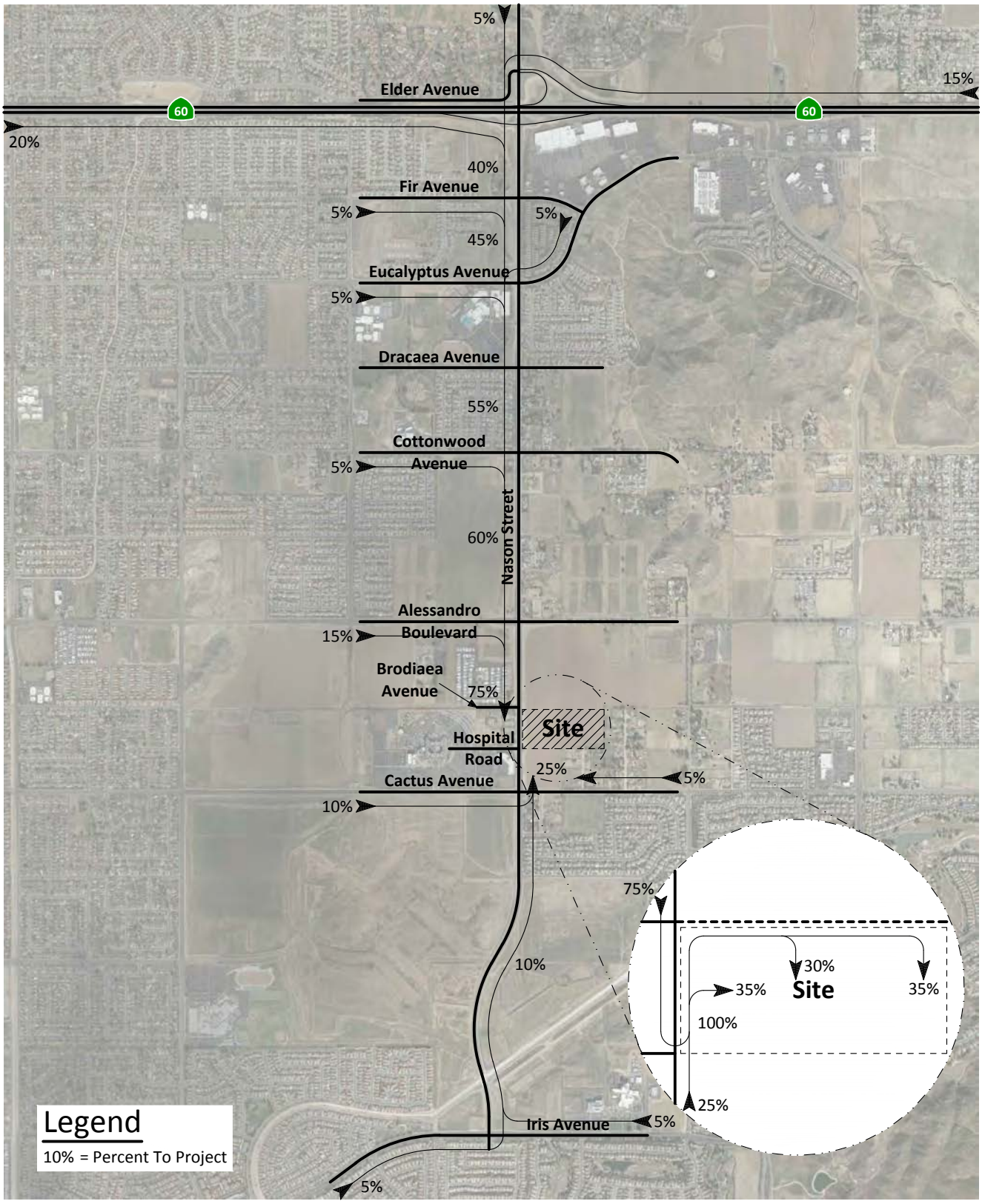


Figure 14
Project Phase II Outbound Trip Distribution

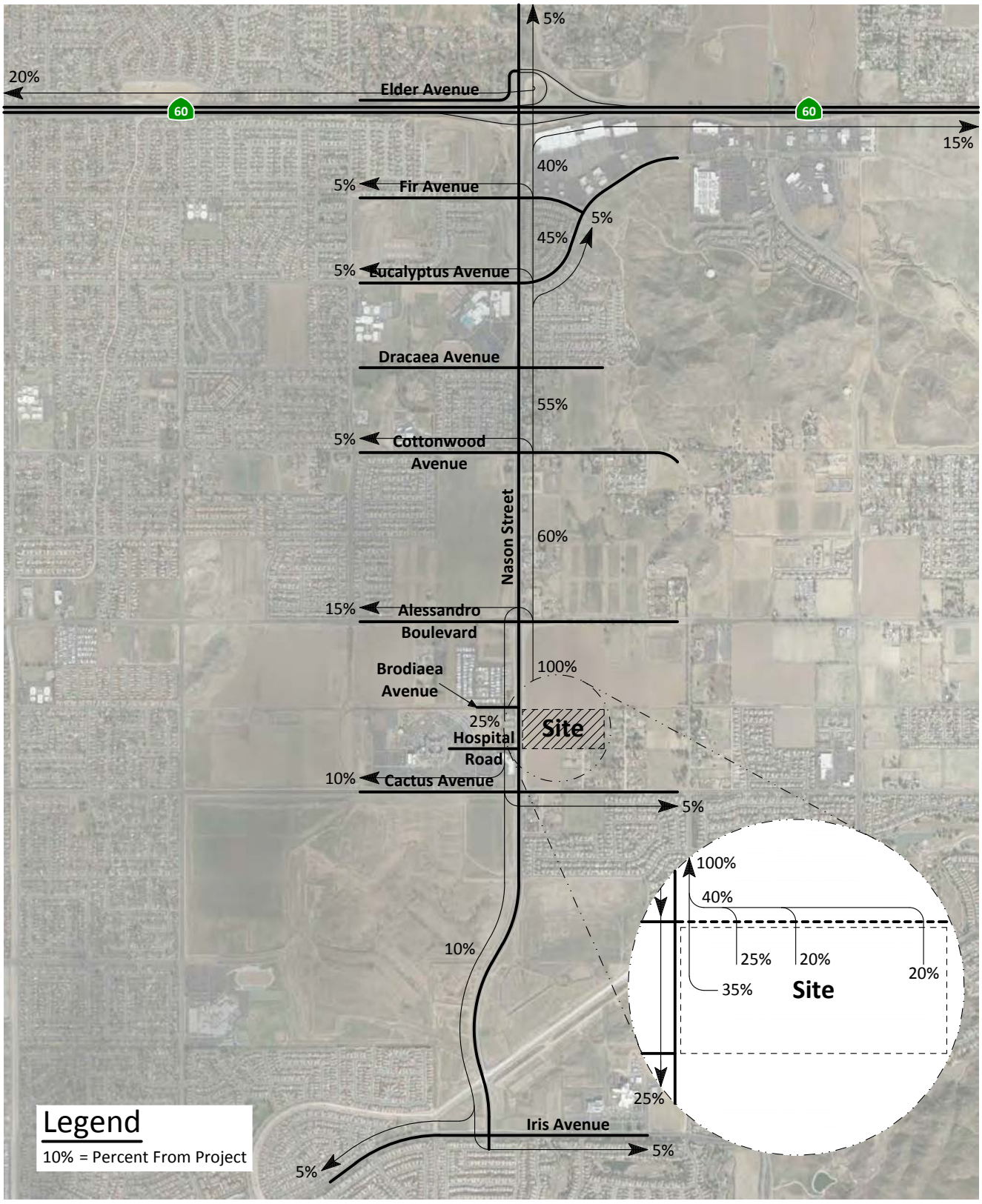


Figure 15
Project Phase II Inbound Trip Distribution

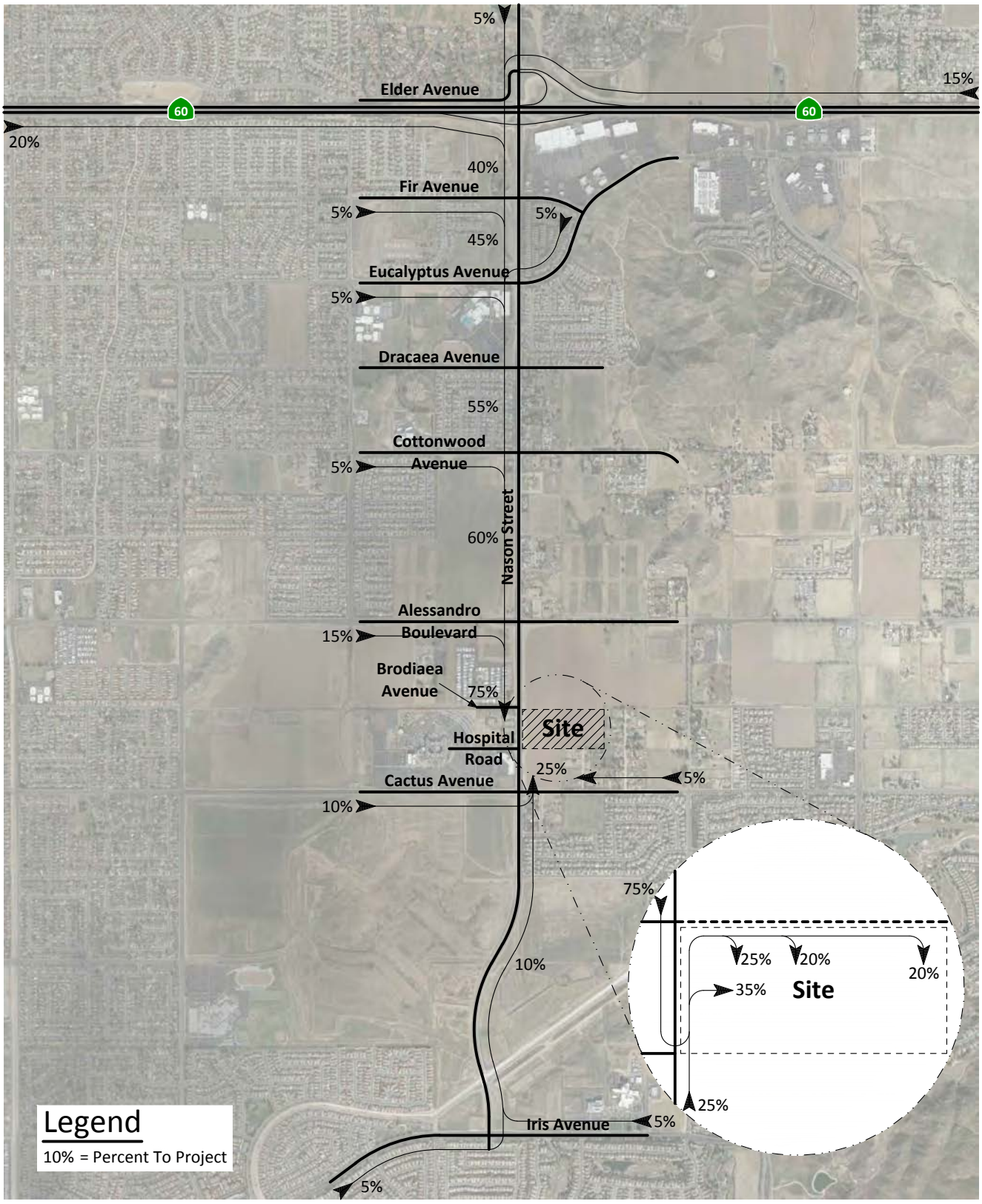


Figure 16
Project Phase III Outbound Trip Distribution

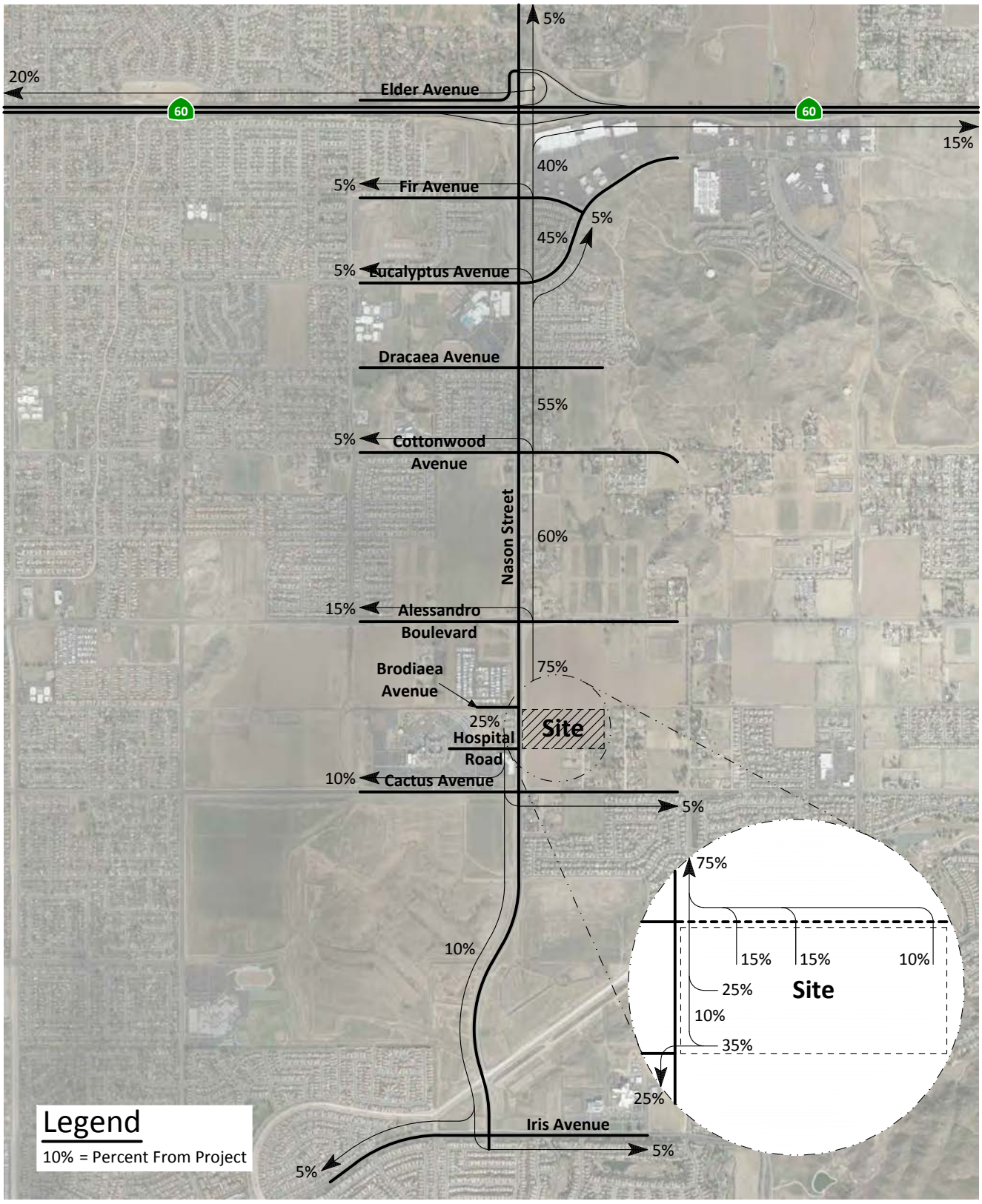


Figure 17
Project Phase III Inbound Trip Distribution

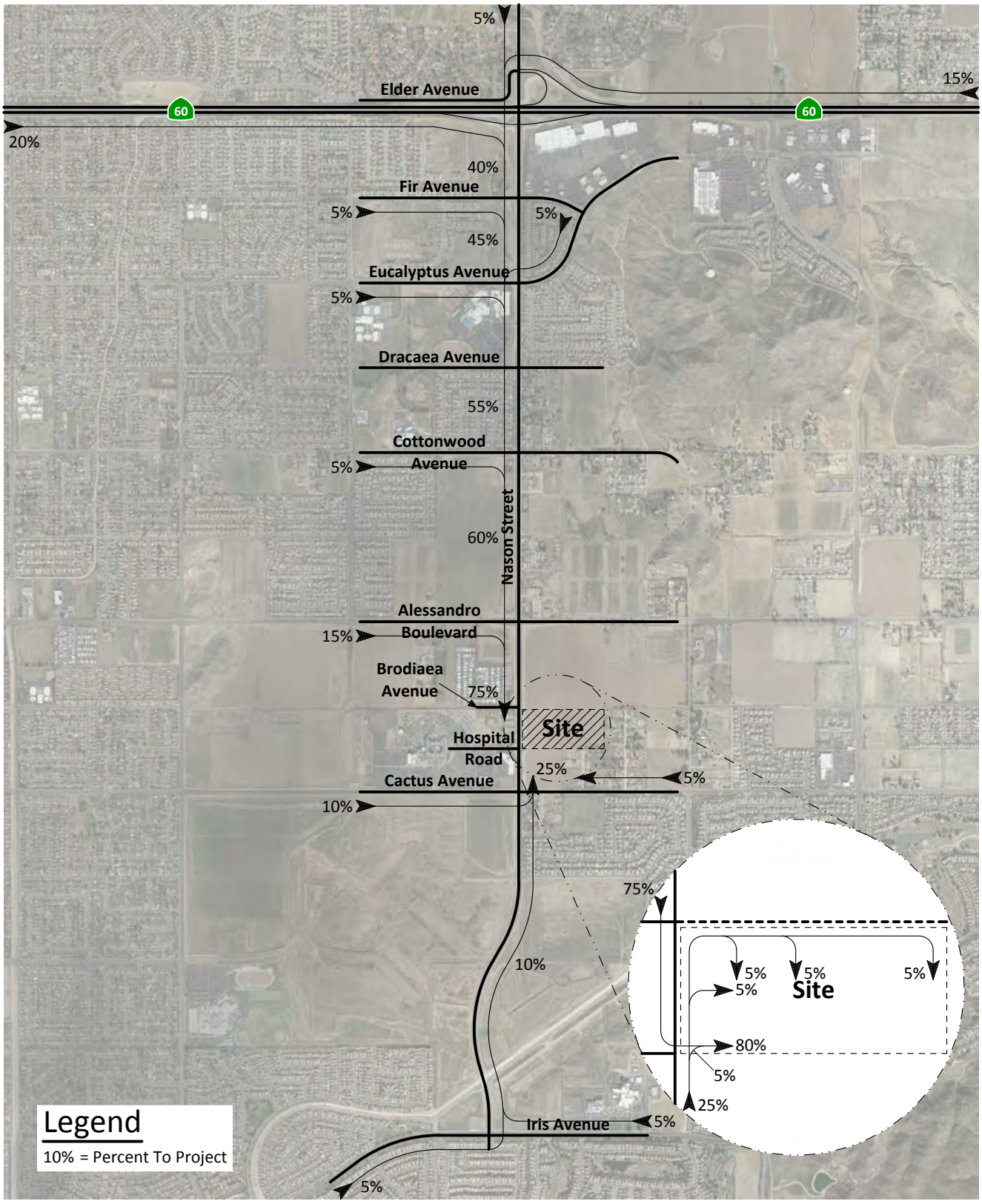


Figure 18
Project Phase I Average Daily Traffic Volumes

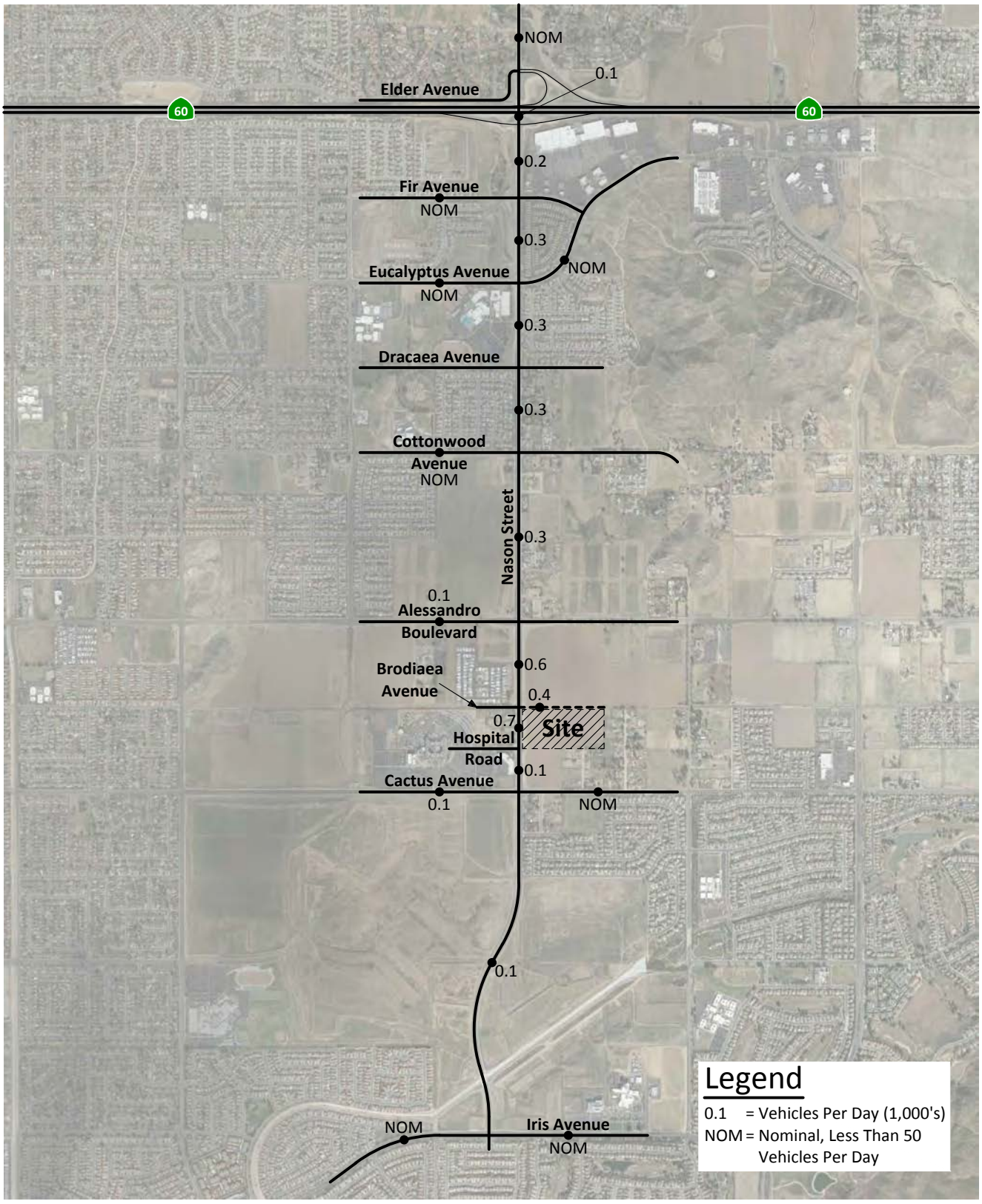


Figure 19
Project Phase II Average Daily Traffic Volumes

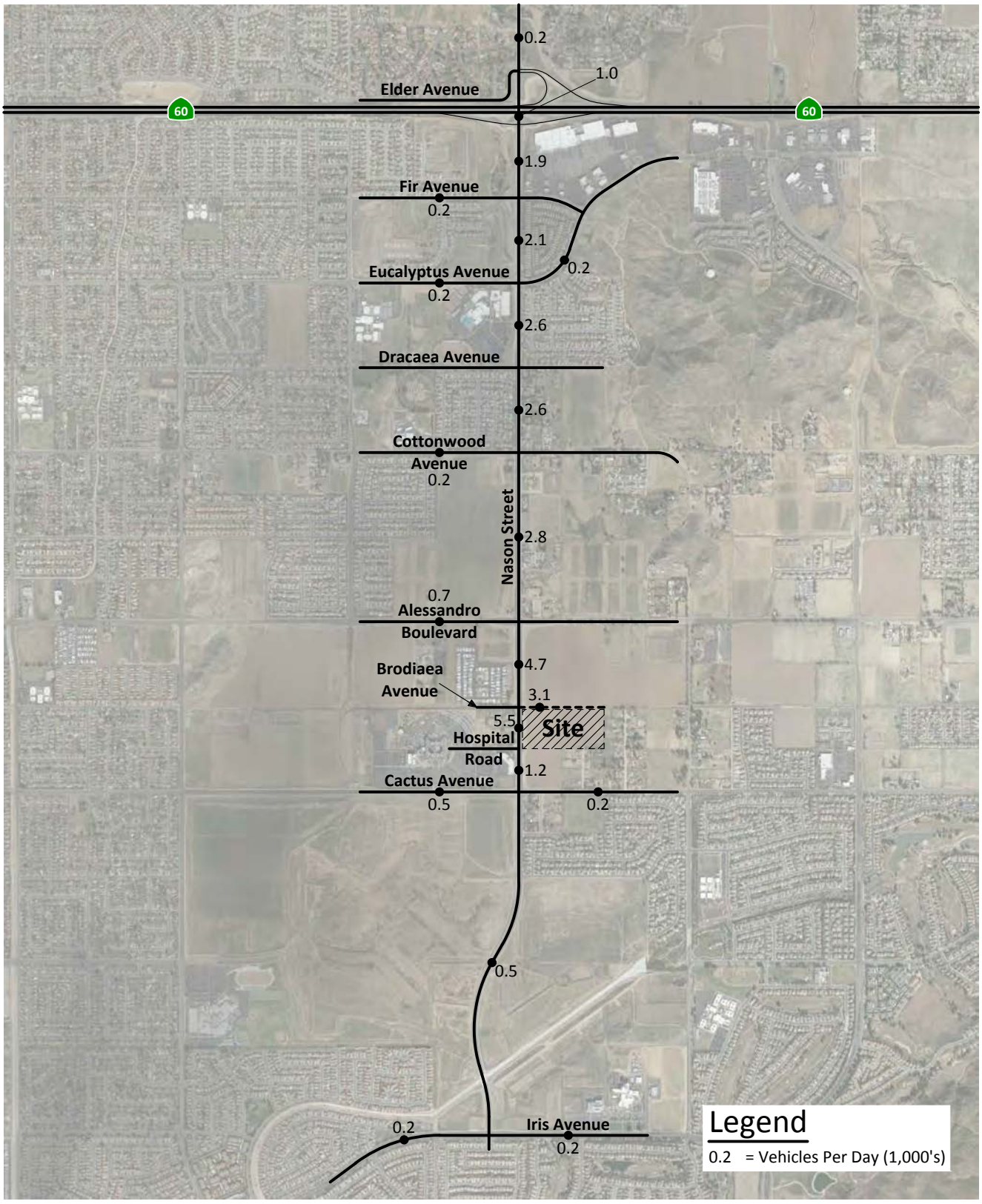


Figure 20
Project Phase III Average Daily Traffic Volumes

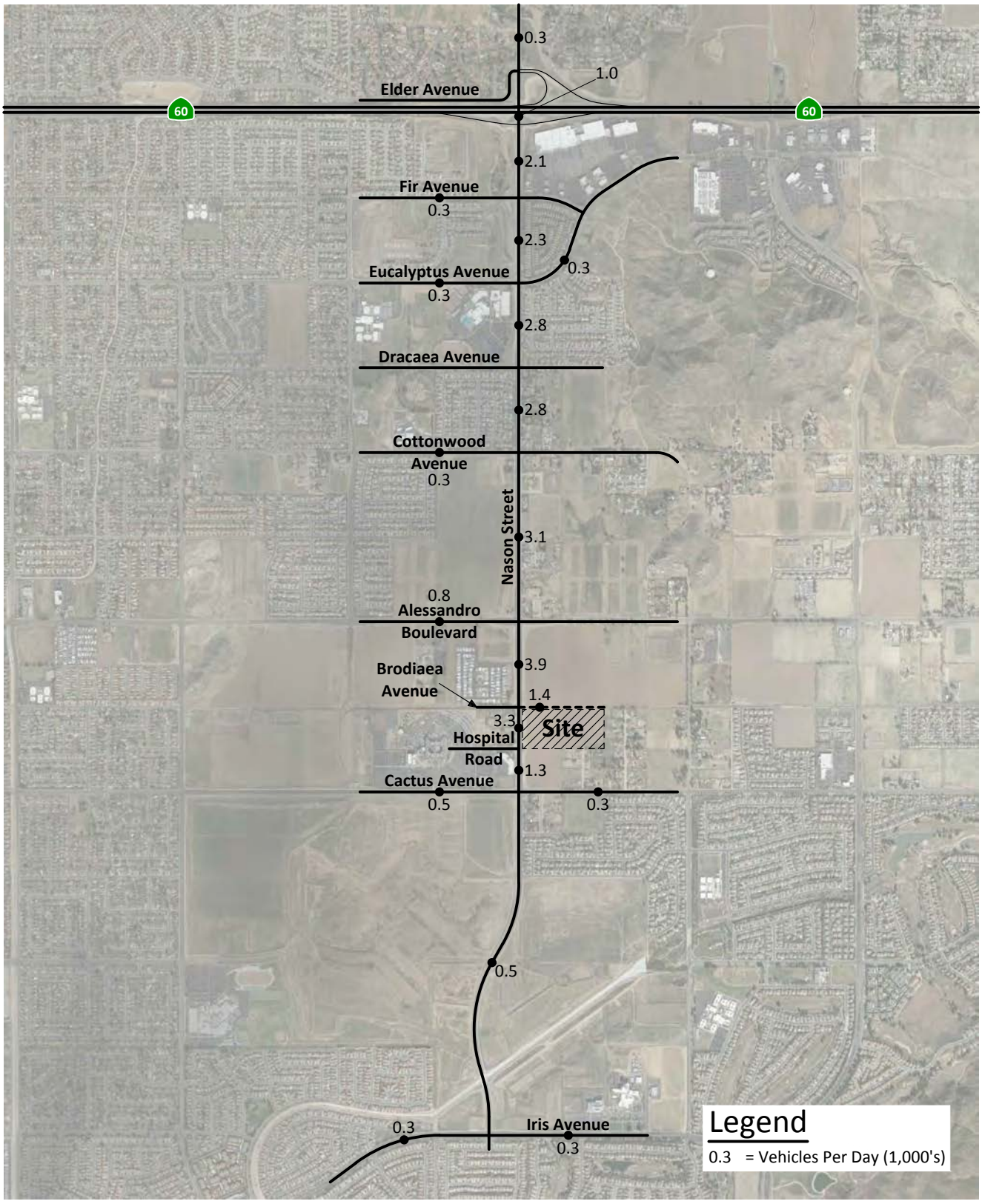


Figure 21
Project Phase I
Morning Peak Hour Intersection Turning Movement Volumes

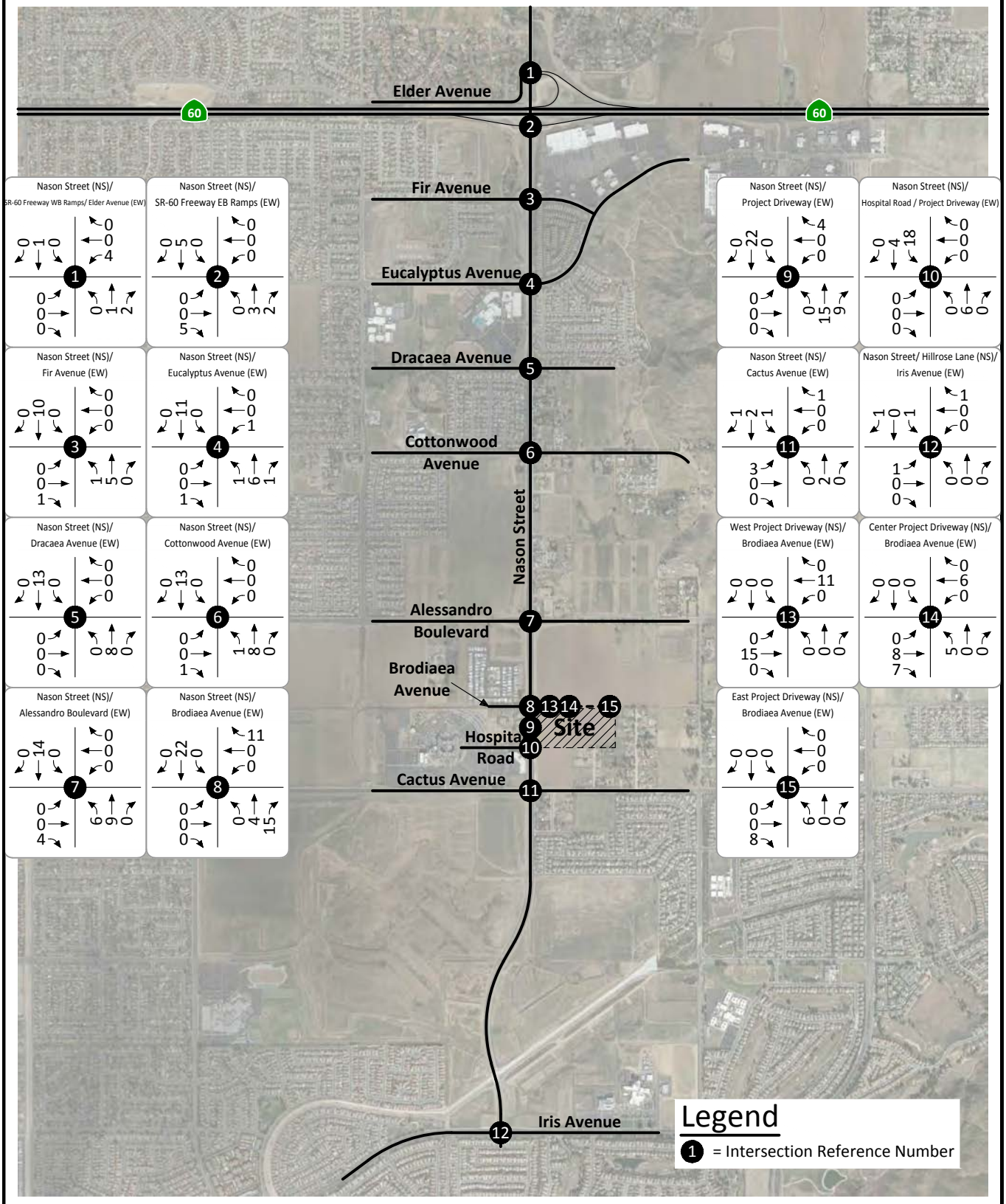


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Figure 22
Project Phase I
Evening Peak Hour Intersection Turning Movement Volumes

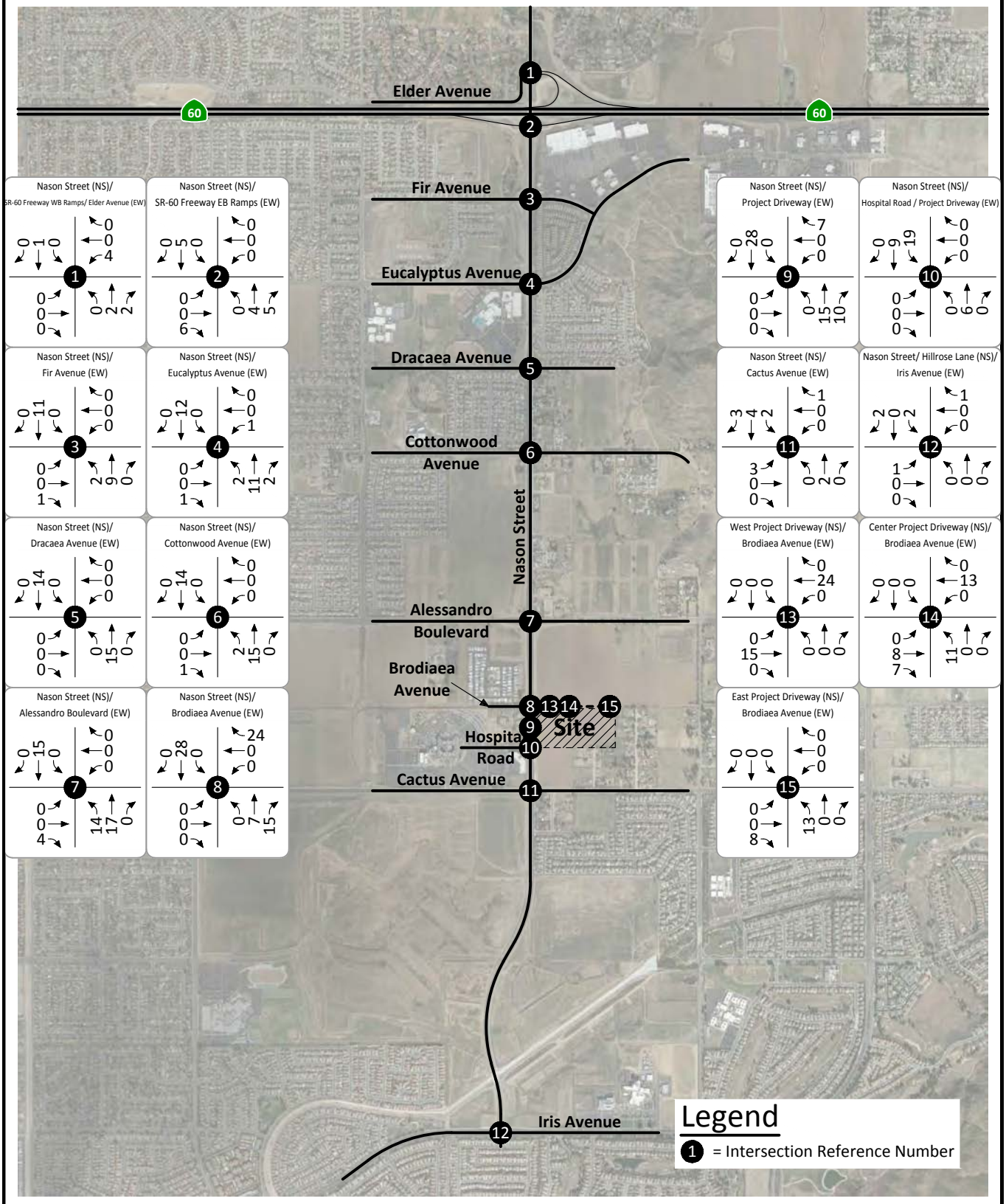

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Figure 23
Project Phase II
Morning Peak Hour Intersection Turning Movement Volumes

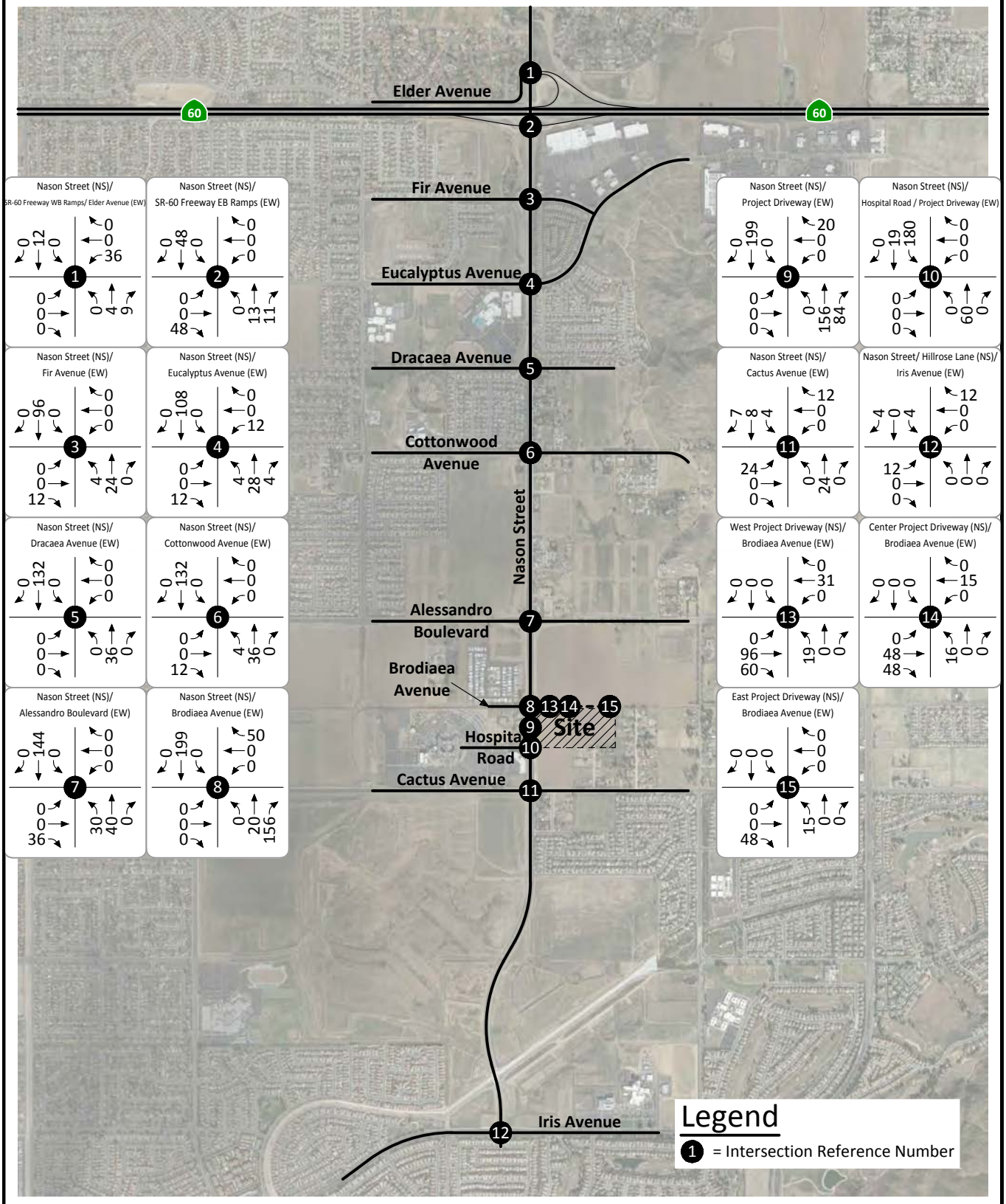

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Figure 24
Project Phase II
Evening Peak Hour Intersection Turning Movement Volumes

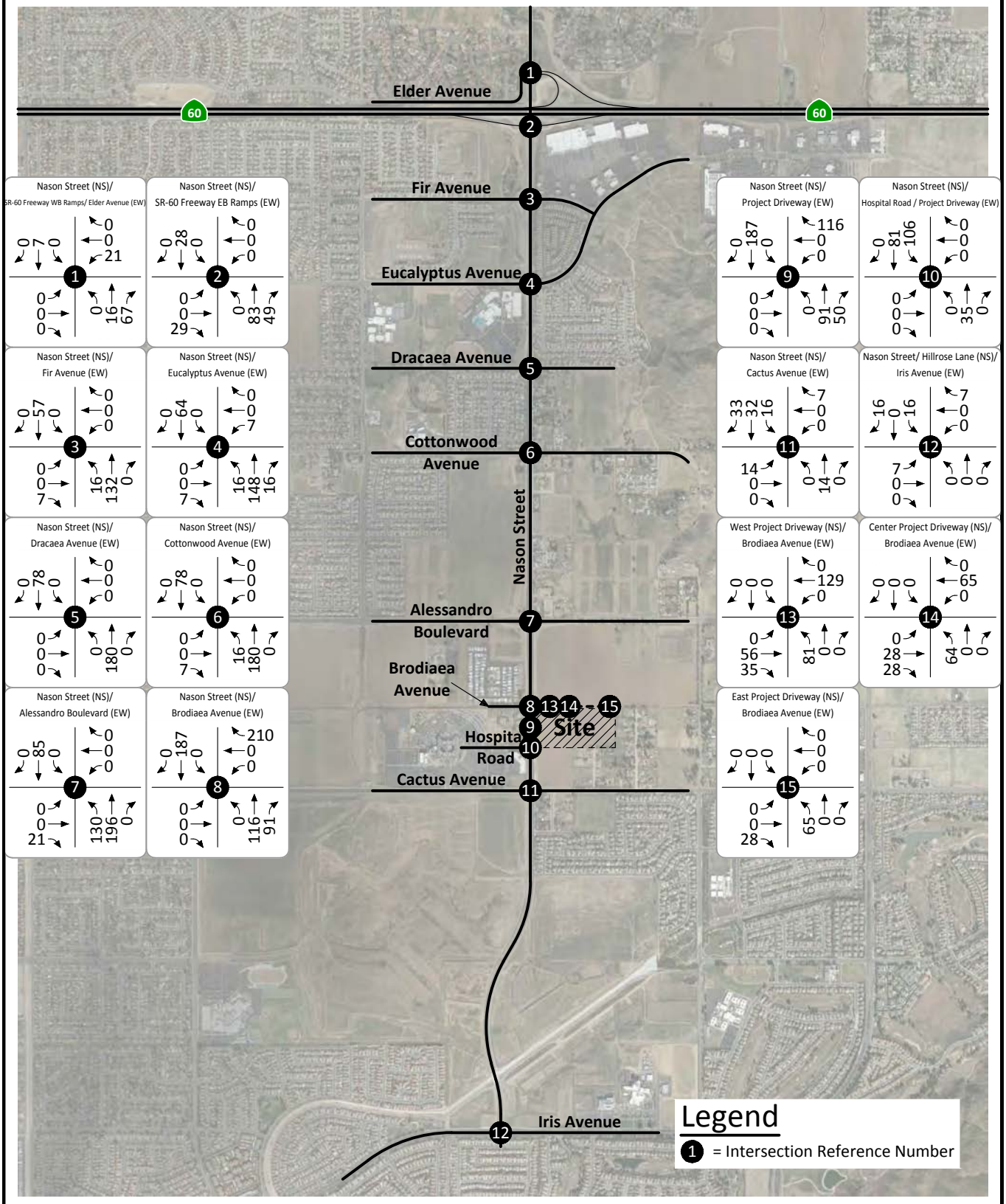

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Figure 25
Project Phase III
Morning Peak Hour Intersection Turning Movement Volumes

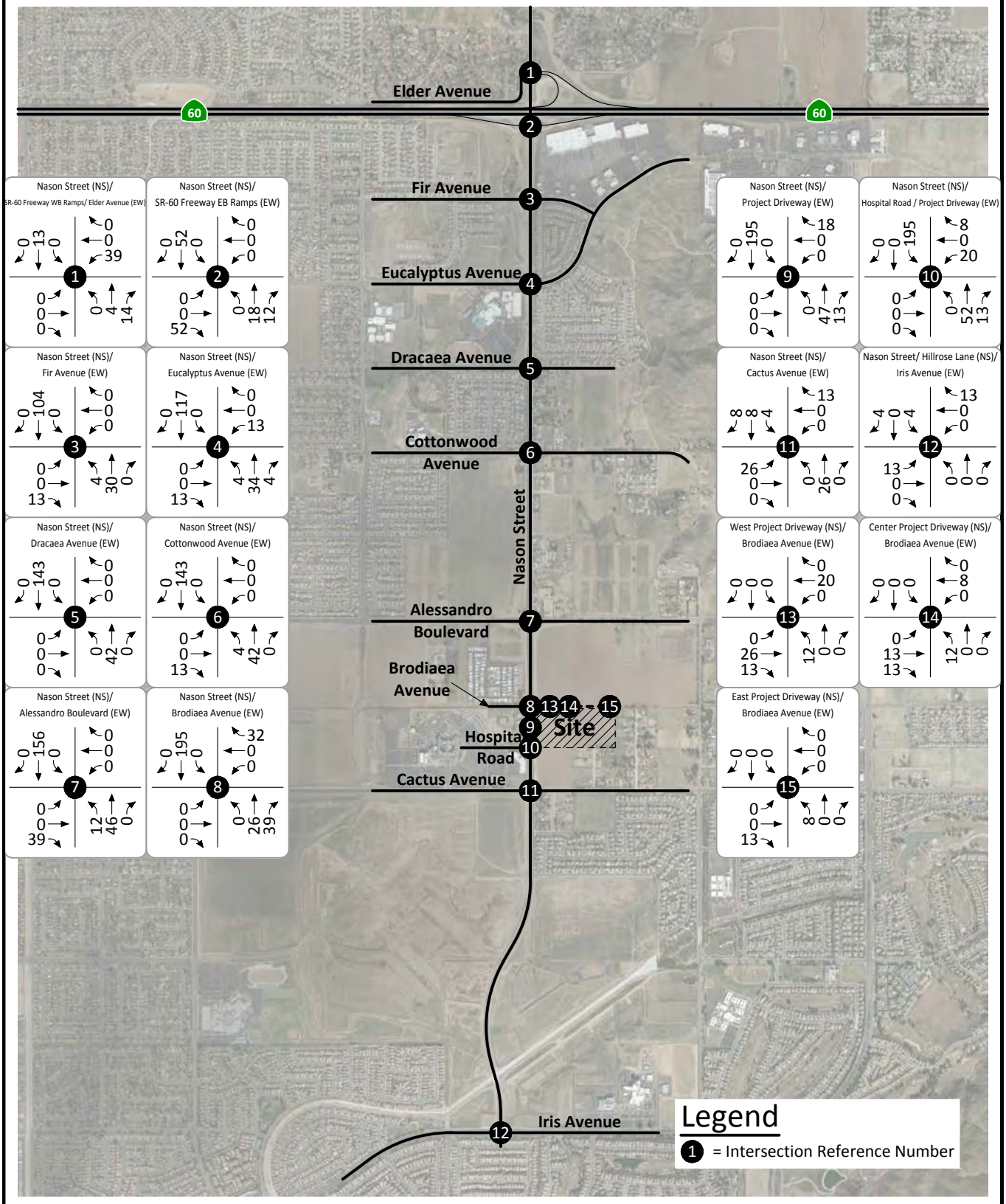

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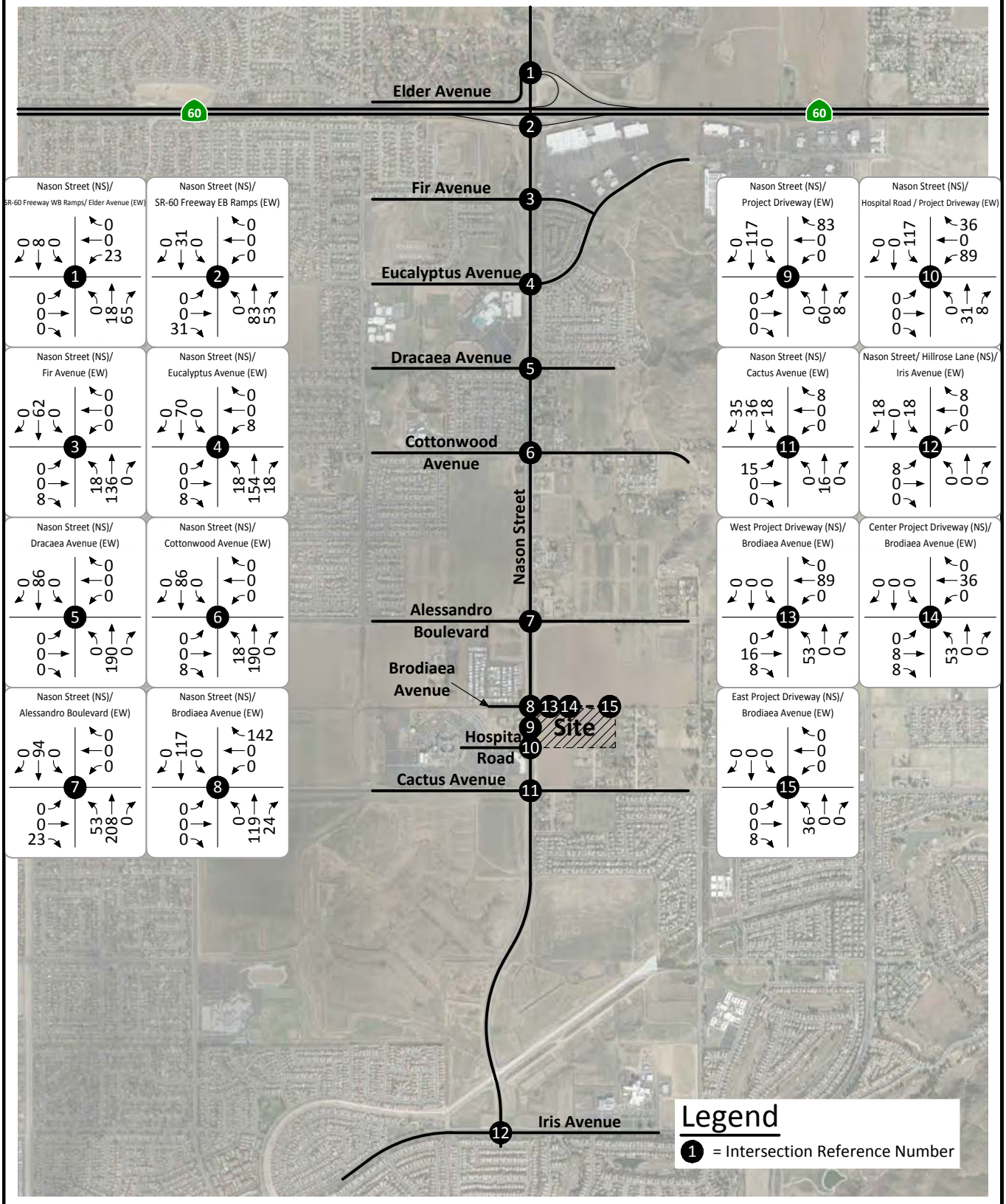
Figure 26
Project Phase III
Evening Peak Hour Intersection Turning Movement Volumes



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V. EXISTING PLUS PROJECT TRAFFIC CONDITIONS

To assess existing plus project traffic conditions, existing traffic is combined with project Phases I, II, and III traffic.

A. Roadway Segment Analysis

The roadway segment Levels of Service for Existing Plus Project Phases I, II, and III traffic conditions are shown in Table 4. For Existing Plus Project Phases I, II, and III traffic conditions, the study area roadway segments are projected to operate at acceptable Levels of Service.

Figure 27 shows the average daily traffic volumes that can be expected for Existing Plus Project Phases I, II, and III traffic conditions. For Existing Plus Project Phases I, II, and III traffic conditions, existing traffic is combined with trips generated by the project.

B. Intersection Delay and Level of Service Analysis

The technique used to assess the capacity needs of an intersection is known as the Intersection Delay Method (see Appendix F). Delay and Level of Service worksheets for each analysis scenario are provided in Appendix F. Morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figures 28 and 29, respectively.

The Existing Plus Project Phases I, II, and III delay and Level of Service for the study area intersections are shown in Table 5.

For Existing Plus Project Phases I, II, and III traffic conditions, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours.

Table 4

Existing Plus Project Roadway Segment Level of Service

Roadway	Segment	Number of Lanes[1]	Maximum Capacity at Level of Service E	Average Daily Traffic Volume	Volume to Capacity	Level of Service[2]
Nason Street	north of SR-60 Freeway WB Ramps	4D	37,500	6,300	0.168	A
	between SR-60 Freeway WB Ramps and SR-60 Freeway EB Ramps	4D	37,500	18,400	0.491	A
	between SR-60 Freeway EB Ramps and Fir Avenue	4D	37,500	19,700	0.525	A
	between Fir Avenue and Eucalyptus Avenue	4D	37,500	22,000	0.587	A
	south of Eucalyptus Avenue	4D	37,500	24,900	0.664	B
	north of Cottonwood Avenue	4D	37,500	22,800	0.608	B
	between Cottonwood Avenue and Alessandro Boulevard	4D	37,500	20,500	0.547	A
	between Alessandro Boulevard and Brodiaea Avenue	5D	46,850	20,300	0.433	A
	between Brodiaea Avenue and Hospital Road	4D	37,500	18,900	0.504	A
	between Hospital Road and Cactus Avenue	4D	37,500	14,500	0.387	A
	south of Cactus Avenue	4D	37,500	10,300	0.275	A
Fir Avenue	west of Nason Street	2U	12,500	7,200	0.576	A
Eucalyptus Avenue	west of Nason Street	4D	37,500	6,700	0.179	A
	east of Nason Street	4D	37,500	7,700	0.205	A
Cottonwood Avenue	west of Nason Street	2U	12,500	4,800	0.384	A
Alessandro Boulevard	west of Nason Street	2U	12,500	10,400	0.832	D
Brodiaea Avenue	west of Nason Street	2U	12,500	300	0.024	A
	east of Nason Street	2U	12,500	1,300	0.104	A
Cactus Avenue	west of Nason Street	4D	37,500	13,500	0.360	A
	east of Nason Street	2U	12,500	9,600	0.768	C

[1] #D = #-Lane Divided Roadway; #U = #-Lane Undivided Roadway.

[2] Level of Service, which is based on maximum capacity (Level of Service E).

Volume to Capacity Ratio
0.000 - 0.600
0.601 - 0.700
0.701 - 0.800
0.801 - 0.900
0.901 - 1.000
>1.000

Table 5

Existing Plus Project Intersection Delay and Level of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Nason Street (NS) at:																
SR-60 Freeway WB Ramps (EW) - #1	California Department of Transportation	TS	1	2	1>	1	1.5	0.5	1	1	1>	1	1	1>	14.8-B	14.8-B
SR-60 Freeway EB Ramps (EW) - #2	California Department of Transportation	TS	0	2	d	1	2	0	1	0.5	1.5	0	0	0	14.2-B	15.3-B
Fir Avenue (EW) - #3	City of Moreno Valley	TS	1	2	d	1	2	1	1	0.5	0.5	1	1	1>	19.6-B	20.5-C
Eucalyptus Avenue (EW) - #4	City of Moreno Valley	TS	1	2	1	1	2	d	1	2	d	1	2	d	21.6-C	15.0-B
Dracaea Avenue (EW) - #5	City of Moreno Valley	TS	1	2	d	1	2	d	1	0.5	0.5	1	0.5	0.5	17.2-B	9.8-A
Cottonwood Avenue (EW) - #6	City of Moreno Valley	TS	1	2	d	1	2	1	1	1	1	1	1.5	0.5	16.6-B	12.7-B
Alessandro Boulevard (EW) - #7	City of Moreno Valley	TS	1	2	1	1	3	1	2	2	1	2	1	1	20.7-C	18.6-B
Brodiaea Avenue (EW) - #8	City of Moreno Valley	CSS	1	**1.5**	**0.5**	0	2.5	0.5	0	0	1	0	0	1	13.7-B	15.0-B
Project Access (EW) - #9	City of Moreno Valley	**CSS**	0	2	**1**	0	3	0	0	0	0	0	0	**1**	10.0-A	11.7-B
Hospital Road/Project Access (EW) - #10	City of Moreno Valley	TS	1	2	**1**	1	2	1	0.5	0.5	1	**0.5**	**0.5**	**1**	17.3-B	21.2-C
Cactus Avenue (EW) - #11	City of Moreno Valley	TS	2	2	1	1	2	1	1	1	1	1	0.5	0.5	30.3-C	21.0-C
Iris Avenue (EW) - #12	City of Moreno Valley	TS	1	0.5	0.5	1	1	1>	2	3	d	1	3	1	20.9-C	19.8-B
Project West Access (NS) at:																
Brodiaea Avenue (EW) - #13	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.7-A	9.2-A
Project Central Access (NS) at:																
Brodiaea Avenue (EW) - #14	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.6-A	8.7-A
Project East Access (NS) at:																
Brodiaea Avenue (EW) - #15	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.5-A	8.5-A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; > = Right Turn Overlap; d = De Facto Right Turn; **BOLD** = Improvement

[2] Delay and level of service calculated using the following analysis software: Vistro version 4.00-00. Per the Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal c
stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Figure 27
Existing Plus Project Average Daily Traffic Volumes

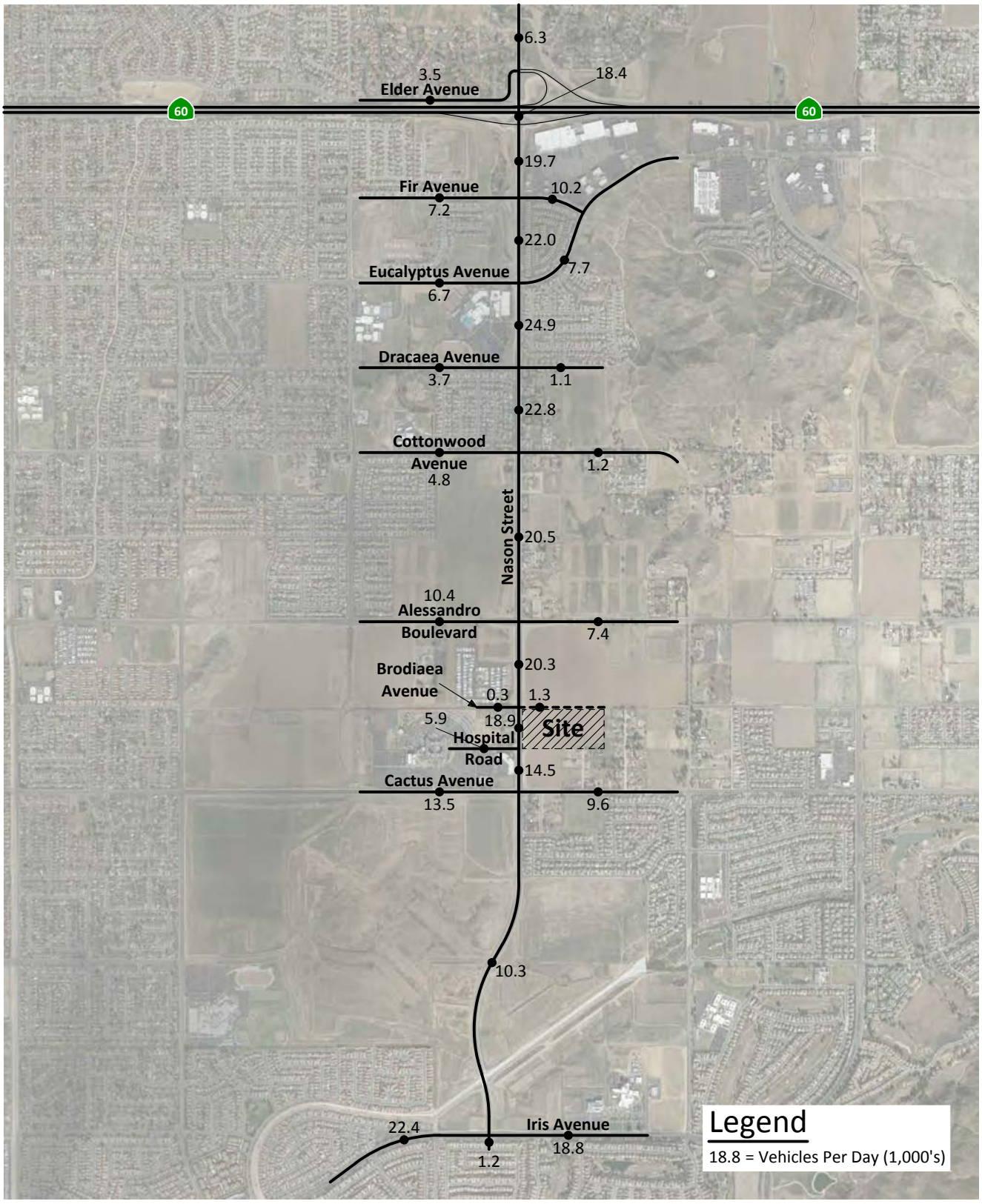

Figure 28
Existing Plus Project
Morning Peak Hour Intersection Turning Movement Volumes

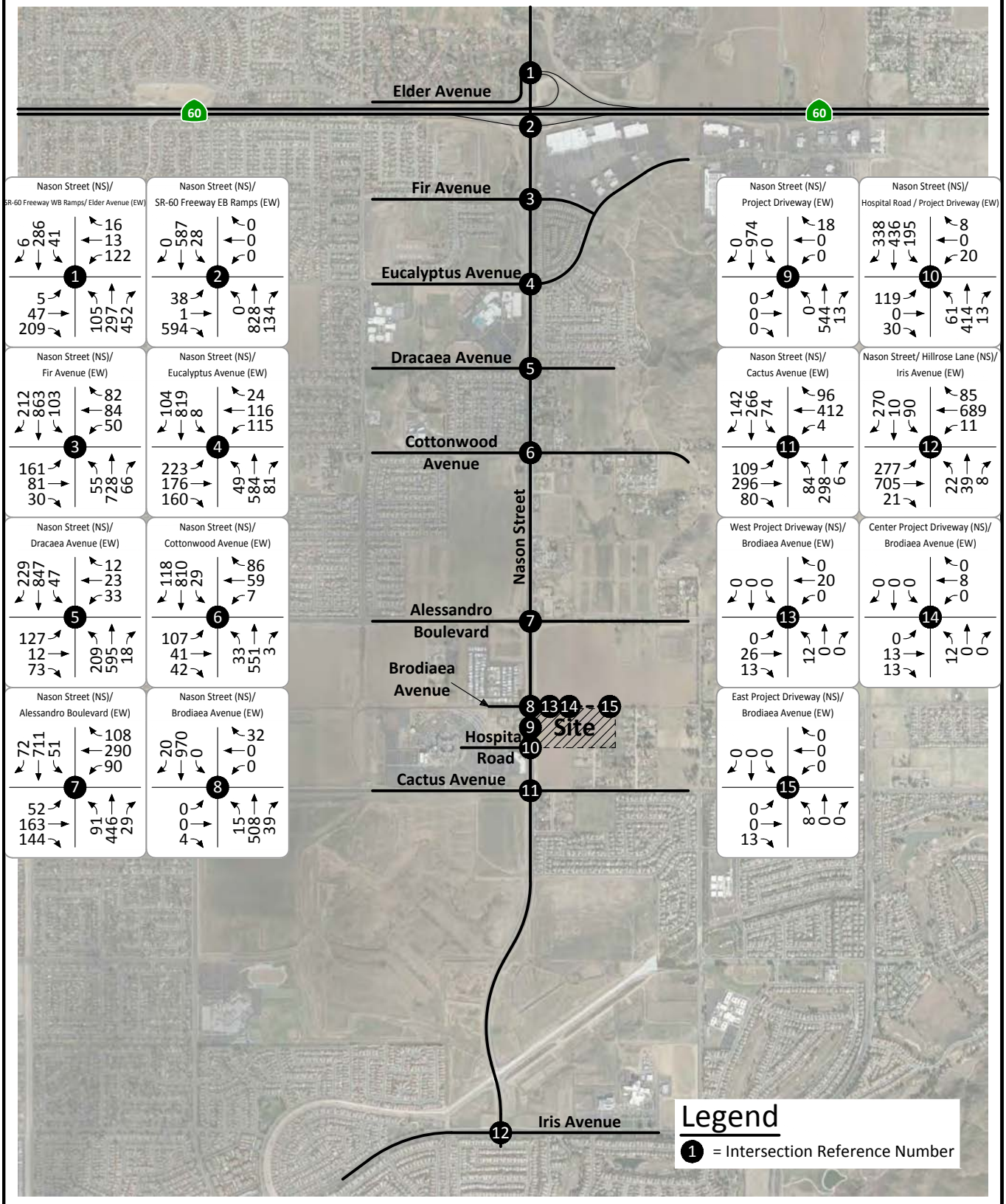

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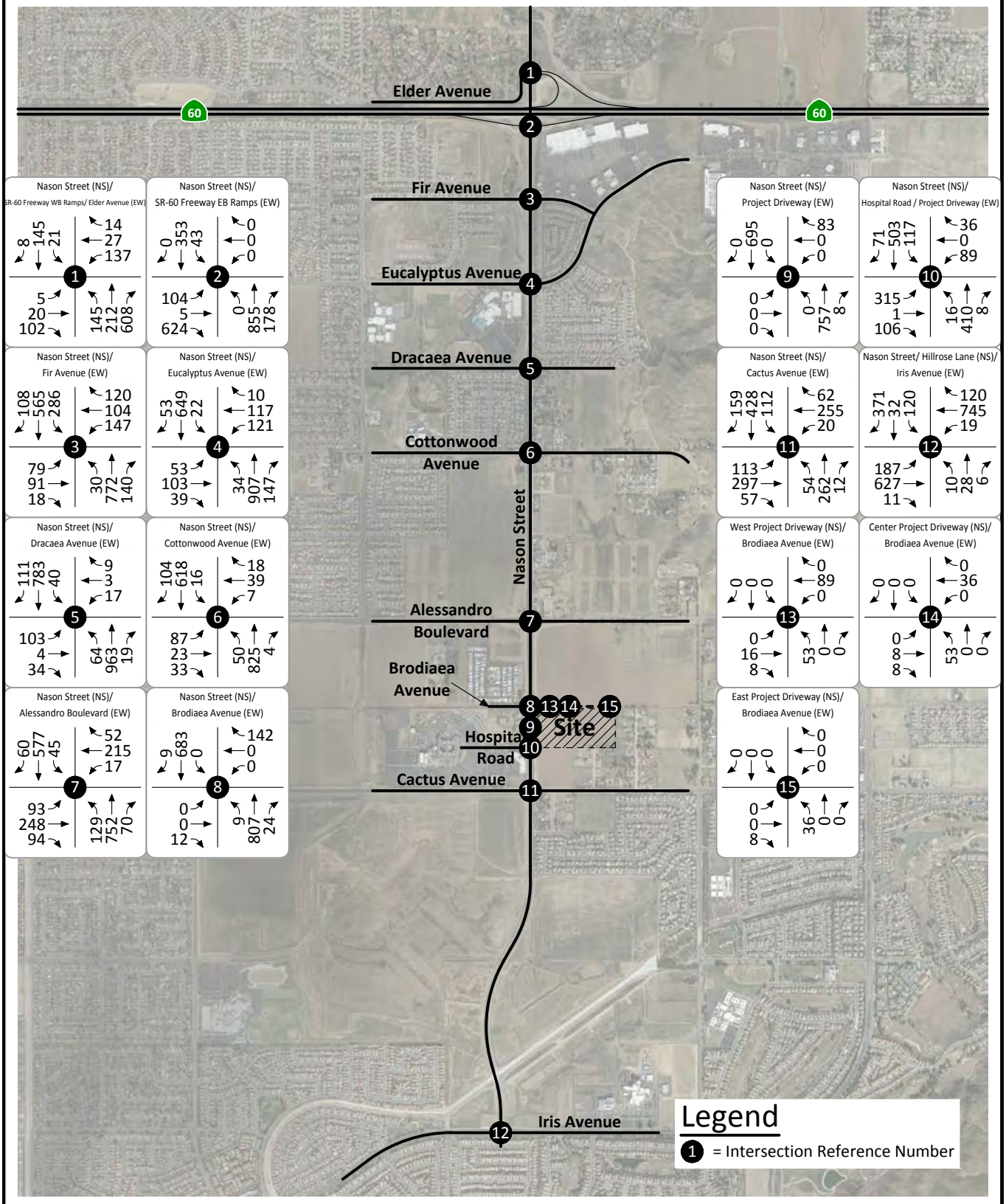
Figure 29
Existing Plus Project
Evening Peak Hour Intersection Turning Movement Volumes



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VI. OPENING YEAR (2020) TRAFFIC CONDITIONS

To assess future traffic conditions, the Moreno Valley Traffic Model data is used for Year 2040. The Opening Year for analysis purposes in this report is Year 2020 for Phase I.

A. Method of Projection

Based upon discussions with City of Moreno Valley, the Year 2040 traffic volume forecasts have been determined using the City of Moreno Valley Traffic Model data based on the Riverside County Traffic Analysis Model (RIVTAM) (see Appendix D).

The Opening Year (2020) traffic volumes have been interpolated from the Year 2040 traffic volumes based upon a portion of the future growth increment (see Appendix E).

B. Roadway Segment Analysis

1. Opening Year (2020) Without Project

The roadway segment Levels of Service for Opening Year (2020) Without Project conditions are shown in Table 6. For Opening Year (2020) Without Project traffic conditions, the following study area roadway segment is projected to operate at unacceptable Level of Service, without improvements:

Alessandro Boulevard west of Nason Street

For Opening Year (2020) Without Project traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

Figure 30 shows the average daily traffic volumes that can be expected for Opening Year (2020) Without Project traffic conditions.

2. Opening Year (2020) With Project Phase I

The roadway segment Levels of Service for Opening Year (2020) With Project Phase I conditions are shown in Table 7. For Opening Year (2020) With Project traffic conditions, the following study area roadway segment is projected to operate at an unacceptable Level of Service, without improvements:

Alessandro Boulevard west of Nason Street

For Opening Year (2020) With Project Phase I traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

Figure 31 shows the average daily traffic volumes that can be expected for Opening Year (2020) With Project Phase I traffic conditions. For Opening Year (2020) With

Project Phase I traffic conditions, Opening Year (2020) traffic is combined with trips generated by the project.

C. Intersection Delay and Level of Service Analysis

The technique used to assess the capacity needs of an intersection is known as the Intersection Delay Method (see Appendix F). Delay and Level of Service worksheets for each analysis scenario are provided in Appendix F.

1. Opening Year (2020) Without Project

The Opening Year (2020) Without Project delay and Level of Service for the study area intersections are shown in Table 8. Morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figures 32 and 33, respectively. For Opening Year (2020) Without Project traffic conditions, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours.

2. Opening Year (2020) With Project Phase I

The Opening Year (2020) With Project Phase I delay and Level of Service for the study area intersections are shown in Table 9. Morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figures 34 and 35, respectively. For Opening Year (2020) With Project Phase I traffic conditions, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours.

Table 6

Opening Year (2020) Without Project Roadway Segment Level of Service

Roadway	Segment	Number of Lanes[1]	Maximum Capacity at Level of Service E	Average Daily Traffic Volume	Volume to Capacity	Level of Service[2]
Nason Street	north of SR-60 Freeway WB Ramps	4D	37,500	6,300	0.168	A
	between SR-60 Freeway WB Ramps and SR-60 Freeway EB Ramps	4D	37,500	18,300	0.488	A
	between SR-60 Freeway EB Ramps and Fir Avenue	4D	37,500	18,700	0.499	A
	between Fir Avenue and Eucalyptus Avenue	4D	37,500	20,900	0.557	A
	south of Eucalyptus Avenue	4D	37,500	24,400	0.651	B
	north of Cottonwood Avenue	4D	37,500	22,300	0.595	A
	between Cottonwood Avenue and Alessandro Boulevard	4D	37,500	19,400	0.517	A
	between Alessandro Boulevard and Brodiaea Avenue	5D	46,850	18,200	0.388	A
	between Brodiaea Avenue and Hospital Road	4D	37,500	18,000	0.480	A
	between Hospital Road and Cactus Avenue	4D	37,500	15,000	0.400	A
	south of Cactus Avenue	4D	37,500	11,600	0.309	A
Fir Avenue	west of Nason Street	2U	12,500	7,300	0.584	A
Eucalyptus Avenue	west of Nason Street	4D	37,500	7,600	0.203	A
	east of Nason Street	4D	37,500	10,500	0.280	A
Cottonwood Avenue	west of Nason Street	2U	12,500	4,800	0.384	A
Alessandro Boulevard	west of Nason Street					
	- Without Improvements	2U	12,500	12,400	0.992	E
	- With Improvements	**2D**	18,750	12,400	0.661	B
Brodiaea Avenue	west of Nason Street	2U	12,500	300	0.024	A
Cactus Avenue	west of Nason Street	4D	37,500	13,800	0.368	A
	east of Nason Street	2U	12,500	9,900	0.792	C

[1] #D = #-Lane Divided Roadway; #U = #-Lane Undivided Roadway; **BOLD** = Improvement.

[2] Level of Service, which is based on maximum capacity (Level of Service E).

Volume to Capacity Ratio
0.000 - 0.600
0.601 - 0.700
0.701 - 0.800
0.801 - 0.900
0.901 - 1.000
>1.000

Table 7

Opening Year (2020) With Project Roadway Segment Level of Service

Roadway	Segment	Number of Lanes[1]	Maximum Capacity at Level of Service E	Average Daily Traffic Volume	Volume to Capacity	Level of Service[2]
Nason Street	north of SR-60 Freeway WB Ramps	4D	37,500	6,300	0.168	A
	between SR-60 Freeway WB Ramps and SR-60 Freeway EB Ramps	4D	37,500	18,400	0.491	A
	between SR-60 Freeway EB Ramps and Fir Avenue	4D	37,500	18,900	0.504	A
	between Fir Avenue and Eucalyptus Avenue	4D	37,500	21,200	0.565	A
	south of Eucalyptus Avenue	4D	37,500	24,700	0.659	B
	north of Cottonwood Avenue	4D	37,500	22,600	0.603	B
	between Cottonwood Avenue and Alessandro Boulevard	4D	37,500	19,700	0.525	A
	between Alessandro Boulevard and Brodiaea Avenue	5D	46,850	18,600	0.397	A
	between Brodiaea Avenue and Hospital Road	4D	37,500	18,300	0.488	A
	between Hospital Road and Cactus Avenue	4D	37,500	15,100	0.403	A
	south of Cactus Avenue	4D	37,500	11,700	0.312	A
Fir Avenue	west of Nason Street	2U	12,500	7,300	0.584	A
Eucalyptus Avenue	west of Nason Street	4D	37,500	7,600	0.203	A
	east of Nason Street	4D	37,500	10,500	0.280	A
Cottonwood Avenue	west of Nason Street	2U	12,500	4,800	0.384	A
Alessandro Boulevard	west of Nason Street					
	- Without Improvements	2U	12,500	12,500	1.000	E
	- With Improvements	**2D**	18,750	12,500	0.667	B
Brodiaea Avenue	west of Nason Street	2U	12,500	300	0.024	A
	east of Nason Street	2U	12,500	200	0.016	A
Cactus Avenue	west of Nason Street	4D	37,500	13,900	0.371	A
	east of Nason Street	2U	12,500	9,900	0.792	C

[1] #D = #-Lane Divided Roadway; #U = #-Lane Undivided Roadway; **BOLD** = Improvement.

[2] Level of Service, which is based on maximum capacity (Level of Service E).

Volume to Capacity Ratio
0.000 - 0.600
0.601 - 0.700
0.701 - 0.800
0.801 - 0.900
0.901 - 1.000
>1.000

Table 8

Opening Year (2020) Without Project Intersection Delay and Level of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Nason Street (NS) at:																
SR-60 Freeway WB Ramps (EW) - #1	California Department of Transportation	TS	1	2	1>	1	1.5	0.5	1	1	1>	1	1	1>	14.4-B	15.1-B
SR-60 Freeway EB Ramps (EW) - #2	California Department of Transportation	TS	0	2	d	1	2	0	1	0.5	1.5	0	0	0	14.1-B	15.5-B
Fir Avenue (EW) - #3	City of Moreno Valley	TS	1	2	d	1	2	1	1	0.5	0.5	1	1	1>	19.8-B	20.9-C
Eucalyptus Avenue (EW) - #4	City of Moreno Valley	TS	1	2	1	1	2	d	1	2	d	1	2	d	22.7-C	16.4-B
Dracaea Avenue (EW) - #5	City of Moreno Valley	TS	1	2	d	1	2	d	1	0.5	0.5	1	0.5	0.5	18.8-B	12.2-B
Cottonwood Avenue (EW) - #6	City of Moreno Valley	TS	1	2	d	1	2	1	1	1	1	1	1.5	0.5	16.9-B	13.4-B
Alessandro Boulevard (EW) - #7	City of Moreno Valley	TS	1	2	1	1	3	1	2	2	1	2	1	1	22.7-C	19.9-B
Brodiaea Avenue (EW) - #8	City of Moreno Valley	CSS	1	2	0	0	2.5	0.5	0	0	1	0	0	0	12.7-B	11.2-B
Hospital Road/Project Access (EW) - #10	City of Moreno Valley	TS	1	2	0	1	2	1	1	0	1	0	0	0	9.8-A	13.4-B
Cactus Avenue (EW) - #11	City of Moreno Valley	TS	2	2	1	1	2	1	1	1	1	1	0.5	0.5	30.7-C	21.5-C
Iris Avenue (EW) - #12	City of Moreno Valley	TS	1	0.5	0.5	1	1	1>	2	3	d	1	3	1	20.9-C	19.9-B

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; > = Right Turn Overlap; d = De Facto Right Turn

[2] Delay and level of service calculated using the following analysis software: Vistro version 4.00-00. Per the Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Table 9

Opening Year (2020) With Project Intersection Delay and Level of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Nason Street (NS) at:																
SR-60 Freeway WB Ramps (EW) - #1	California Department of Transportation	TS	1	2	1>	1	1.5	0.5	1	1	1>	1	1	1>	14.5-B	15.2-B
SR-60 Freeway EB Ramps (EW) - #2	California Department of Transportation	TS	0	2	d	1	2	0	1	0.5	1.5	0	0	0	14.1-B	15.6-B
Fir Avenue (EW) - #3	City of Moreno Valley	TS	1	2	d	1	2	1	1	0.5	0.5	1	1	1>	19.9-B	21.1-C
Eucalyptus Avenue (EW) - #4	City of Moreno Valley	TS	1	2	1	1	2	d	1	2	d	1	2	d	22.9-C	16.5-B
Dracaea Avenue (EW) - #5	City of Moreno Valley	TS	1	2	d	1	2	d	1	0.5	0.5	1	0.5	0.5	18.9-B	12.2-B
Cottonwood Avenue (EW) - #6	City of Moreno Valley	TS	1	2	d	1	2	1	1	1	1	1	1.5	0.5	17.0-B	13.5-B
Alessandro Boulevard (EW) - #7	City of Moreno Valley	TS	1	2	1	1	3	1	2	2	1	2	1	1	22.8-C	20.0-B
Brodiaea Avenue (EW) - #8	City of Moreno Valley	CSS	1	**1.5**	**0.5**	0	2.5	0.5	0	0	1	0	0	1	12.9-A	11.8-B
Project Access (EW) - #9	City of Moreno Valley	**CSS**	0	2	**1**	0	3	0	0	0	0	0	0	**1**	10.1-B	11.0-B
Hospital Road/Project Access (EW) - #10	City of Moreno Valley	TS	1	2	1	1	2	1	0.5	0.5	1	**0.5**	**0.5**	**1**	13.0-B	17.2-B
Cactus Avenue (EW) - #11	City of Moreno Valley	TS	2	2	1	1	2	1	1	1	1	1	0.5	0.5	31.0-C	21.6-C
Iris Avenue (EW) - #12	City of Moreno Valley	TS	1	0.5	0.5	1	1	1>	2	3	d	1	3	1	21.0-C	19.9-B
Project West Access (NS) at:																
Brodiaea Avenue (EW) - #13	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.6-A	8.6-A
Project Central Access (NS) at:																
Brodiaea Avenue (EW) - #14	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.6-A	8.6-A
Project East Access (NS) at:																
Brodiaea Avenue (EW) - #15	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.5-A	8.5-A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; > = Right Turn Overlap; d = De Facto Right Turn; **BOLD** = Improvement

[2] Delay and level of service calculated using the following analysis software: Vistro version 4.00-00. Per the Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal c
stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Figure 30
Opening Year (2020) Without Project Average Daily Traffic Volumes

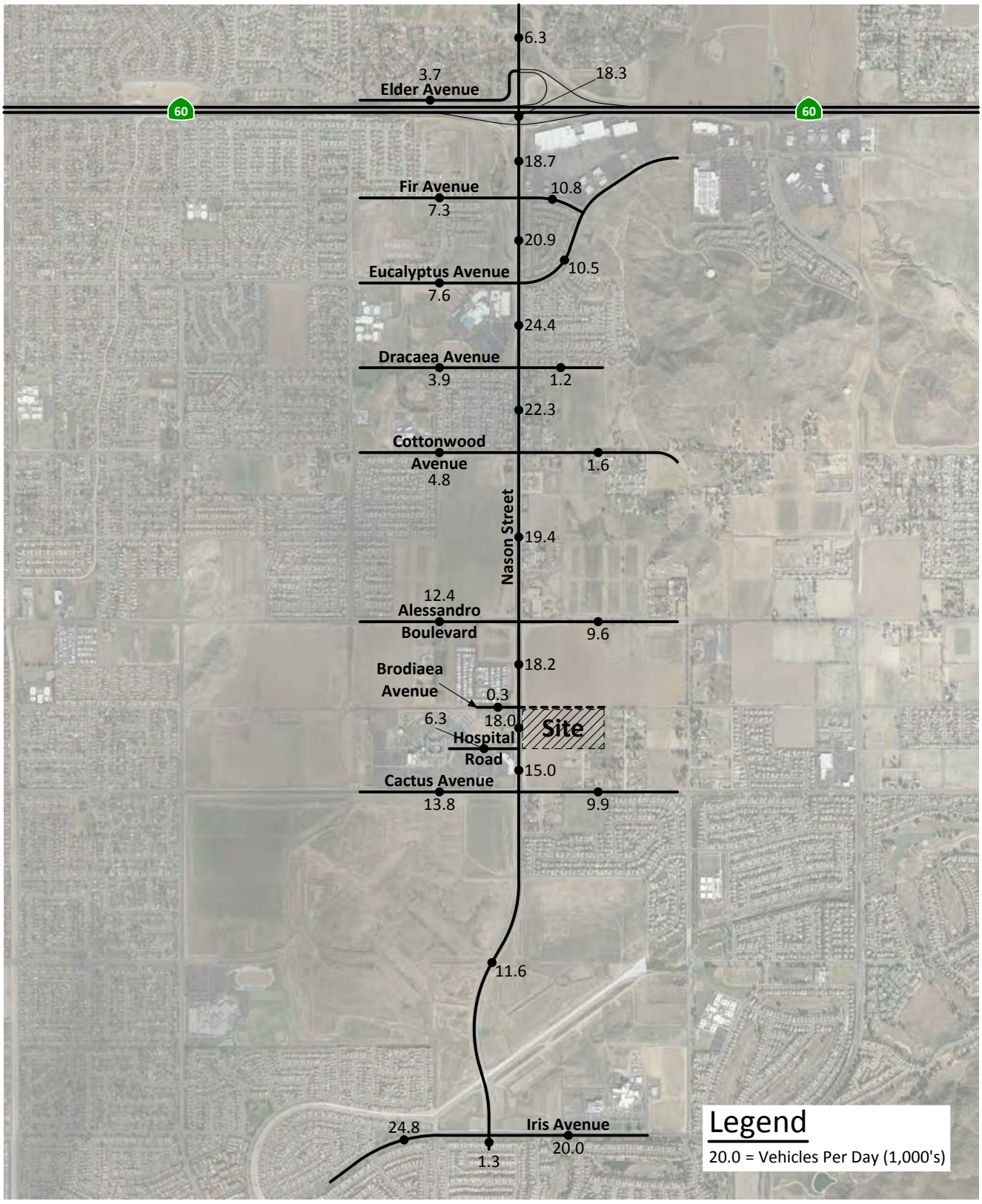


Figure 31
Opening Year (2020) With Project Average Daily Traffic Volumes

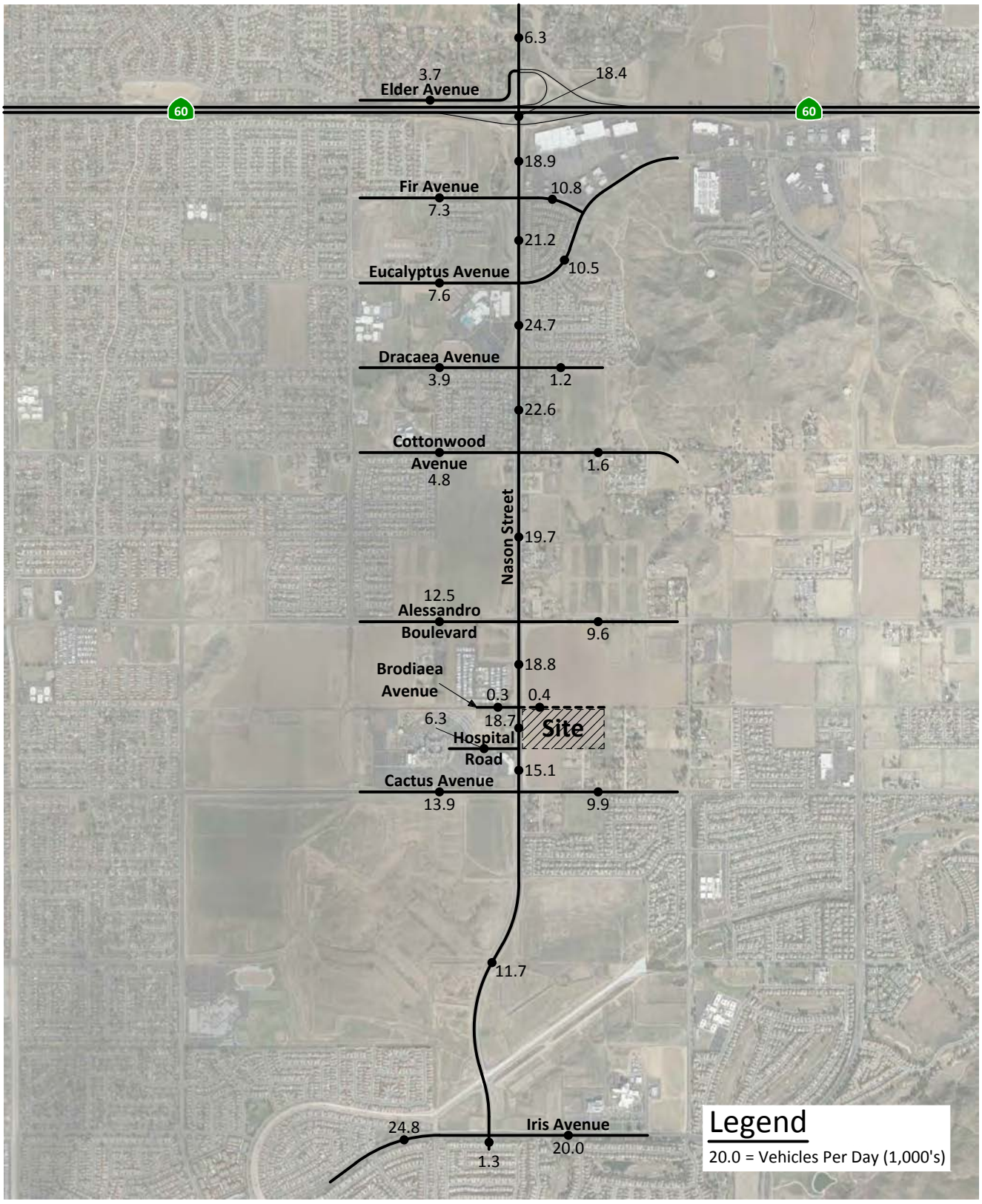


Figure 32
Opening Year (2020) Without Project
Morning Peak Hour Intersection Turning Movement Volumes

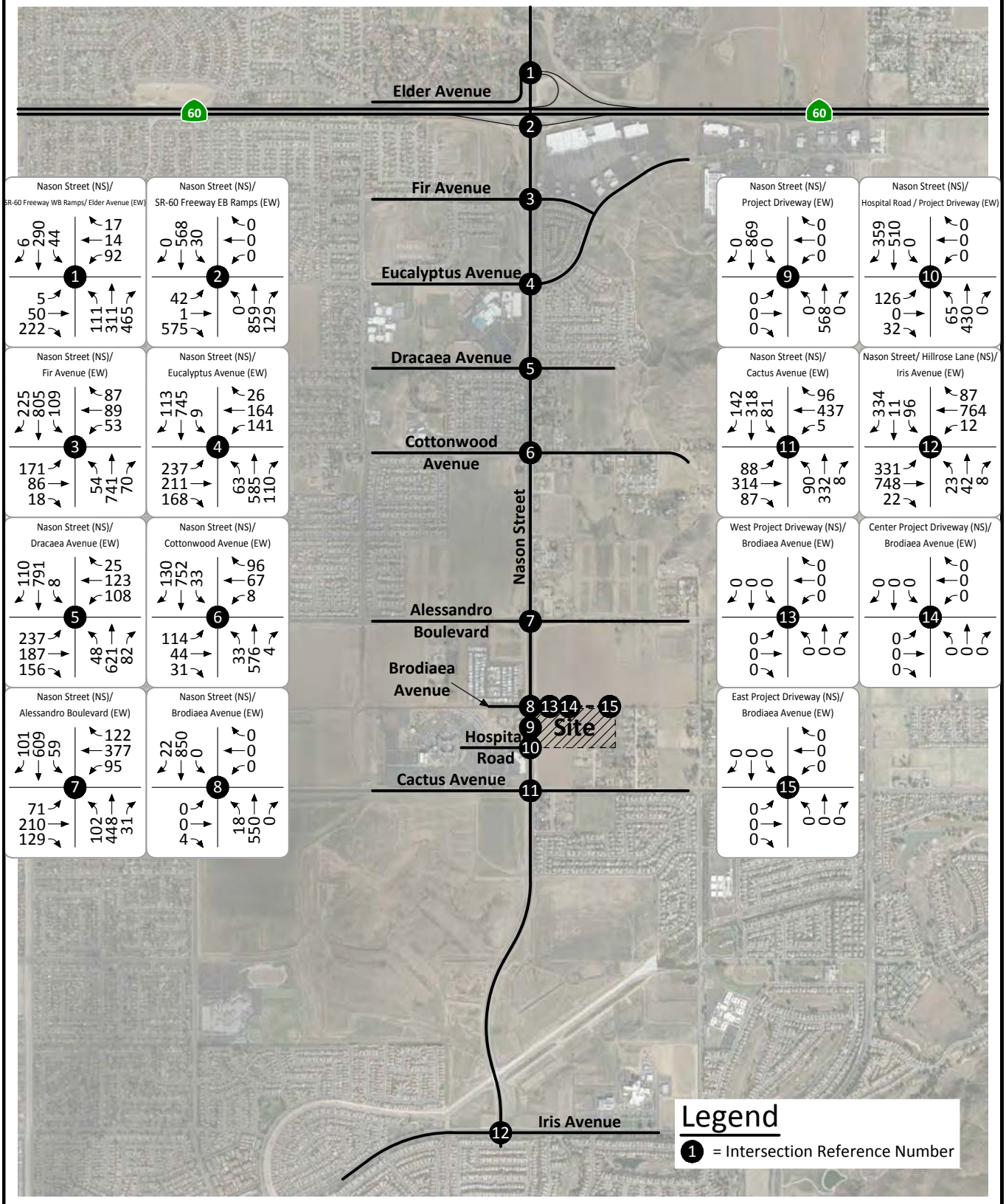
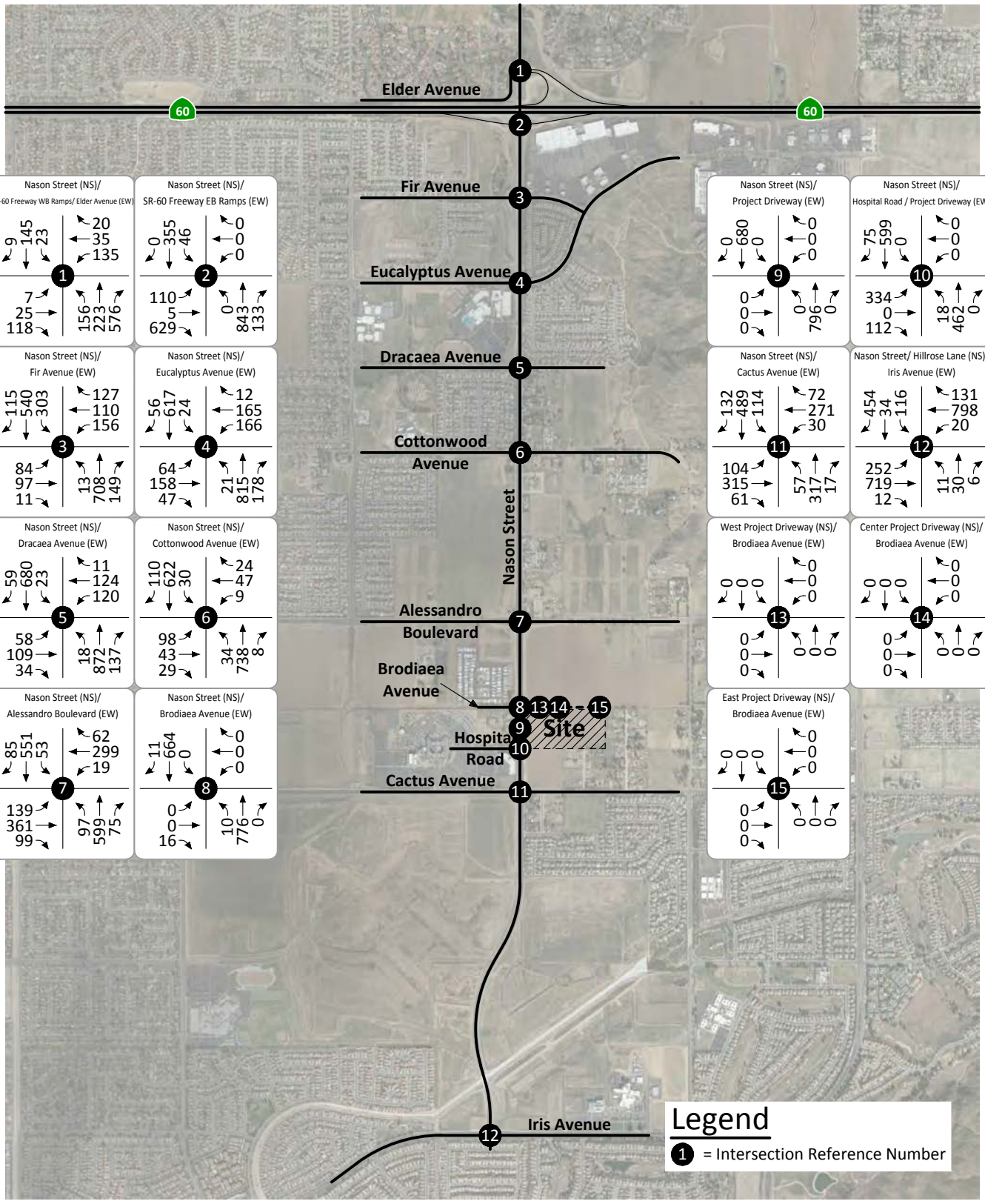


Figure 33
Opening Year (2020) Without Project
Evening Peak Hour Intersection Turning Movement Volumes



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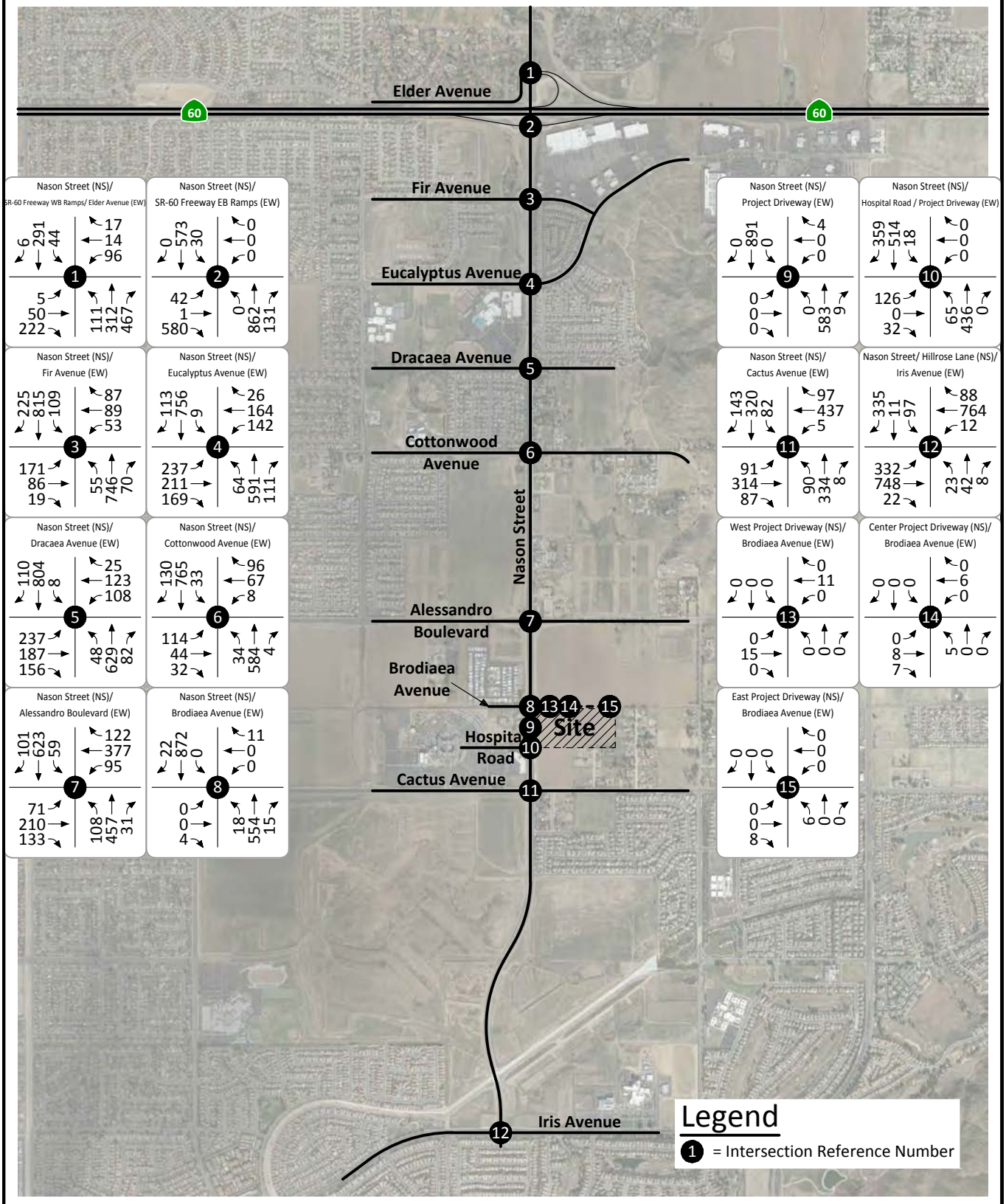
OVER 40 YEARS OF EXCELLENT SERVICE

JN 6462a

Figure 34
Opening Year (2020) With Project
Morning Peak Hour Intersection Turning Movement Volumes

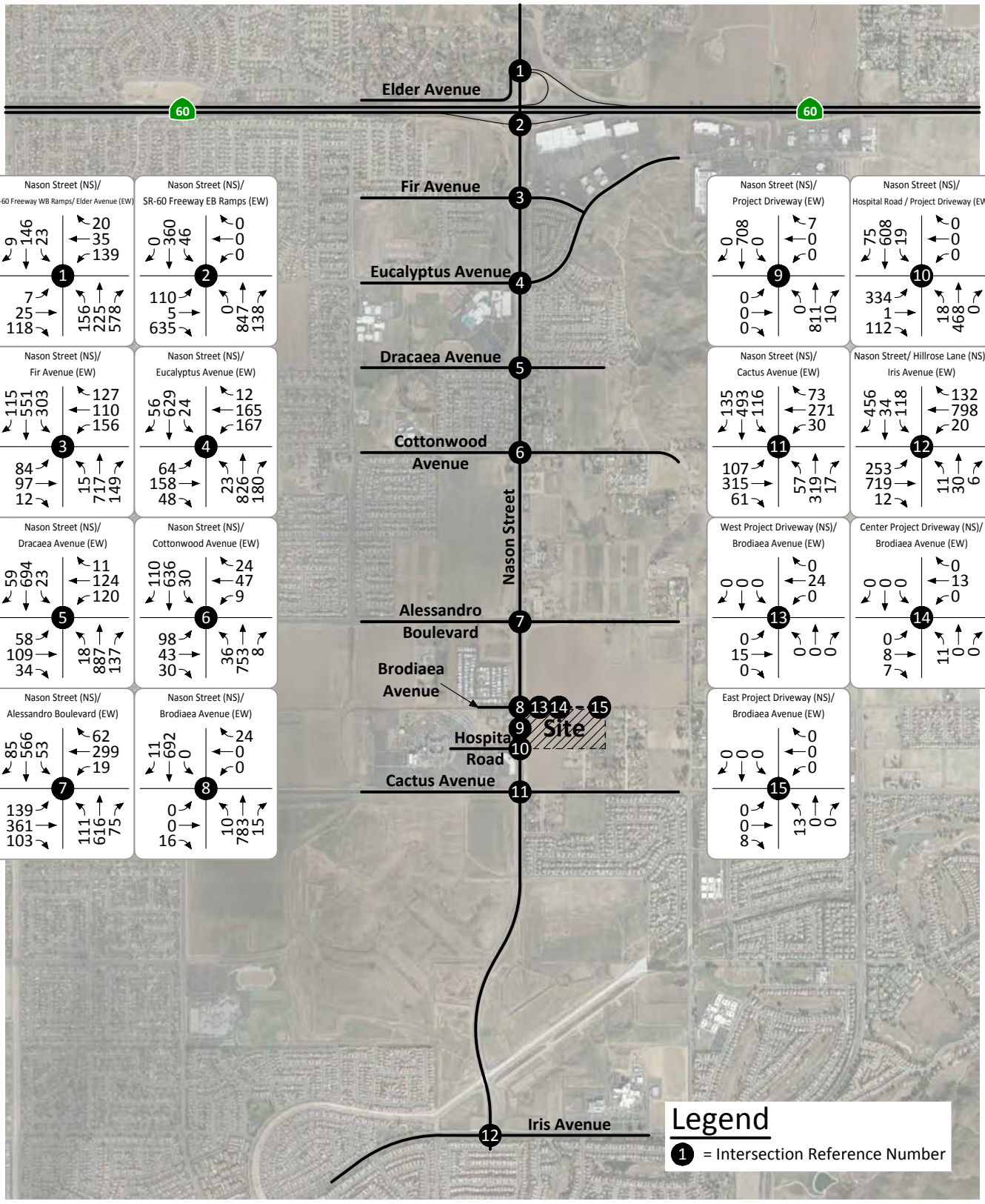


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6462a

Figure 35
Opening Year (2020) With Project
Evening Peak Hour Intersection Turning Movement Volumes



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JN 6462a

VII. OPENING YEAR (2021) TRAFFIC CONDITIONS

To assess future traffic conditions, the Moreno Valley Traffic Model data is used for Year 2040. The Opening Year for analysis purposes in this report is Year 2021 for Phases I and II.

A. Method of Projection

Based upon discussions with City of Moreno Valley, the Year 2040 traffic volume forecasts have been determined using the City of Moreno Valley Traffic Model data based on the Riverside County Traffic Analysis Model (RIVTAM) (see Appendix D).

The Opening Year (2021) traffic volumes have been interpolated from the Year 2040 traffic volumes based upon a portion of the future growth increment(see Appendix E).

B. Roadway Segment Analysis

1. Opening Year (2021) Without Project

The roadway segment Levels of Service for Opening Year (2021) Without Project conditions are shown in Table 10. For Opening Year (2021) Without Project traffic conditions, the following study area roadway segment is projected to operate at an unacceptable Level of Service, without improvements:

Alessandro Boulevard west of Nason Street

For Opening Year (2021) Without Project traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

Figure 36 shows the average daily traffic volumes that can be expected for Opening Year (2021) Without Project traffic conditions.

2. Opening Year (2021) With Project Phases I and II

The roadway segment Levels of Service for Opening Year (2021) With Project Phases I and II conditions are shown in Table 11. For Opening Year (2021) With Project Phases I and II traffic conditions, the following study area roadway segment is projected to operate at an unacceptable Level of Service, without improvements:

Alessandro Boulevard west of Nason Street

For Opening Year (2021) With Project Phases I and II traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

Figure 37 shows the average daily traffic volumes that can be expected for Opening Year (2021) With Project Phases I and II traffic conditions. For Opening Year (2021)

With Project Phases I and II traffic conditions, Opening Year (2021) traffic is combined with trips generated by the project.

C. Intersection Delay and Level of Service Analysis

The technique used to assess the capacity needs of an intersection is known as the Intersection Delay Method (see Appendix F). Delay and Level of Service worksheets for each analysis scenario are provided in Appendix F.

1. Opening Year (2021) Without Project

The Opening Year (2021) Without Project delay and Level of Service for the study area intersections are shown in Table 12. Morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figures 38 and 39, respectively. For Opening Year (2021) Without Project traffic conditions, the study area intersections are projected to operate at an acceptable Levels of Service during the peak hours.

2. Opening Year (2021) With Project Phases I and 11

The Opening Year (2021) With Project Phases I and II delay and Level of Service for the study area intersections are shown in Table 13. Morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figures 40 and 41, respectively. For Opening Year (2021) With Project Phases I and II traffic conditions, the study area intersections are projected to operate at an acceptable Levels of Service during the peak hours.

Table 10

Opening Year (2021) Without Project Roadway Segment Level of Service

Roadway	Segment	Number of Lanes[1]	Maximum Capacity at Level of Service E	Average Daily Traffic Volume	Volume to Capacity	Level of Service[2]
Nason Street	north of SR-60 Freeway WB Ramps	4D	37,500	6,500	0.173	A
	between SR-60 Freeway WB Ramps and SR-60 Freeway EB Ramps	4D	37,500	18,600	0.496	A
	between SR-60 Freeway EB Ramps and Fir Avenue	4D	37,500	19,100	0.509	A
	between Fir Avenue and Eucalyptus Avenue	4D	37,500	21,300	0.568	A
	south of Eucalyptus Avenue	4D	37,500	25,200	0.672	B
	north of Cottonwood Avenue	4D	37,500	23,000	0.613	B
	between Cottonwood Avenue and Alessandro Boulevard	4D	37,500	20,000	0.533	A
	between Alessandro Boulevard and Brodiaea Avenue	5D	46,850	18,800	0.401	A
	between Brodiaea Avenue and Hospital Road	4D	37,500	18,600	0.496	A
	between Hospital Road and Cactus Avenue	4D	37,500	15,500	0.413	A
	south of Cactus Avenue	4D	37,500	12,200	0.325	A
Fir Avenue	west of Nason Street	2U	12,500	7,400	0.592	A
Eucalyptus Avenue	west of Nason Street	4D	37,500	8,000	0.213	A
	east of Nason Street	4D	37,500	11,500	0.307	A
Cottonwood Avenue	west of Nason Street	2U	12,500	4,900	0.392	A
Alessandro Boulevard	west of Nason Street					
	- Without Improvements	2U	12,500	13,300	1.064	F
	- With Improvements	**2D**	18,750	13,300	0.709	C
Brodiaea Avenue	west of Nason Street	2U	12,500	300	0.024	A
Cactus Avenue	west of Nason Street	4D	37,500	14,000	0.373	A
	east of Nason Street	2U	12,500	10,200	0.816	D

[1] #D = #-Lane Divided Roadway; #U = #-Lane Undivided Roadway; **BOLD** = Improvement.

[2] Level of Service, which is based on maximum capacity (Level of Service E).

Volume to Capacity Ratio
0.000 - 0.600
0.601 - 0.700
0.701 - 0.800
0.801 - 0.900
0.901 - 1.000
>1.000

Table 11

Opening Year (2021) With Project Roadway Segment Level of Service

Roadway	Segment	Number of Lanes[1]	Maximum Capacity at Level of Service E	Average Daily Traffic Volume	Volume to Capacity	Level of Service[2]
Nason Street	north of SR-60 Freeway WB Ramps	4D	37,500	6,700	0.179	A
	between SR-60 Freeway WB Ramps and SR-60 Freeway EB Ramps	4D	37,500	19,700	0.525	A
	between SR-60 Freeway EB Ramps and Fir Avenue	4D	37,500	21,000	0.560	A
	between Fir Avenue and Eucalyptus Avenue	4D	37,500	23,400	0.624	B
	south of Eucalyptus Avenue	4D	37,500	27,800	0.741	C
	north of Cottonwood Avenue	4D	37,500	25,600	0.683	B
	between Cottonwood Avenue and Alessandro Boulevard	4D	37,500	22,800	0.608	B
	between Alessandro Boulevard and Brodiaea Avenue	5D	46,850	22,300	0.476	A
	between Brodiaea Avenue and Hospital Road	4D	37,500	21,100	0.563	A
	between Hospital Road and Cactus Avenue	4D	37,500	16,700	0.445	A
	south of Cactus Avenue	4D	37,500	12,700	0.339	A
Fir Avenue	west of Nason Street	2U	12,500	7,600	0.608	B
Eucalyptus Avenue	west of Nason Street	4D	37,500	8,200	0.219	A
	east of Nason Street	4D	37,500	11,700	0.312	A
Cottonwood Avenue	west of Nason Street	2U	12,500	5,100	0.408	A
Alessandro Boulevard	west of Nason Street					
	- Without Improvements	2U	12,500	14,000	1.120	F
	- With Improvements	**2D**	18,750	14,000	0.747	C
Brodiaea Avenue	west of Nason Street	2U	12,500	300	0.024	A
	east of Nason Street	2U	12,500	1,000	0.080	A
Cactus Avenue	west of Nason Street	4D	37,500	14,500	0.387	A
	east of Nason Street	2U	12,500	10,400	0.832	D

[1] #D = #-Lane Divided Roadway; #U = #-Lane Undivided Roadway; **BOLD** = Improvement.

[2] Level of Service, which is based on maximum capacity (Level of Service E).

Volume to Capacity Ratio
0.000 - 0.600
0.601 - 0.700
0.701 - 0.800
0.801 - 0.900
0.901 - 1.000
>1.000

Table 12

Opening Year (2021) Without Project Intersection Delay and Level of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Nason Street (NS) at:																
SR-60 Freeway WB Ramps (EW) - #1	California Department of Transportation	TS	1	2	1>	1	1.5	0.5	1	1	1>	1	1	1>	14.6-B	15.3-B
SR-60 Freeway EB Ramps (EW) - #2	California Department of Transportation	TS	0	2	d	1	2	0	1	0.5	1.5	0	0	0	14.2-B	15.7-B
Fir Avenue (EW) - #3	City of Moreno Valley	TS	1	2	d	1	2	1	1	0.5	0.5	1	1	1>	20.2-C	21.2-C
Eucalyptus Avenue (EW) - #4	City of Moreno Valley	TS	1	2	1	1	2	d	1	2	d	1	2	d	23.7-C	17.6-B
Dracaea Avenue (EW) - #5	City of Moreno Valley	TS	1	2	d	1	2	d	1	0.5	0.5	1	0.5	0.5	19.3-B	12.4-B
Cottonwood Avenue (EW) - #6	City of Moreno Valley	TS	1	2	d	1	2	1	1	1	1	1	1.5	0.5	17.4-B	14.0-B
Alessandro Boulevard (EW) - #7	City of Moreno Valley	TS	1	2	1	1	3	1	2	2	1	2	1	1	24.4-C	20.5-C
Brodiaea Avenue (EW) - #8	City of Moreno Valley	CSS	1	2	0	0	2.5	0.5	0	0	1	0	0	0	13.0-B	11.4-B
Hospital Road/Project Access (EW) - #10	City of Moreno Valley	TS	1	2	0	1	2	1	1	0	1	0	0	0	9.9-A	13.5-B
Cactus Avenue (EW) - #11	City of Moreno Valley	TS	2	2	1	1	2	1	1	1	1	1	0.5	0.5	31.8-C	21.7-C
Iris Avenue (EW) - #12	City of Moreno Valley	TS	1	0.5	0.5	1	1	1>	2	3	d	1	3	1	21.1-C	20.1-C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; > = Right Turn Overlap; d = De Facto Right Turn

[2] Delay and level of service calculated using the following analysis software: Vistro version 4.00-00. Per the Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Table 13

Opening Year (2021) With Project Intersection Delay and Level of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Nason Street (NS) at:																
SR-60 Freeway WB Ramps (EW) - #1	California Department of Transportation	TS	1	2	1>	1	1.5	0.5	1	1	1>	1	1	1>	15.3-B	15.8-B
SR-60 Freeway EB Ramps (EW) - #2	California Department of Transportation	TS	0	2	d	1	2	0	1	0.5	1.5	0	0	0	14.8-B	16.1-B
Fir Avenue (EW) - #3	City of Moreno Valley	TS	1	2	d	1	2	1	1	0.5	0.5	1	1	1>	20.8-C	22.1-C
Eucalyptus Avenue (EW) - #4	City of Moreno Valley	TS	1	2	1	1	2	d	1	2	d	1	2	d	26.0-C	18.3-B
Dracaea Avenue (EW) - #5	City of Moreno Valley	TS	1	2	d	1	2	d	1	0.5	0.5	1	0.5	0.5	22.0-C	12.8-B
Cottonwood Avenue (EW) - #6	City of Moreno Valley	TS	1	2	d	1	2	1	1	1	1	1	1.5	0.5	18.5-B	14.7-B
Alessandro Boulevard (EW) - #7	City of Moreno Valley	TS	1	2	1	1	3	1	2	2	1	2	1	1	25.6-C	22.2-C
Brodiaea Avenue (EW) - #8	City of Moreno Valley	CSS	1	**1.5**	**0.5**	0	2.5	0.5	0	0	1	0	0	1	14.5-B	15.9-C
Project Access (EW) - #9	City of Moreno Valley	**CSS**	0	2	**1**	0	3	0	0	0	0	0	0	**1**	10.3-B	12.5-B
Hospital Road/Project Access (EW) - #10	City of Moreno Valley	TS	1	2	1	1	2	1	0.5	0.5	1	**0.5**	**0.5**	**1**	17.3-B	22.3-C
Cactus Avenue (EW) - #11	City of Moreno Valley	TS	2	2	1	1	2	1	1	1	1	1	0.5	0.5	34.2-C	22.3-C
Iris Avenue (EW) - #12	City of Moreno Valley	TS	1	0.5	0.5	1	1	1>	2	3	d	1	3	1	22.0-C	20.3-C
Project West Access (NS) at:																
Brodiaea Avenue (EW) - #13	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.7-A	9.1-A
Project Central Access (NS) at:																
Brodiaea Avenue (EW) - #14	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.6-A	8.6-A
Project East Access (NS) at:																
Brodiaea Avenue (EW) - #15	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.5-A	8.5-A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; > = Right Turn Overlap; d = De Facto Right Turn; **BOLD** = Improvement

[2] Delay and level of service calculated using the following analysis software: Vistro version 4.00-00. Per the Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal c
stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Figure 36
Opening Year (2021) Without Project Average Daily Traffic Volumes

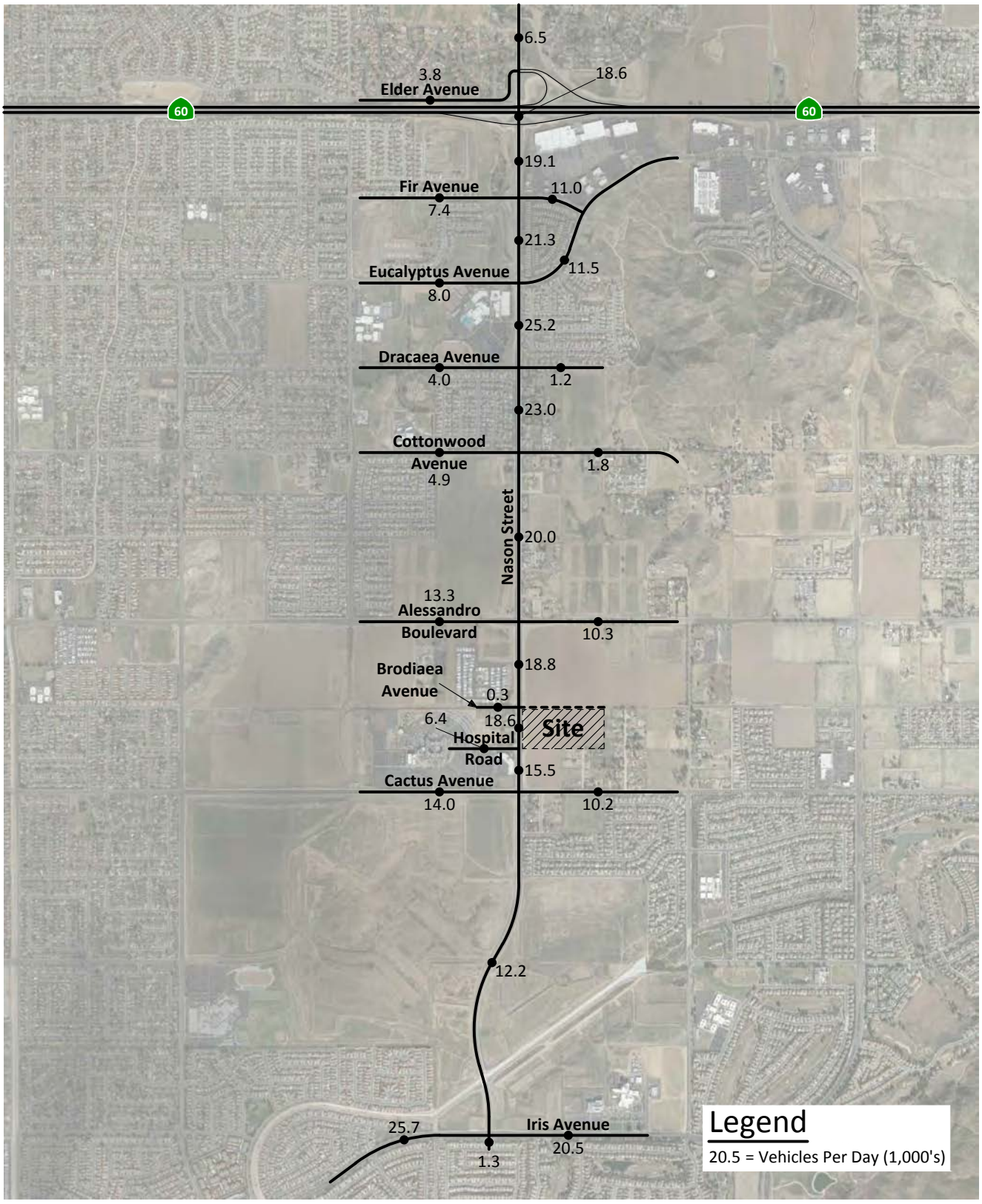

Figure 37
Opening Year (2021) With Project Average Daily Traffic Volumes

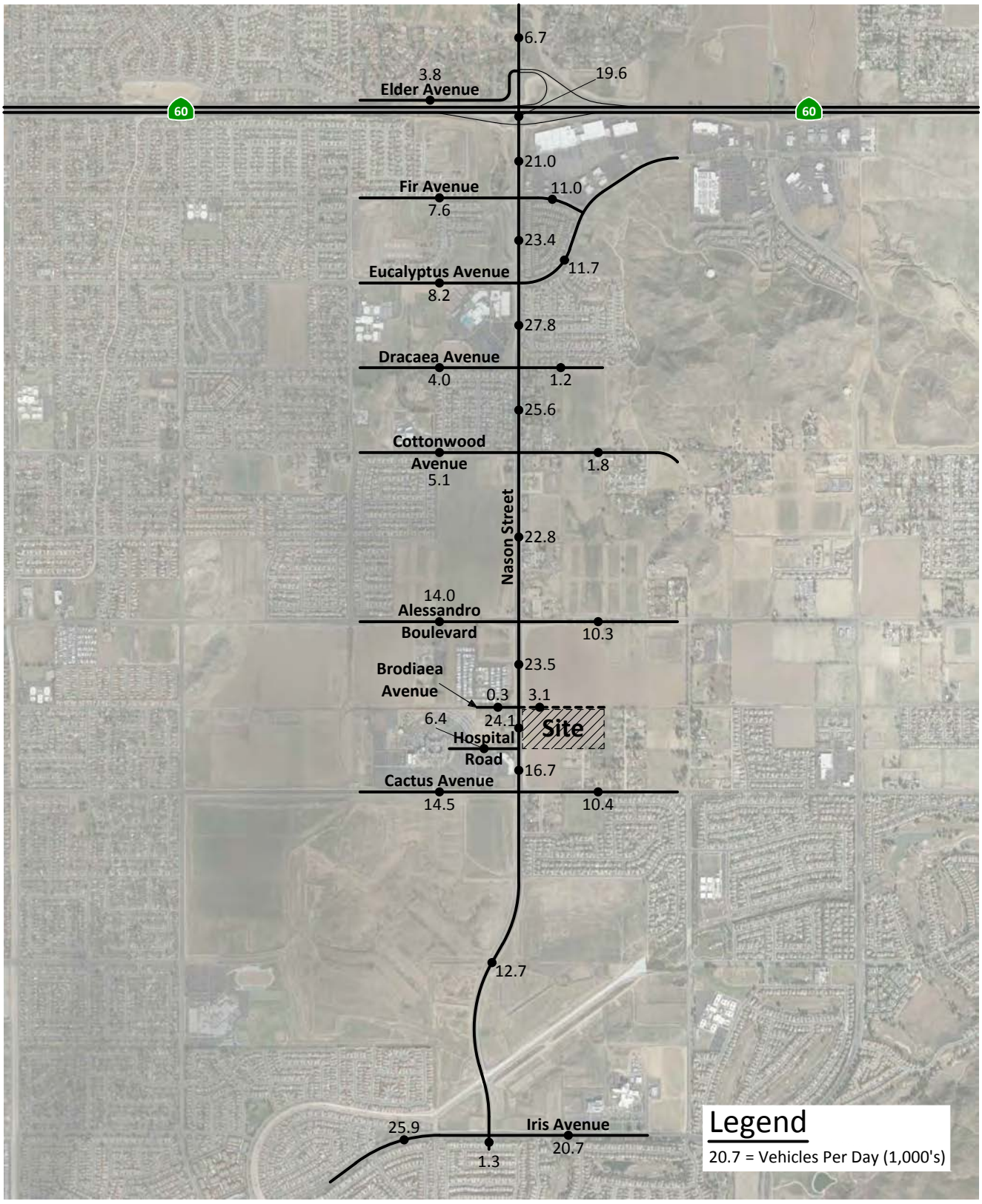

Figure 38
Opening Year (2021) Without Project
Morning Peak Hour Intersection Turning Movement Volumes

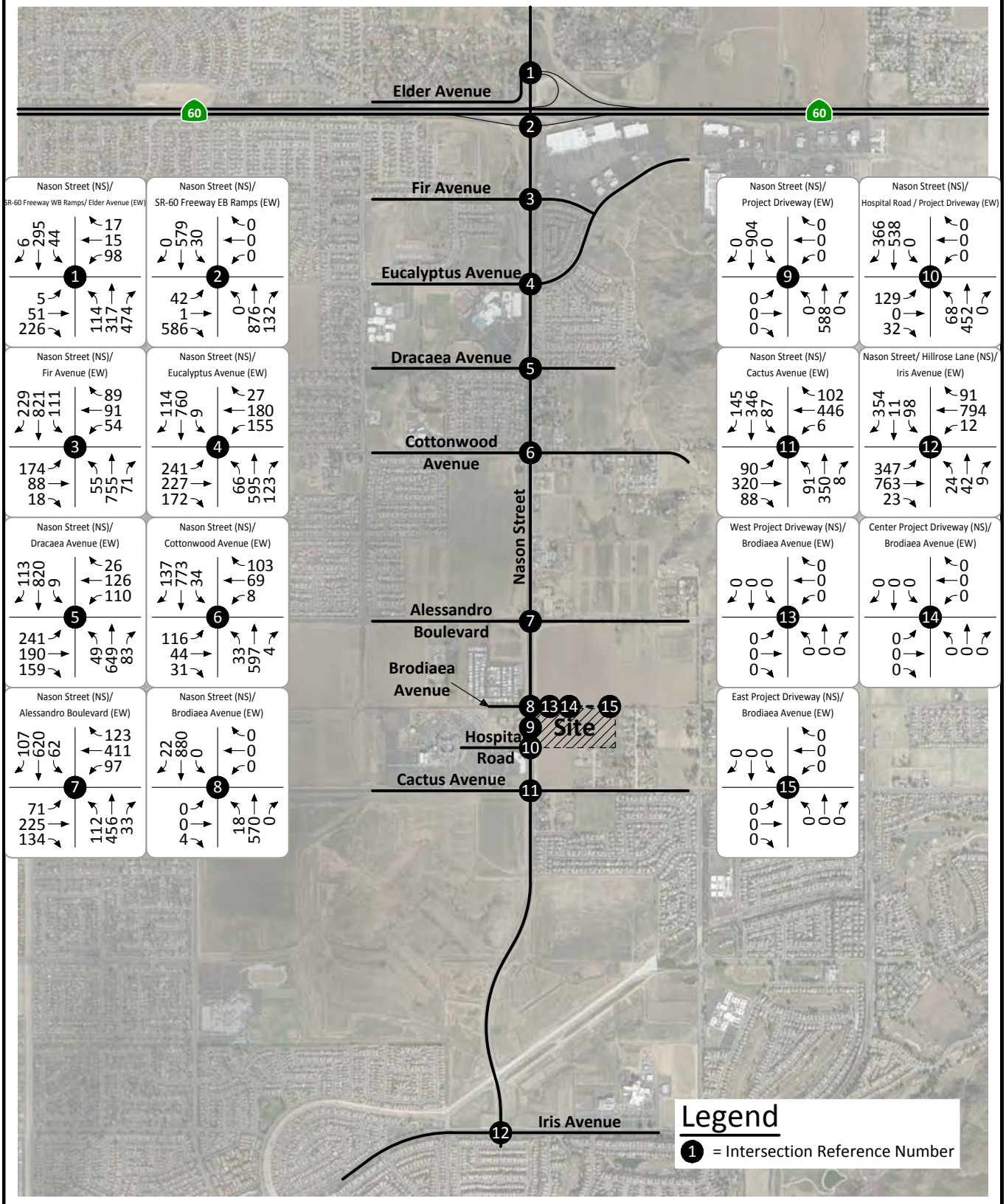

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Figure 39
Opening Year (2021) Without Project
Evening Peak Hour Intersection Turning Movement Volumes

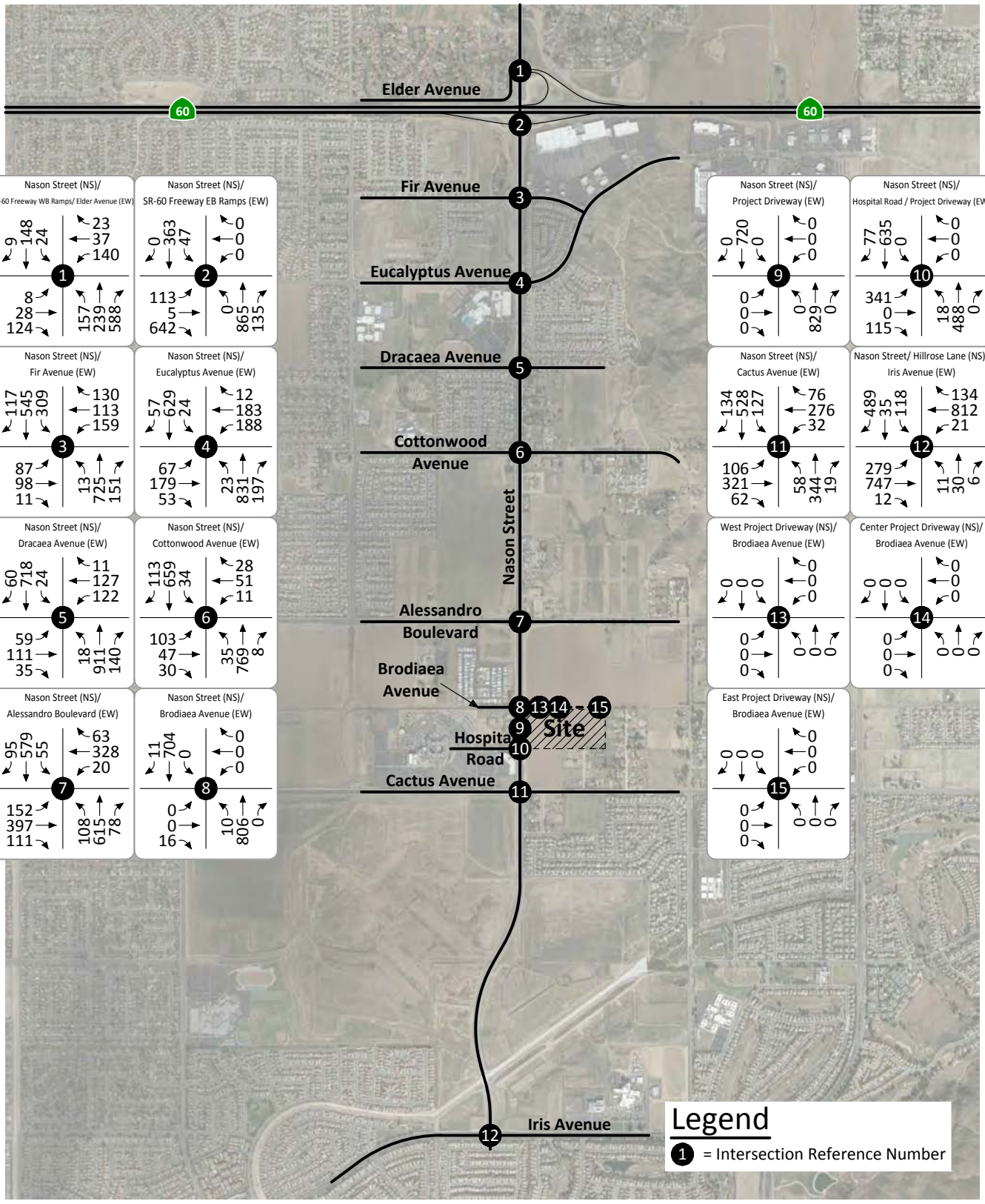

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Figure 40
Opening Year (2021) With Project
Morning Peak Hour Intersection Turning Movement Volumes

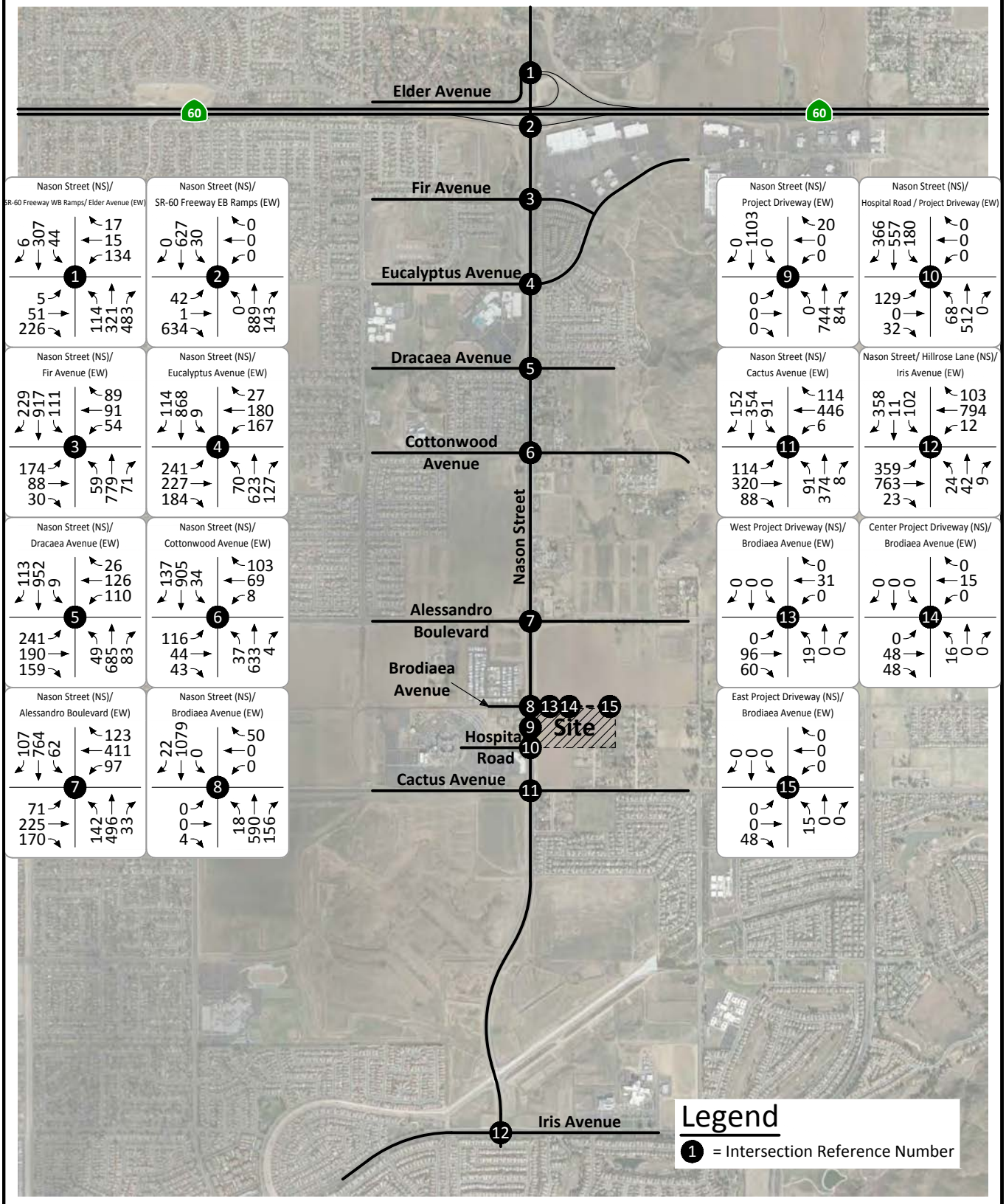

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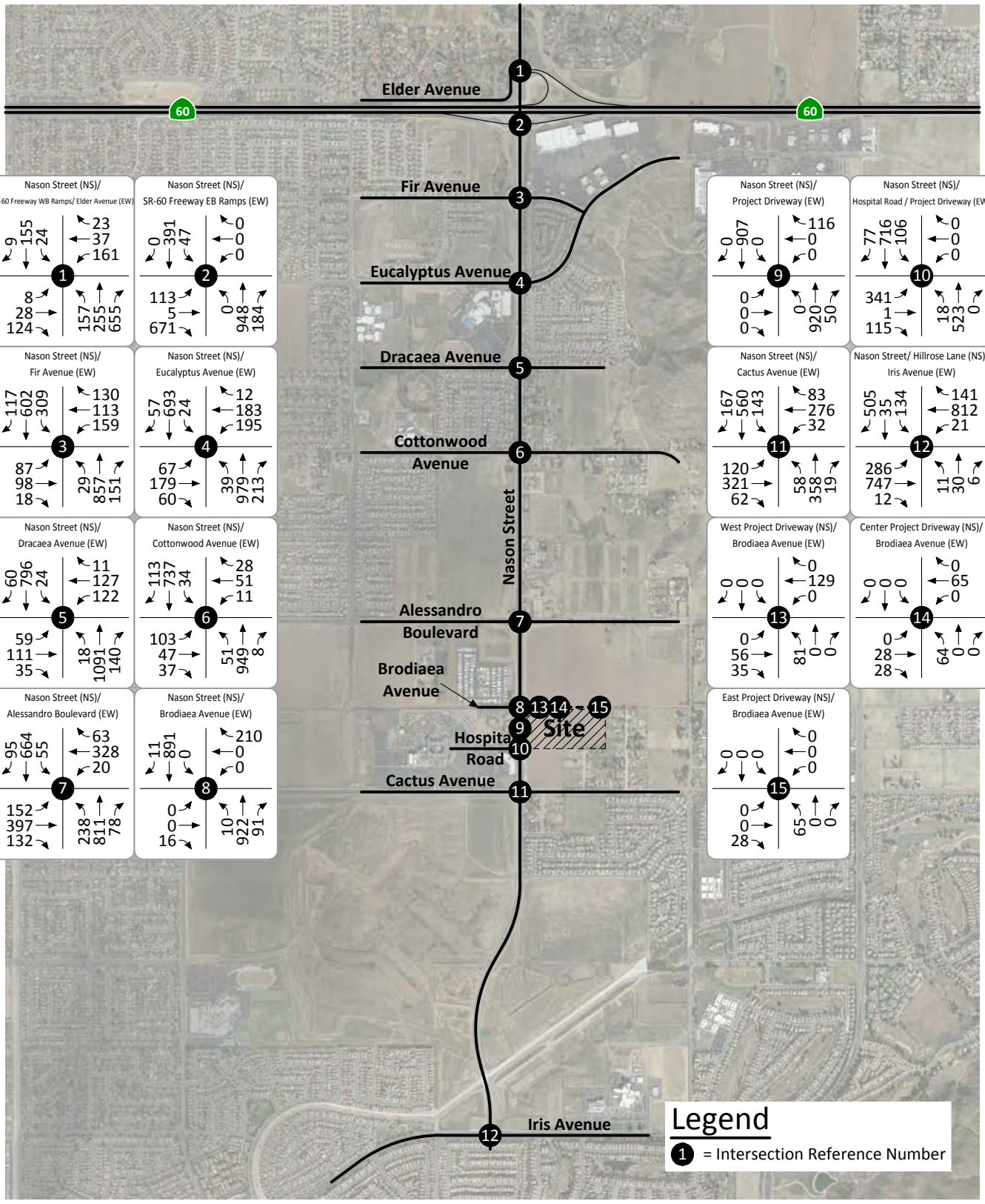
Figure 41
Opening Year (2021) With Project
Evening Peak Hour Intersection Turning Movement Volumes



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VIII. OPENING YEAR (2022) TRAFFIC CONDITIONS

To assess future traffic conditions, the Moreno Valley Traffic Model data is used for Year 2040. The Opening Year for analysis purposes in this report is Year 2022 for Phases I, II, and III.

A. Method of Projection

Based upon discussions with City of Moreno Valley, the Year 2040 traffic volume forecasts have been determined using the City of Moreno Valley Traffic Model data based on the Riverside County Traffic Analysis Model (RIVTAM) (see Appendix D).

The Opening Year (2022) traffic volumes have been interpolated from the Year 2040 traffic volumes based upon a portion of the future growth increment (see Appendix E).

B. Roadway Segment Analysis

1. Opening Year (2022) Without Project

The roadway segment Levels of Service for Opening Year (2022) Without Project conditions are shown in Table 14. For Opening Year Without Project traffic conditions, the following study area roadway segment is projected to operate at an unacceptable Level of Service, without improvements:

Alessandro Boulevard west of Nason Street

For Opening Year (2022) Without Project traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

Figure 42 shows the average daily traffic volumes that can be expected for Opening Year (2022) Without Project traffic conditions.

2. Opening Year (2022) With Project Phases 1, II, and III

The roadway segment Levels of Service for Opening Year (2022) With Project Phases I, II, and III conditions are shown in Table 15. For Opening Year (2022) With Project traffic conditions, the following study area roadway segment is projected to operate at an unacceptable Levels of Service, without improvements:

Alessandro Boulevard west of Nason Street

For Opening Year (2022) With Project Phase I traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

Figure 43 shows the average daily traffic volumes that can be expected for Opening Year (2022) With Project Phases I, II, and III traffic conditions. For Opening Year

(2022) With Project Phases I, II, and III traffic conditions, Opening Year (2022) traffic is combined with trips generated by the project.

C. Intersection Delay and Level of Service Analysis

The technique used to assess the capacity needs of an intersection is known as the Intersection Delay Method (see Appendix F). Delay and Level of Service worksheets for each analysis scenario are provided in Appendix F.

1. Opening Year (2022) Without Project

The Opening Year (2022) Without Project delay and Level of Service for the study area intersections are shown in Table 16. Morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figures 44 and 45, respectively. For Opening Year (2022) Without Project traffic conditions, the study area intersections are projected to operate at an acceptable Levels of Service during the peak hours.

2. Opening Year (2022) With Project Phase I

The Opening Year (2022) With Project Phases I, II, and III delay and Level of Service for the study area intersections are shown in Table 17. Morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figures 46 and 47, respectively. For Opening Year (2020) With Project Phases I, II, and III traffic conditions, the study area intersections are projected to operate at an acceptable Levels of Service during the peak hours.

Table 14

Opening Year (2022) Without Project Roadway Segment Level of Service

Roadway	Segment	Number of Lanes[1]	Maximum Capacity at Level of Service E	Average Daily Traffic Volume	Volume to Capacity	Level of Service[2]
Nason Street	north of SR-60 Freeway WB Ramps	4D	37,500	6,600	0.176	A
	between SR-60 Freeway WB Ramps and SR-60 Freeway EB Ramps	4D	37,500	19,100	0.509	A
	between SR-60 Freeway EB Ramps and Fir Avenue	4D	37,500	19,500	0.520	A
	between Fir Avenue and Eucalyptus Avenue	4D	37,500	21,800	0.581	A
	south of Eucalyptus Avenue	4D	37,500	25,900	0.691	B
	north of Cottonwood Avenue	4D	37,500	23,800	0.635	B
	between Cottonwood Avenue and Alessandro Boulevard	4D	37,500	20,700	0.552	A
	between Alessandro Boulevard and Brodiaea Avenue	5D	46,850	19,400	0.414	A
	between Brodiaea Avenue and Hospital Road	4D	37,500	19,200	0.512	A
	between Hospital Road and Cactus Avenue	4D	37,500	16,100	0.429	A
	south of Cactus Avenue	4D	37,500	12,800	0.341	A
Fir Avenue	west of Nason Street	2U	12,500	7,600	0.608	B
Eucalyptus Avenue	west of Nason Street	4D	37,500	8,400	0.224	A
	east of Nason Street	4D	37,500	12,600	0.336	A
Cottonwood Avenue	west of Nason Street	2U	12,500	5,000	0.400	A
Alessandro Boulevard	west of Nason Street					
	- Without Improvements	2U	12,500	14,300	1.144	F
	- With Improvements	**2D**	18,750	14,300	0.763	C
Brodiaea Avenue	west of Nason Street	2U	12,500	300	0.024	A
Cactus Avenue	west of Nason Street	4D	37,500	14,300	0.381	A
	east of Nason Street	2U	12,500	10,400	0.832	D

[1] #D = #-Lane Divided Roadway; #U = #-Lane Undivided Roadway; **BOLD** = Improvement.

[2] Level of Service, which is based on maximum capacity (Level of Service E).

Volume to Capacity Ratio
0.000 - 0.600
0.601 - 0.700
0.701 - 0.800
0.801 - 0.900
0.901 - 1.000
>1.000

Table 15

Opening Year (2022) With Project Roadway Segment Level of Service

Roadway	Segment	Number of Lanes[1]	Maximum Capacity at Level of Service E	Average Daily Traffic Volume	Volume to Capacity	Level of Service[2]
Nason Street	north of SR-60 Freeway WB Ramps	4D	37,500	6,900	0.184	A
	between SR-60 Freeway WB Ramps and SR-60 Freeway EB Ramps	4D	37,500	20,300	0.541	A
	between SR-60 Freeway EB Ramps and Fir Avenue	4D	37,500	21,600	0.576	A
	between Fir Avenue and Eucalyptus Avenue	4D	37,500	24,100	0.643	B
	south of Eucalyptus Avenue	4D	37,500	28,700	0.765	C
	north of Cottonwood Avenue	4D	37,500	26,600	0.709	C
	between Cottonwood Avenue and Alessandro Boulevard	4D	37,500	23,800	0.635	B
	between Alessandro Boulevard and Brodiaea Avenue	5D	46,850	23,300	0.497	A
	between Brodiaea Avenue and Hospital Road	4D	37,500	21,900	0.584	A
	between Hospital Road and Cactus Avenue	4D	37,500	17,400	0.464	A
	south of Cactus Avenue	4D	37,500	13,300	0.355	A
Fir Avenue	west of Nason Street	2U	12,500	7,900	0.632	B
Eucalyptus Avenue	west of Nason Street	4D	37,500	8,700	0.232	A
	east of Nason Street	4D	37,500	12,900	0.344	A
Cottonwood Avenue	west of Nason Street	2U	12,500	5,300	0.424	A
Alessandro Boulevard	west of Nason Street					
	- Without Improvements	2U	12,500	15,100	1.208	F
	- With Improvements	**2D**	18,750	15,100	0.805	D
Brodiaea Avenue	west of Nason Street	2U	12,500	300	0.024	A
	east of Nason Street	2U	12,500	1,300	0.104	A
Cactus Avenue	west of Nason Street	4D	37,500	14,800	0.395	A
	east of Nason Street	2U	12,500	10,700	0.856	D

[1] #D = #-Lane Divided Roadway; #U = #-Lane Undivided Roadway; **BOLD** = Improvement.

[2] Level of Service, which is based on maximum capacity (Level of Service E).

Volume to Capacity Ratio
0.000 - 0.600
0.601 - 0.700
0.701 - 0.800
0.801 - 0.900
0.901 - 1.000
>1.000

Table 16

Opening Year (2022) Without Project Intersection Delay and Level of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Nason Street (NS) at:																
SR-60 Freeway WB Ramps (EW) - #1	California Department of Transportation	TS	1	2	1>	1	1.5	0.5	1	1	1>	1	1	1>	14.7-B	20.6-C
SR-60 Freeway EB Ramps (EW) - #2	California Department of Transportation	TS	0	2	d	1	2	0	1	0.5	1.5	0	0	0	14.5-B	26.1-C
Fir Avenue (EW) - #3	City of Moreno Valley	TS	1	2	d	1	2	1	1	0.5	0.5	1	1	1>	20.6-C	21.5-C
Eucalyptus Avenue (EW) - #4	City of Moreno Valley	TS	1	2	1	1	2	d	1	2	d	1	2	d	24.7-C	18.2-B
Dracaea Avenue (EW) - #5	City of Moreno Valley	TS	1	2	d	1	2	d	1	0.5	0.5	1	0.5	0.5	20.8-C	12.5-B
Cottonwood Avenue (EW) - #6	City of Moreno Valley	TS	1	2	d	1	2	1	1	1	1	1	1.5	0.5	18.0-B	14.3-B
Alessandro Boulevard (EW) - #7	City of Moreno Valley	TS	1	2	1	1	3	1	2	2	1	2	1	1	25.6-C	21.1-C
Brodiaea Avenue (EW) - #8	City of Moreno Valley	CSS	1	2	0	0	2.5	0.5	0	0	1	0	0	0	13.1-B	11.6-B
Hospital Road/Project Access (EW) - #10	City of Moreno Valley	TS	1	2	0	1	2	1	1	0	1	0	0	0	9.9-A	13.7-B
Cactus Avenue (EW) - #11	City of Moreno Valley	TS	2	2	1	1	2	1	1	1	1	1	0.5	0.5	32.5-C	22.1-C
Iris Avenue (EW) - #12	City of Moreno Valley	TS	1	0.5	0.5	1	1	1>	2	3	d	1	3	1	22.2-C	20.3-C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; > = Right Turn Overlap; d = De Facto Right Turn

[2] Delay and level of service calculated using the following analysis software: Vistro version 4.00-00. Per the Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Table 17

Opening Year (2022) With Project Intersection Delay and Level of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Nason Street (NS) at:																
SR-60 Freeway WB Ramps (EW) - #1	California Department of Transportation	TS	1	2	1>	1	1.5	0.5	1	1	1>	1	1	1>	15.5-B	16.2-B
SR-60 Freeway EB Ramps (EW) - #2	California Department of Transportation	TS	0	2	d	1	2	0	1	0.5	1.5	0	0	0	15.2-B	16.3-B
Fir Avenue (EW) - #3	City of Moreno Valley	TS	1	2	d	1	2	1	1	0.5	0.5	1	1	1>	21.2-C	22.6-C
Eucalyptus Avenue (EW) - #4	City of Moreno Valley	TS	1	2	1	1	2	d	1	2	d	1	2	d	27.9-C	19.2-B
Dracaea Avenue (EW) - #5	City of Moreno Valley	TS	1	2	d	1	2	d	1	0.5	0.5	1	0.5	0.5	23.8-C	13.0-B
Cottonwood Avenue (EW) - #6	City of Moreno Valley	TS	1	2	d	1	2	1	1	1	1	1	1.5	0.5	19.3-B	15.1-B
Alessandro Boulevard (EW) - #7	City of Moreno Valley	TS	1	2	1	1	3	1	2	2	1	2	1	1	27.8-C	23.4-C
Brodiaea Avenue (EW) - #8	City of Moreno Valley	CSS	1	**1.5**	**0.5**	0	2.5	0.5	0	0	1	0	0	1	14.8-B	17.2-C
Project Access (EW) - #9	City of Moreno Valley	**CSS**	0	2	**1**	0	3	0	0	0	0	0	0	**1**	10.4-B	12.8-B
Hospital Road/Project Access (EW) - #10	City of Moreno Valley	TS	1	2	1	1	2	1	0.5	0.5	1	**0.5**	**0.5**	**1**	17.7-B	23.2-C
Cactus Avenue (EW) - #11	City of Moreno Valley	TS	2	2	1	1	2	1	1	1	1	1	0.5	0.5	35.6-D	22.7-C
Iris Avenue (EW) - #12	City of Moreno Valley	TS	1	0.5	0.5	1	1	1>	2	3	d	1	3	1	22.4-C	20.6-C
Project West Access (NS) at:																
Brodiaea Avenue (EW) - #13	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.7-A	9.2-A
Project Central Access (NS) at:																
Brodiaea Avenue (EW) - #14	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.6-A	8.7-A
Project East Access (NS) at:																
Brodiaea Avenue (EW) - #15	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.5-A	8.5-A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; > = Right Turn Overlap; d = De Facto Right Turn; **BOLD** = Improvement

[2] Delay and level of service calculated using the following analysis software: Vistro version 4.00-00. Per the Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Figure 42
Opening Year (2022) Without Project Average Daily Traffic Volumes

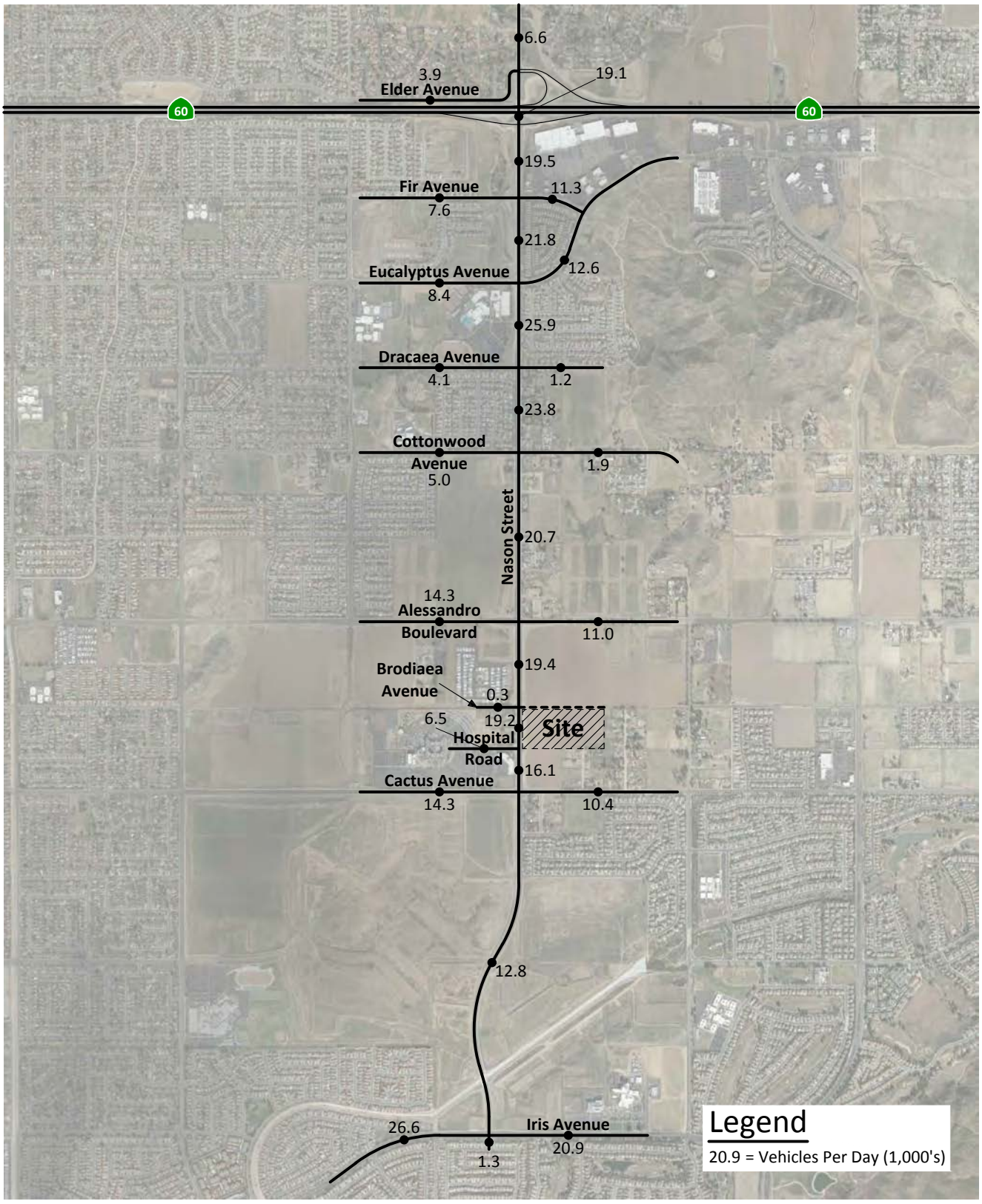

Figure 43
Opening Year (2022) With Project Average Daily Traffic Volumes

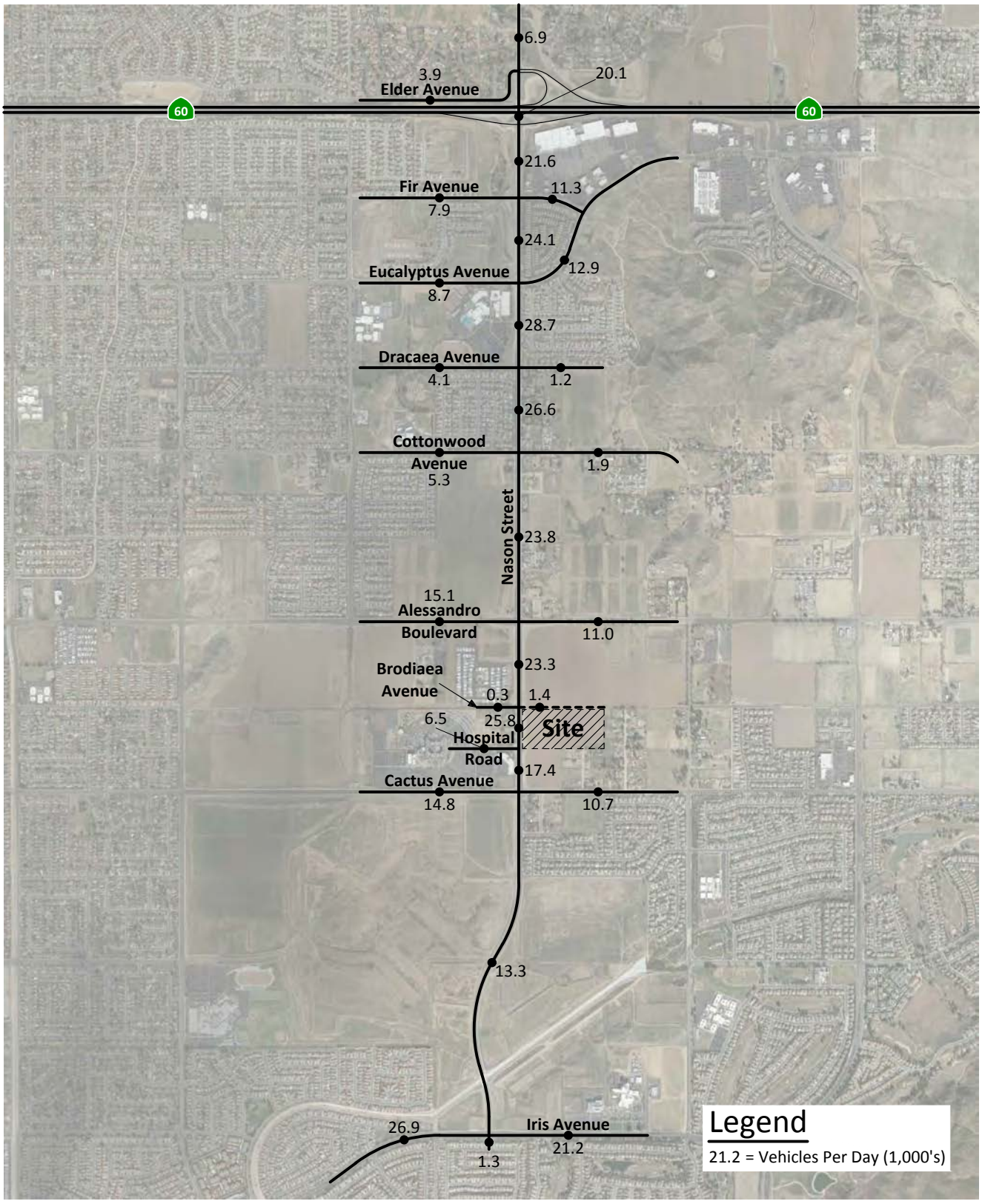

Figure 44
Opening Year (2022) Without Project
Morning Peak Hour Intersection Turning Movement Volumes

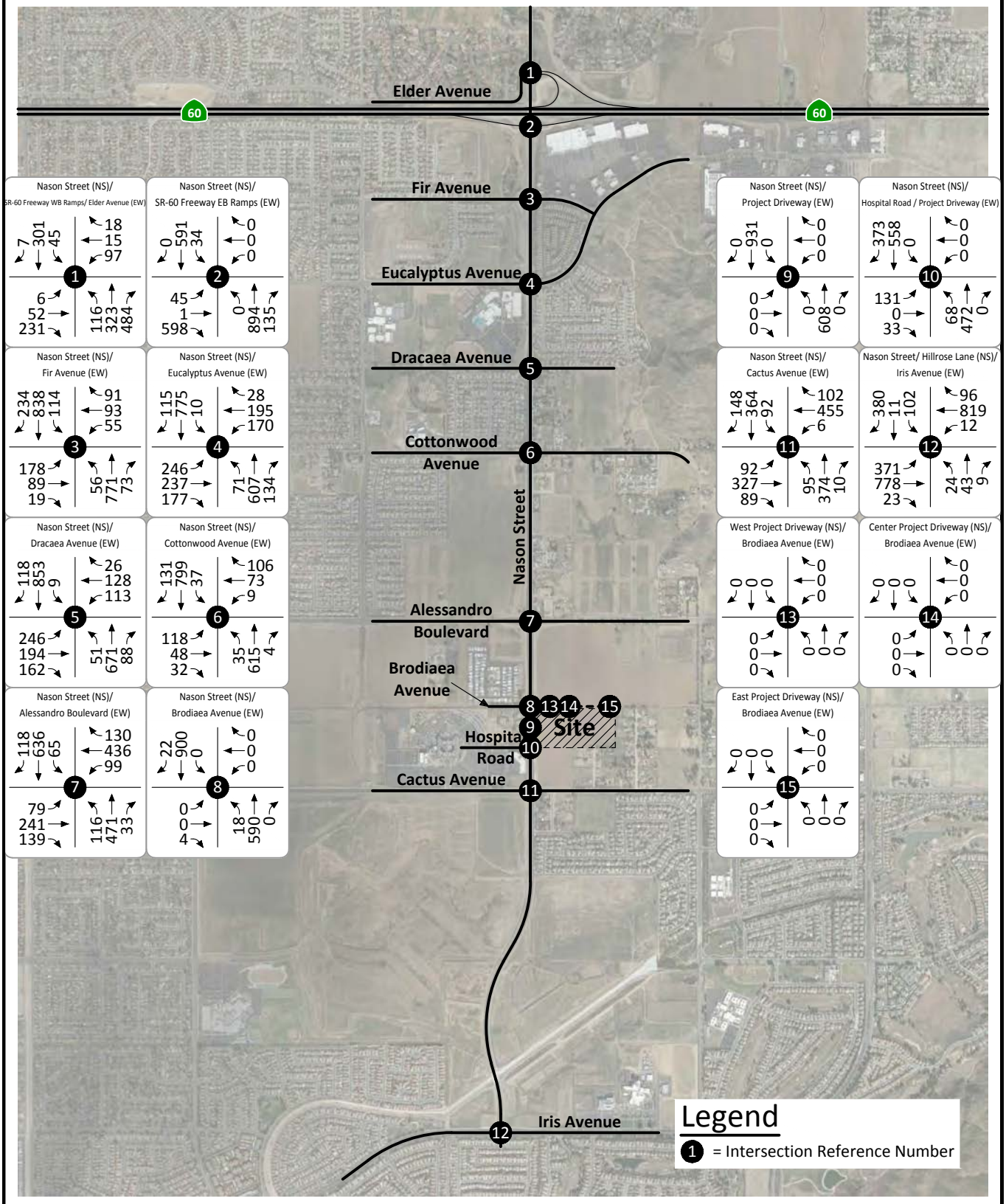

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Figure 45
Opening Year (2022) Without Project
Evening Peak Hour Intersection Turning Movement Volumes

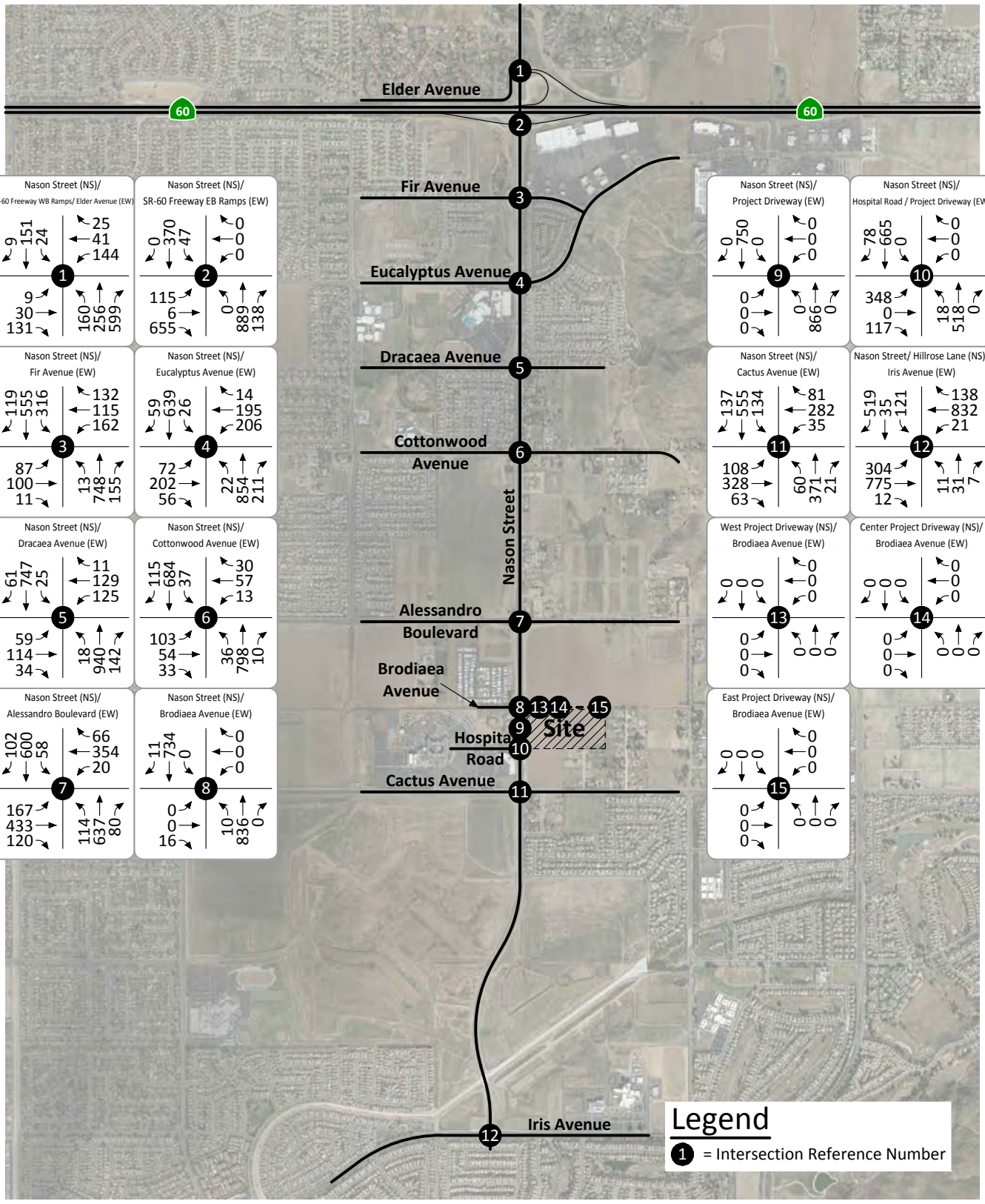

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Figure 46
Opening Year (2022) With Project
Morning Peak Hour Intersection Turning Movement Volumes

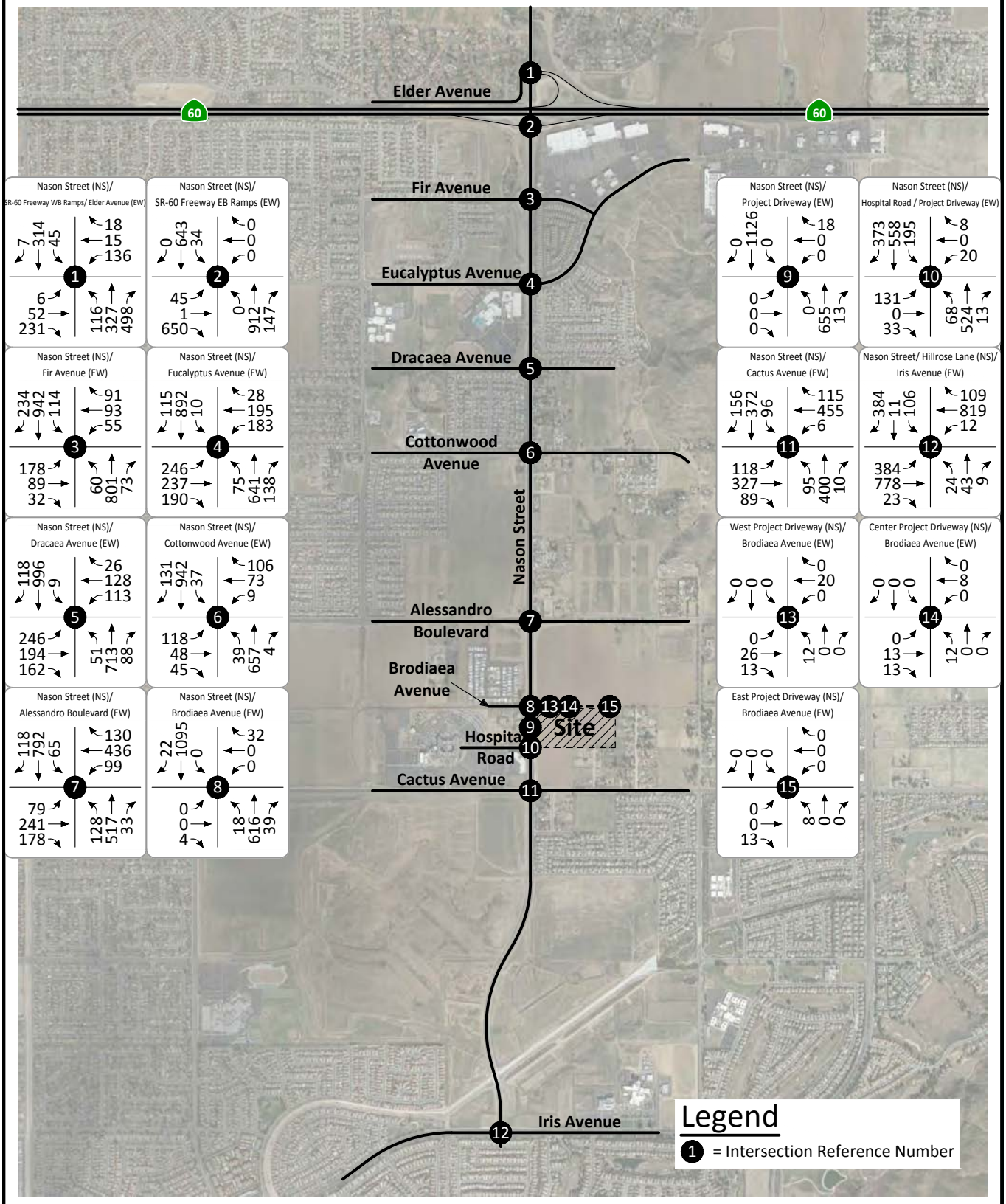

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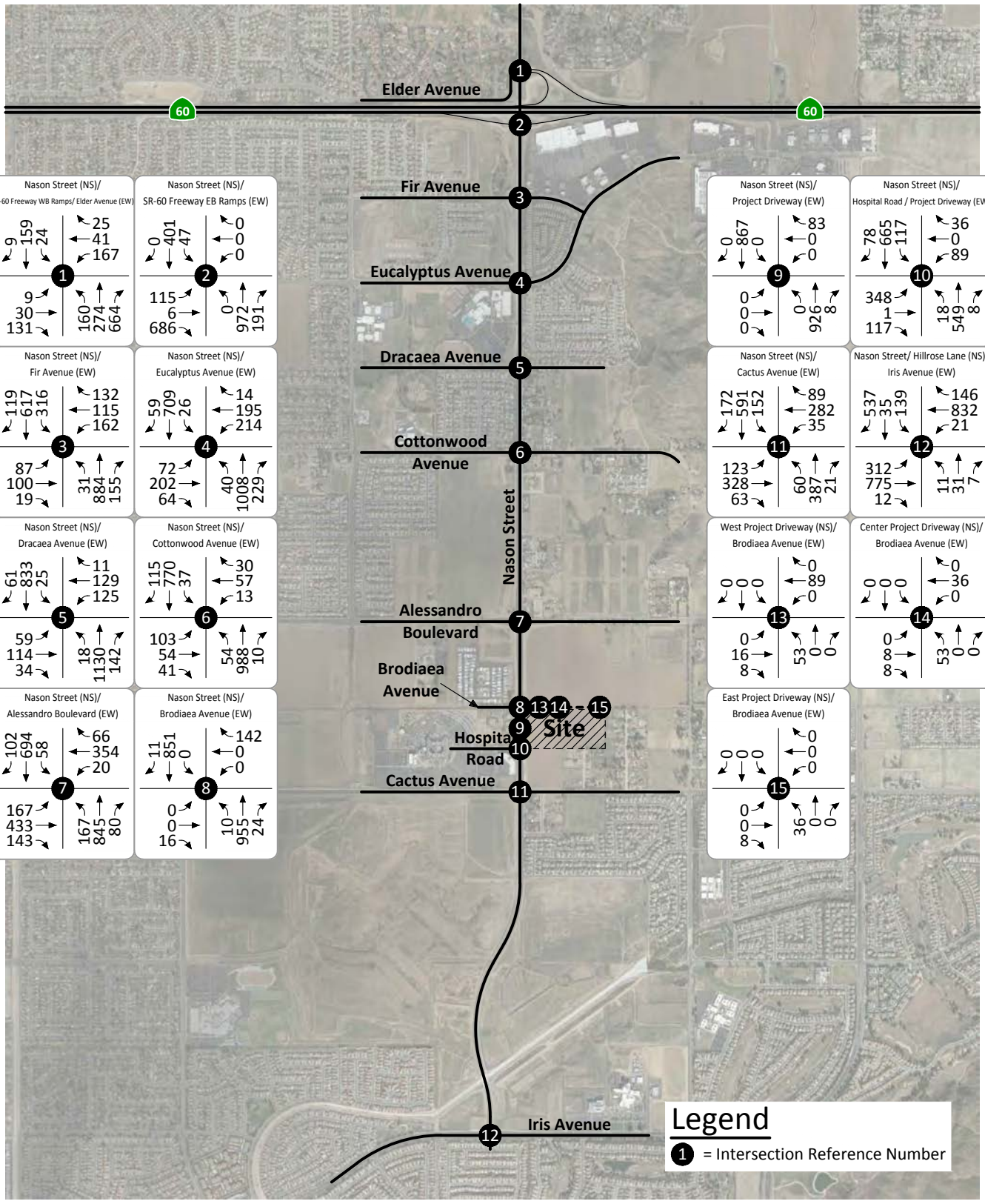
Figure 47
Opening Year (2022) With Project
Evening Peak Hour Intersection Turning Movement Volumes



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OVER 40 YEARS OF EXCELLENT SERVICE

JN 6462a

IX. YEAR 2040 TRAFFIC CONDITIONS

To assess future traffic conditions, the Moreno Valley Traffic Model data is used for Year 2040.

A. Method of Projection

Based upon discussions with City of Moreno Valley, the Year 2040 traffic volume forecasts have been determined using the City of Moreno Valley Traffic Model data based on the Riverside County Traffic Analysis Model (RIVTAM) (see Appendix D).

The Year 2040 traffic volumes are shown in Appendix E.

B. Roadway Segment Analysis

1. Year 2040 Without Project

The roadway segment Levels of Service for Year 2035 Without Project conditions are shown in Table 18. For Year 2040 Without Project traffic conditions, the following study area roadway segments are projected to operate at an unacceptable Levels of Service, without improvements:

Nason Street south of Eucalyptus Avenue
Nason Street north of Cottonwood Avenue
Alessandro Boulevard west of Nason Street
Cactus Avenue east of Nason Street

For Year 2040 Without Project traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

Figure 48 shows the average daily traffic volumes that can be expected for Year 2040 Without Project traffic conditions.

2. Year 2040 With Project Phases I, II, and III

The roadway segment Levels of Service for Year 2040 With Project Phases I, II, and III conditions are shown in Table 19. For Year 2040 With Project Phases I, II, and III traffic conditions, the following study area roadway segments are projected to operate at an unacceptable Levels of Service, without improvements:

Nason Street south of Eucalyptus Avenue
Nason Street north of Cottonwood Avenue
Alessandro Boulevard west of Nason Street
Cactus Avenue east of Nason Street

For Year 2040 With Project Phases I, II, and III traffic conditions, the study area roadway segments are projected to operate within acceptable Levels of Service, with improvements.

Figure 49 shows the average daily traffic volumes that can be expected for Year 2040 With Project Phases I, II, and III traffic conditions. For Year 2040 With Project Phase I, II, and III traffic conditions, Year 2040 traffic is combined with trips generated by the project.

C. Intersection Delay and Level of Service Analysis

The technique used to assess the capacity needs of an intersection is known as the Intersection Delay Method (see Appendix F). Delay and Level of Service worksheets for each analysis scenario are provided in Appendix F.

1. Year 2040 Without Project

The Year 2040 Without Project delay and Level of Service for the study area intersections are shown in Table 20. Morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figures 50 and 51, respectively. For Year 2040 Without Project traffic conditions, the following study area intersections are projected to operate at unacceptable Levels of Service during the peak hours, without improvements:

Nason Street (NS) at:
- Eucalyptus Avenue (EW) - #4
- Alessandro Boulevard (EW) - #7

For Year 2040 Without Project traffic conditions, the study area intersections are projected to operate within acceptable Levels of Service during the peak hours, with improvements.

2. Year 2040 With Project Phases I, II, and III

The Year 2040 With Project Phases I, II, and III delay and Level of Service for the study area intersections are shown in Table 21. Morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figures 52 and 53, respectively. For Year 2040 With Project Phases I, II, and III traffic conditions, the following study area intersections are projected to operate at unacceptable Levels of Service during the peak hours, without improvements:

Nason Street (NS) at:
- Eucalyptus Avenue (EW) - #4
- Alessandro Boulevard (EW) - #7

For Year 2040 With Project Phases I, II, and III traffic conditions, the study area intersections are projected to operate within acceptable Levels of Service during the peak hours, with improvements.

Table 18

Year 2040 Without Project Roadway Segment Level of Service

Roadway	Segment	Number of Lanes[1]	Maximum Capacity at Level of Service E	Average Daily Traffic Volume	Volume to Capacity	Level of Service[2]
Nason Street	north of SR-60 Freeway WB Ramps	4D	37,500	8,000	0.213	A
	between SR-60 Freeway WB Ramps and SR-60 Freeway EB Ramps	4D	37,500	22,200	0.592	A
	between SR-60 Freeway EB Ramps and Fir Avenue	4D	37,500	23,500	0.627	B
	between Fir Avenue and Eucalyptus Avenue	4D	37,500	26,300	0.701	C
	south of Eucalyptus Avenue					
	- Without Improvements	4D	37,500	39,600	1.056	F
	- With Improvements	**6D**	56,250	39,600	0.704	C
	north of Cottonwood Avenue					
	- Without Improvements	4D	37,500	37,500	1.000	E
	- With Improvements	**6D**	56,250	37,500	0.667	B
	between Cottonwood Avenue and Alessandro Boulevard	4D	37,500	32,600	0.869	D
	between Alessandro Boulevard and Brodiaea Avenue	5D	46,850	30,200	0.645	B
	between Brodiaea Avenue and Hospital Road	4D	37,500	30,000	0.800	C
	between Hospital Road and Cactus Avenue	4D	37,500	26,900	0.717	C
	south of Cactus Avenue	4D	37,500	23,500	0.627	B
Fir Avenue	west of Nason Street	2U	12,500	7,600	0.608	B
Eucalyptus Avenue	west of Nason Street	4D	37,500	15,500	0.413	A
	east of Nason Street	4D	37,500	31,300	0.835	D
Cottonwood Avenue	west of Nason Street	2U	12,500	6,800	0.544	A
Alessandro Boulevard	west of Nason Street					
	- Without Improvements	2U	12,500	31,200	2.496	F
	- With Improvements	**4D**	37,500	31,200	0.832	D
Brodiaea Avenue	west of Nason Street	2U	12,500	300	0.024	A
Cactus Avenue	west of Nason Street	4D	37,500	14,300	0.381	A
	east of Nason Street					
	- Without Improvements	2U	12,500	14,100	1.128	F
	- With Improvements	**2D**	18,750	14,100	0.752	C

[1] #D = #-Lane Divided Roadway; #U = #-Lane Undivided Roadway; **BOLD** = Improvement.

[2] Level of Service, which is based on maximum capacity (Level of Service E).

Volume to Capacity Ratio
0.000 - 0.600
0.601 - 0.700
0.701 - 0.800
0.801 - 0.900
0.901 - 1.000
>1.000

Table 19

Year 2040 With Project Roadway Segment Level of Service

Roadway	Segment	Number of Lanes[1]	Maximum Capacity at Level of Service E	Average Daily Traffic Volume	Volume to Capacity	Level of Service[2]
Nason Street	north of SR-60 Freeway WB Ramps	4D	37,500	8,300	0.221	A
	between SR-60 Freeway WB Ramps and SR-60 Freeway EB Ramps	4D	37,500	23,400	0.624	B
	between SR-60 Freeway EB Ramps and Fir Avenue	4D	37,500	25,600	0.683	B
	between Fir Avenue and Eucalyptus Avenue	4D	37,500	28,600	0.763	C
	south of Eucalyptus Avenue					
	- Without Improvements	4D	37,500	42,400	1.131	F
	- With Improvements	**6D**	56,250	42,400	0.754	C
	north of Cottonwood Avenue					
	- Without Improvements	4D	37,500	40,300	1.075	F
	- With Improvements	**6D**	56,250	40,300	0.716	C
	between Cottonwood Avenue and Alessandro Boulevard					
	- Without Improvements	4D	37,500	35,700	0.952	E
	- With Improvements	**6D**	56,250	35,700	0.635	B
	between Alessandro Boulevard and Brodiaea Avenue	5D	46,850	34,100	0.728	C
	between Brodiaea Avenue and Hospital Road	4D	37,500	32,700	0.872	D
	between Hospital Road and Cactus Avenue	4D	37,500	28,200	0.752	C
	south of Cactus Avenue	4D	37,500	24,000	0.640	B
Fir Avenue	west of Nason Street	2U	12,500	7,900	0.632	B
Eucalyptus Avenue	west of Nason Street	4D	37,500	15,800	0.421	A
	east of Nason Street	4D	37,500	31,600	0.843	D
Cottonwood Avenue	west of Nason Street	2U	12,500	7,100	0.568	A
Alessandro Boulevard	west of Nason Street					
	- Without Improvements	2U	12,500	32,000	2.560	F
	- With Improvements	**4D**	37,500	32,000	0.853	D
Brodiaea Avenue	west of Nason Street	2U	12,500	300	0.024	A
	east of Nason Street	2U	12,500	1,300	0.104	A
Cactus Avenue	west of Nason Street	4D	37,500	14,800	0.395	A
	east of Nason Street					
	- Without Improvements	2U	12,500	14,400	1.152	F
	- With Improvements	**2D**	18,750	14,400	0.768	C

[1] #D = #-Lane Divided Roadway; #U = #-Lane Undivided Roadway; **BOLD** = Improvement.

[2] Level of Service, which is based on maximum capacity (Level of Service E).

Volume to Capacity Ratio
0.000 - 0.600
0.601 - 0.700
0.701 - 0.800
0.801 - 0.900
0.901 - 1.000
>1.000

Table 20

Year 2040 Without Project Intersection Delay and Level of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Nason Street (NS) at:																
SR-60 Freeway WB Ramps (EW) - #1	California Department of Transportation	TS	1	2	1>	1	1.5	0.5	1	1	1>	1	1	1>	22.5-C	22.3-C
SR-60 Freeway EB Ramps (EW) - #2	California Department of Transportation	TS	0	2	d	1	2	0	1	0.5	1.5	0	0	0	24.6-C	26.4-C
Fir Avenue (EW) - #3	City of Moreno Valley	TS	1	2	d	1	2	1	1	0.5	0.5	1	1	1>	19.8-B	28.1-C
Eucalyptus Avenue (EW) - #4	City of Moreno Valley															
	- Without Improvements	TS	1	2	1	1	2	d	1	2	d	1	2	d	47.7-D	66.4-E
	- With Improvements	TS	1	2	1	1	2	d	1	2	d	1	**1.5**	**0.5**	31.9-C	34.9-C
Dracaea Avenue (EW) - #5	City of Moreno Valley	TS	1	2	d	1	2	d	1	0.5	0.5	1	0.5	0.5	23.2-C	16.9-B
Cottonwood Avenue (EW) - #6	City of Moreno Valley	TS	1	2	d	1	2	1	1	1	1	1	1.5	0.5	22.7-C	22.6-C
Alessandro Boulevard (EW) - #7	City of Moreno Valley															
	- Without Improvements	TS	1	2	1	1	3	1	2	2	1	2	1	1	68.4-E	80.7-F
	- With Improvements	TS	1	2	1	1	3	1	2	2	1	2	**2**	1	31.0-C	36.3-D
Brodiaea Avenue (EW) - #8	City of Moreno Valley	CSS	1	2	0	0	2.5	0.5	0	0	1	0	0	0	14.7-B	15.2-C
Hospital Road/Project Access (EW) - #10	City of Moreno Valley	TS	1	2	0	1	2	1	1	0	1	0	0	0	8.7-A	13.9-B
Cactus Avenue (EW) - #11	City of Moreno Valley	TS	2	2	1	1	2	1	1	1	1	1	0.5	0.5	38.1-D	41.5-D
Iris Avenue (EW) - #12	City of Moreno Valley	TS	1	0.5	0.5	1	1	1>	2	3	d	1	3	1	32.0-C	49.8-D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right Turn Overlap; d = De Facto Right Turn; **BOLD** = Improvement

[2] Delay and level of service calculated using the following analysis software: Vistro version 4.00-00. Per the Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Table 21

Year 2040 With Project Intersection Delay and Level of Service

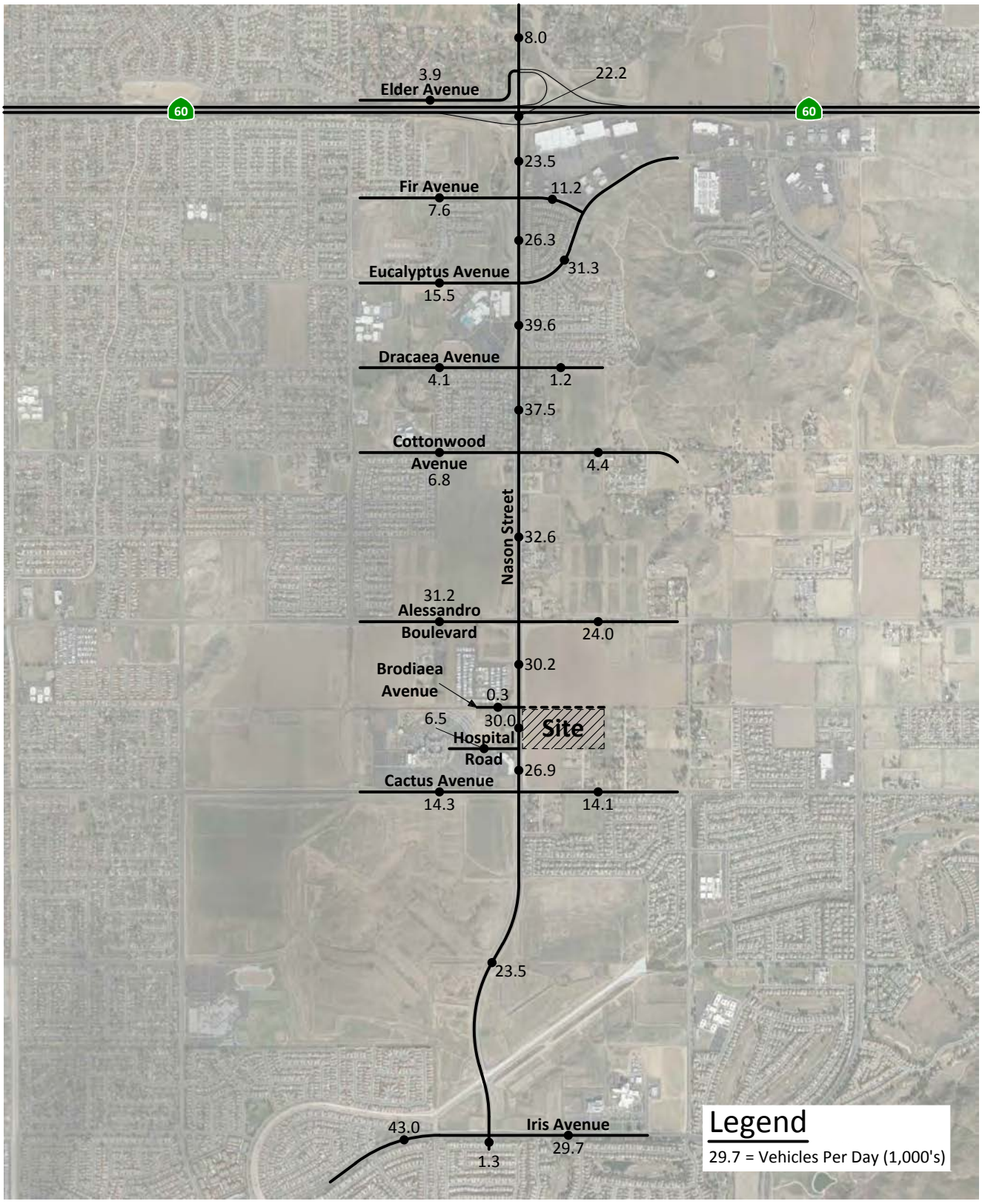
Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Nason Street (NS) at:																
SR-60 Freeway WB Ramps (EW) - #1	California Department of Transportation	TS	1	2	1>	1	1.5	0.5	1	1	1>	1	1	1>	16.1-B	18.5-B
SR-60 Freeway EB Ramps (EW) - #2	California Department of Transportation	TS	0	2	d	1	2	0	1	0.5	1.5	0	0	0	15.8-B	19.2-B
Fir Avenue (EW) - #3	City of Moreno Valley	TS	1	2	d	1	2	1	1	0.5	0.5	1	1	1>	20.5-C	33.4-C
Eucalyptus Avenue (EW) - #4	City of Moreno Valley															
	- Without Improvements	TS	1	2	1	1	2	d	1	2	d	1	2	d	57.2-E	76.1-E
	- With Improvements	TS	1	2	1	1	2	d	1	2	d	1	**1.5**	**0.5**	35.9-D	38.1-D
Dracaea Avenue (EW) - #5	City of Moreno Valley	TS	1	2	d	1	2	d	1	0.5	0.5	1	0.5	0.5	27.4-C	19.4-B
Cottonwood Avenue (EW) - #6	City of Moreno Valley	TS	1	2	d	1	2	1	1	1	1	1	1.5	0.5	24.4-C	25.5-C
Alessandro Boulevard (EW) - #7	City of Moreno Valley															
	- Without Improvements	TS	1	2	1	1	3	1	2	2	1	2	1	1	78.8-E	99.9-F
	- With Improvements	TS	1	2	1	1	3	1	2	2	1	2	**2**	1	33.8-C	43.9-D
Brodiaea Avenue (EW) - #8	City of Moreno Valley	CSS	1	**1.5**	**0.5**	0	2.5	0.5	0	0	1	0	0	1	16.4-C	23.9-C
Project Access (EW) - #9	City of Moreno Valley	CSS	0	2	**1**	0	3	0	0	0	0	0	0	**1**	12.8-B	18.8-C
Hospital Road/Project Access (EW) - #10	City of Moreno Valley	TS	1	2	**1**	1	2	1	0.5	0.5	1	**0.5**	**0.5**	**1**	16.1-B	26.5-C
Cactus Avenue (EW) - #11	City of Moreno Valley	TS	2	2	1	1	2	1	1	1	1	1	0.5	0.5	42.3-D	44.6-D
Iris Avenue (EW) - #12	City of Moreno Valley	TS	1	0.5	0.5	1	1	1>	2	3	d	1	3	1	32.2-C	51.9-D
Project West Access (NS) at:																
Brodiaea Avenue (EW) - #13	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.7-A	9.3-A
Project Central Access (NS) at:																
Brodiaea Avenue (EW) - #14	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.6-A	8.7-A
Project East Access (NS) at:																
Brodiaea Avenue (EW) - #15	City of Moreno Valley	**CSS**	**0.5**	0	**0.5**	0	0	0	0	**0.5**	**0.5**	**0.5**	**0.5**	0	8.5-A	8.5-A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; > = Right Turn Overlap; d = De Facto Right Turn;**BOLD** = Improvement

[2] Delay and level of service calculated using the following analysis software: Vistro version 4.00-00. Per the Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signa
stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Figure 48
Year 2040 Without Project Average Daily Traffic Volumes



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OVER 40 YEARS OF EXCELLENT SERVICE

JN 6462a

Figure 49
Year 2040 With Project Average Daily Traffic Volumes

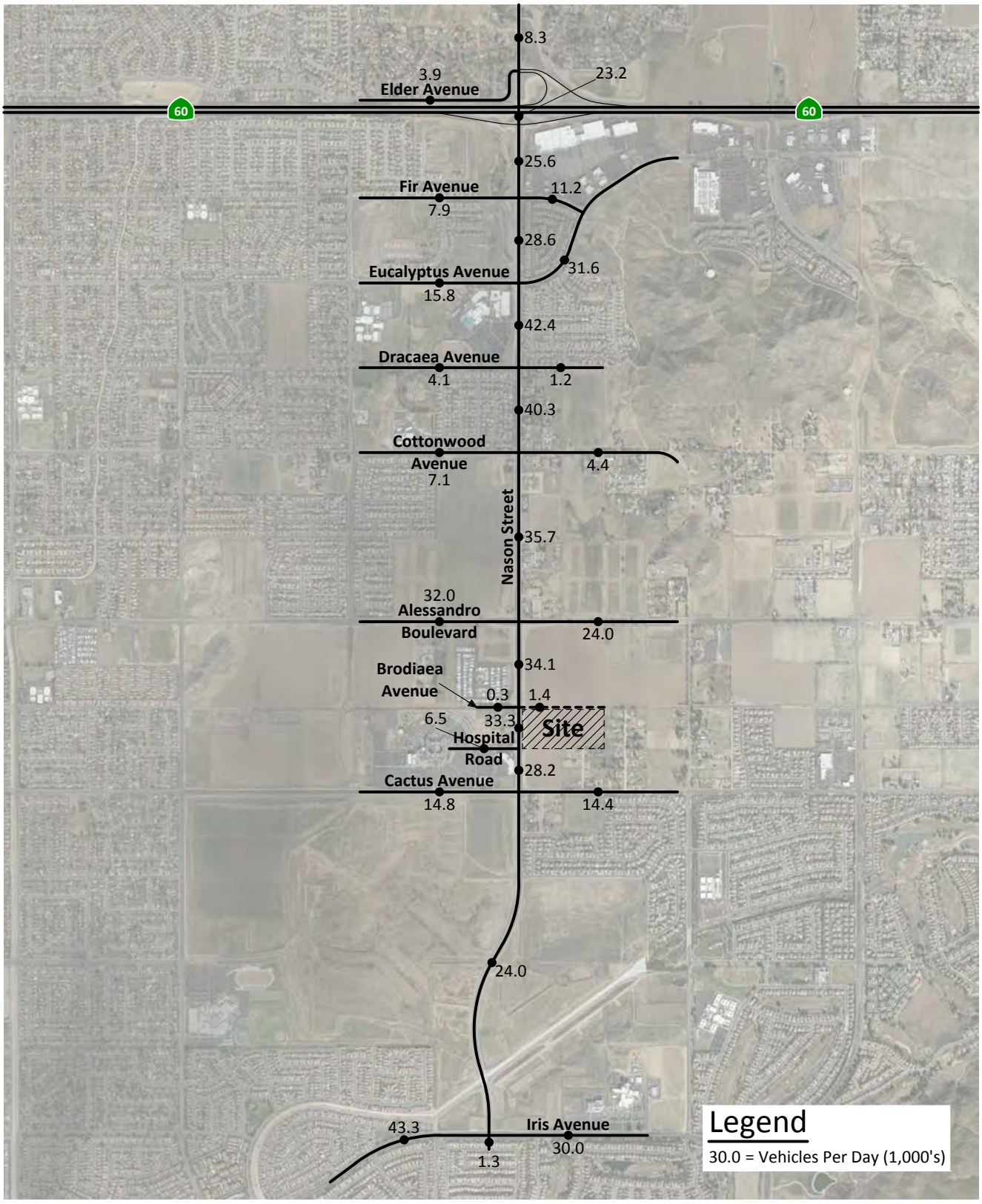

Figure 50
Year 2040 Without Project
Morning Peak Hour Intersection Turning Movement Volumes

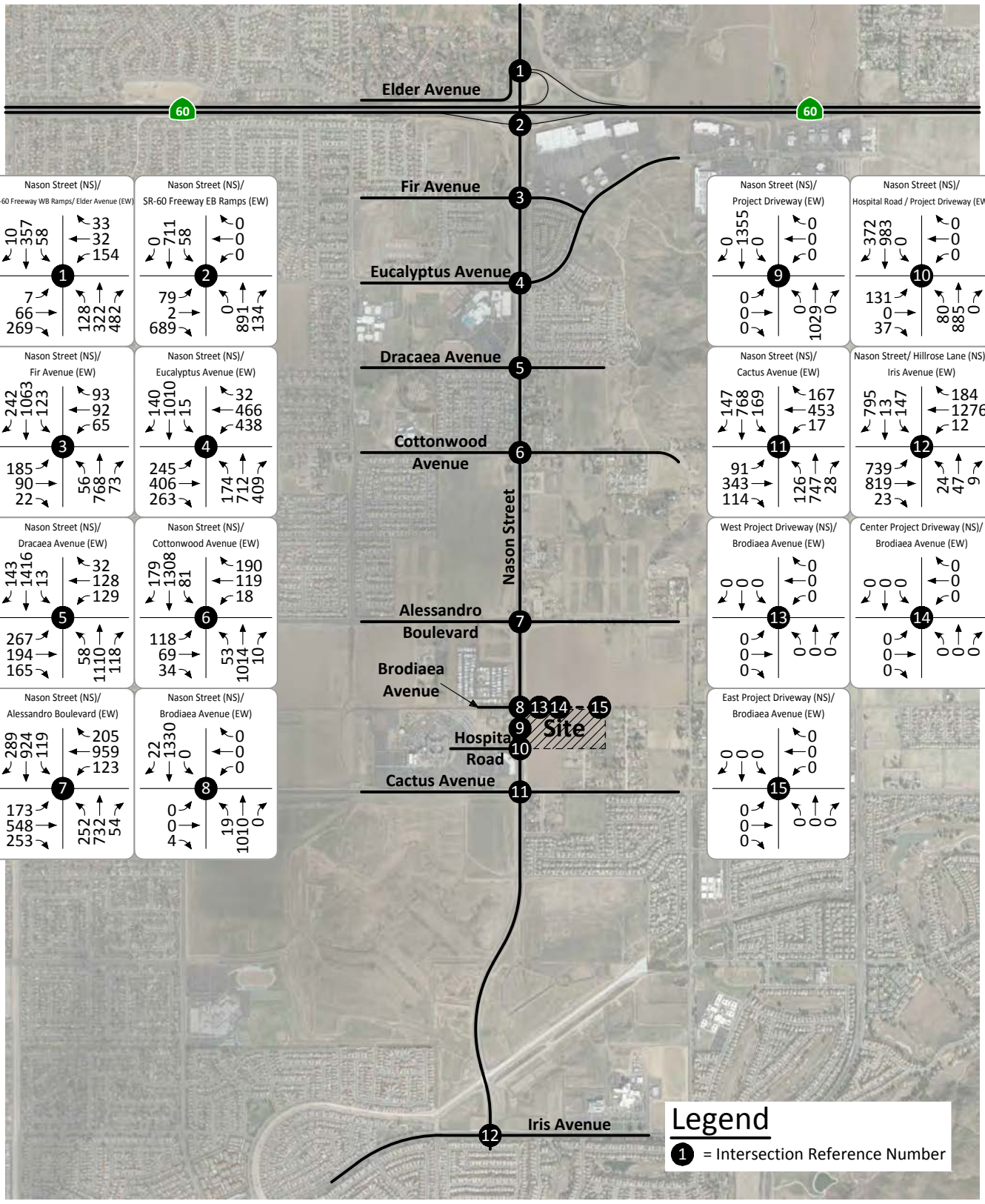

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Figure 51
Year 2040 Without Project
Evening Peak Hour Intersection Turning Movement Volumes

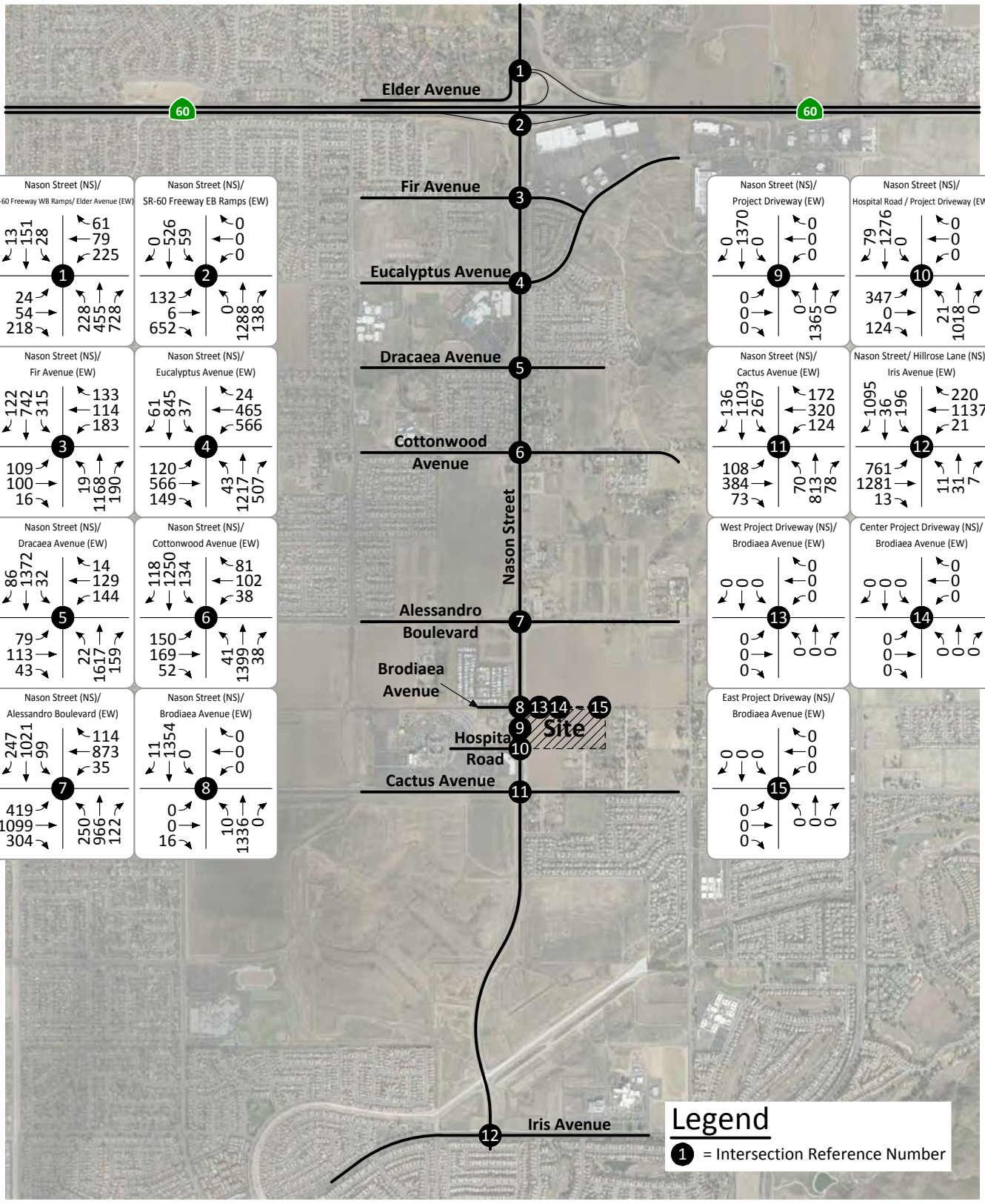

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Figure 52
Year 2040 With Project
Morning Peak Hour Intersection Turning Movement Volumes

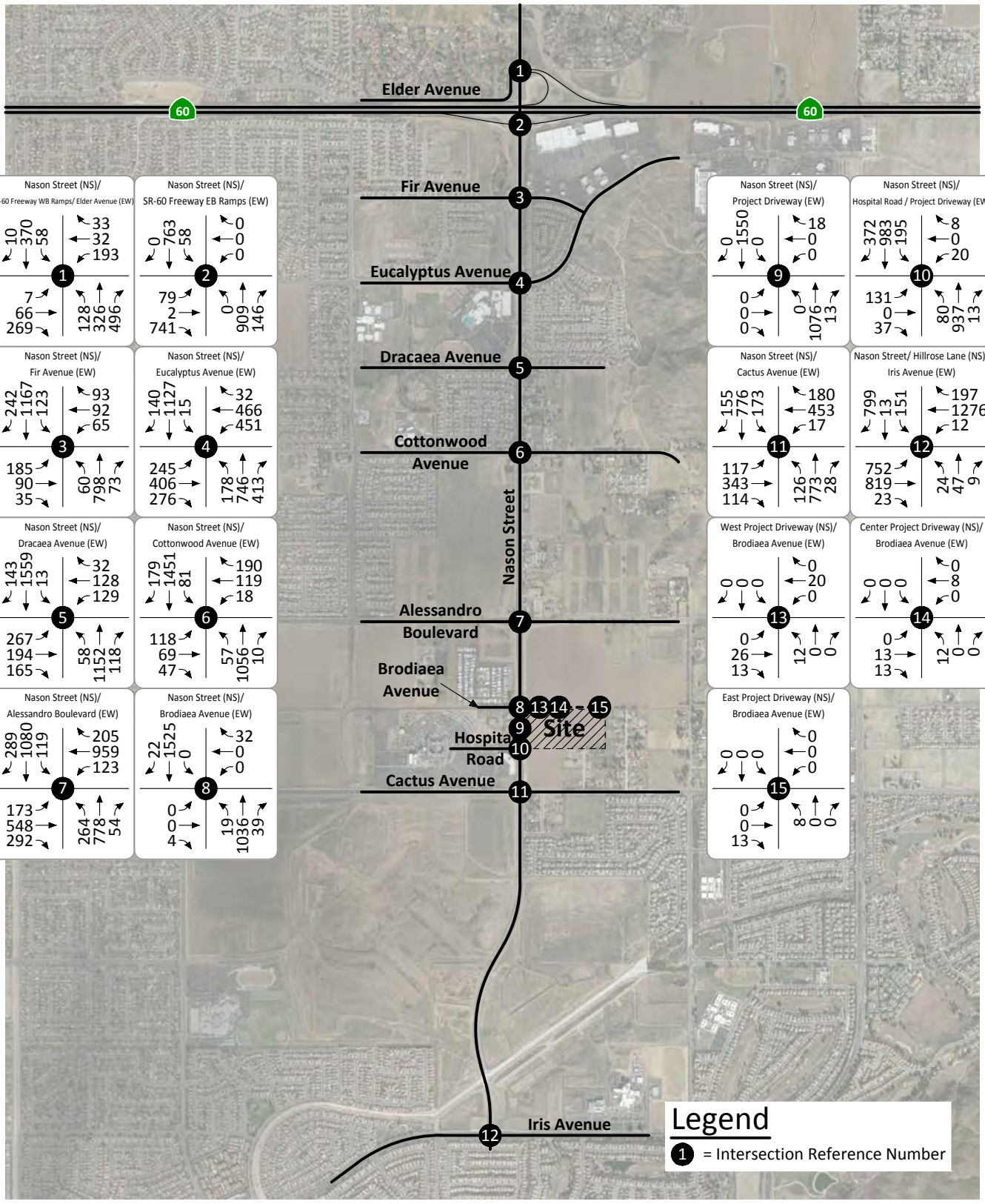

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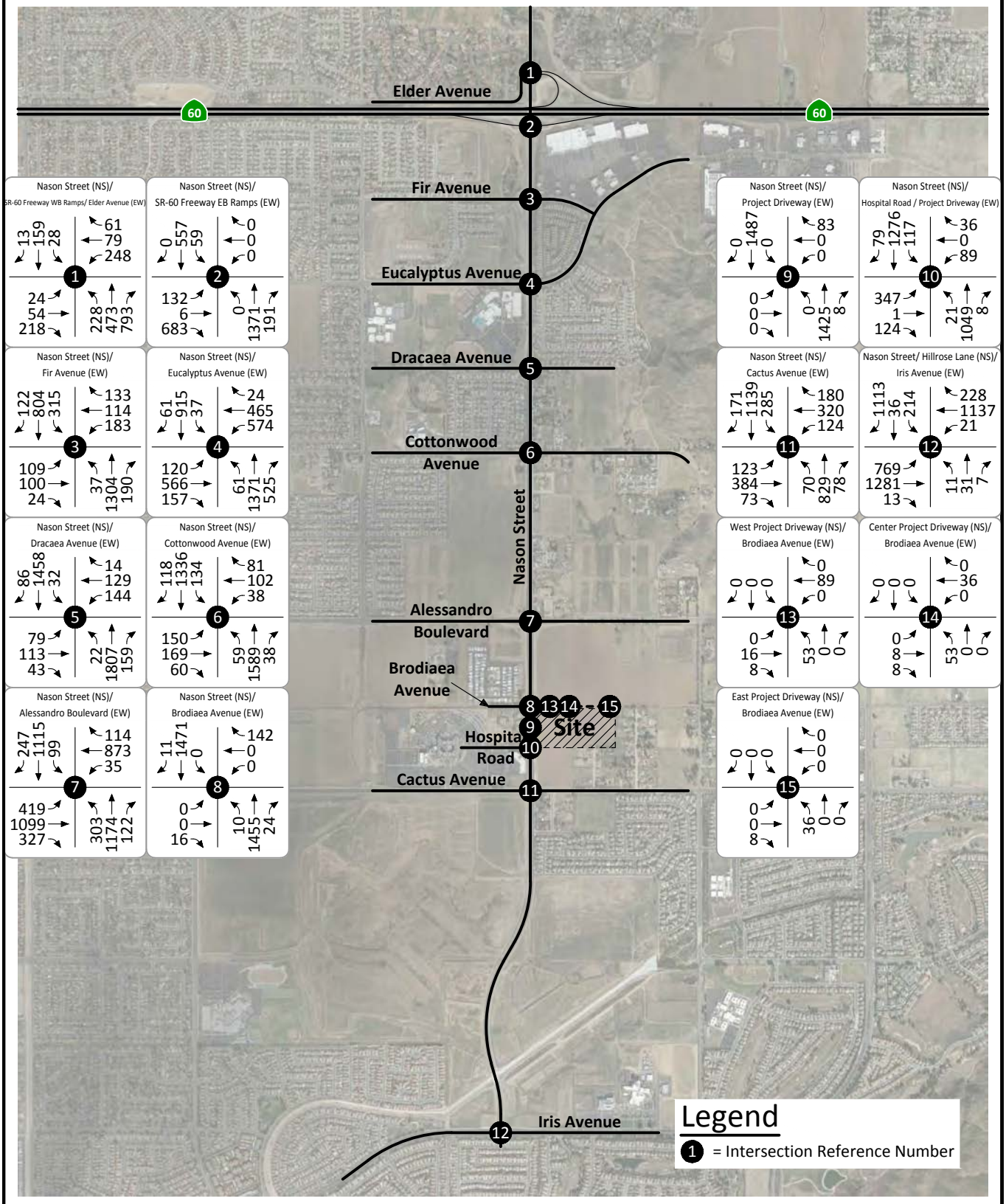
Figure 53
Year 2040 With Project
Evening Peak Hour Intersection Turning Movement Volumes



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OVER 40 YEARS OF EXCELLENT SERVICE

JN 6462a

X. VEHICLE QUEUING ANALYSIS

A. Vehicle Queuing Locations

Pursuant to the scoping discussions with City of Moreno Valley staff, the study area includes the following queuing areas (see Appendix B):

Nason Street (NS) at:
- Alessandro Avenue (EW) - #7
  - Northbound Left Turn

Nason Street (NS) at:
- Brodiaea Avenue (EW) - #8
  - Northbound Left Turn
  - Northbound Right Turn
  - Southbound Left Turn
  - Southbound Right Turn
  - Eastbound Left Turn
  - Eastbound Right Turn
  - Westbound Left Turn
  - Westbound Right Turn

Nason Street (NS) at:
- Project Access (EW) - #9
  - Northbound Right Turn
  - Westbound Right Turn

Nason Street (NS) at:
- Hospital Road (EW) - #10
  - Northbound Left Turn
  - Northbound Right Turn
  - Southbound Left Turn
  - Southbound Right Turn
  - Eastbound Left Turn
  - Eastbound Right Turn
  - Westbound Left Turn
  - Westbound Right Turn

Project West Access (NS) at:
- Brodiaea Avenue (EW) - #13
  - Northbound Left Turn
  - Northbound Right Turn
  - Eastbound Right Turn
  - Westbound Left Turn

Project Central Access (NS) at:
- Brodiaea Avenue (EW) - #14
  - Northbound Left Turn
  - Northbound Right Turn
  - Eastbound Right Turn
  - Westbound Left Turn

Project East Access (NS) at:
- Brodiaea Avenue (EW) - #15
  - Northbound Left Turn
  - Eastbound Right Turn

B. Vehicle Queuing Storage Lengths

The existing vehicle queuing storage lengths have been measured using aerial photographs and the results are shown in Table 22.

C. Vehicle Queuing Analysis

The vehicle queuing analysis from the Synchro software (see Appendix G) is summarized in Table 22. As shown in the summary table, all future vehicle queuing demands are able to be contained in the vehicle queuing storage areas.

Table 22

Queuing Analysis Summary[1]

Intersection	Movement	Approximate Storage Length (Feet)	95th-Percentile Queue Length (Feet)										Adequate Storage Provided
			Existing Plus Project		Opening Year (2020) With Project		Opening Year (2021) With Project		Opening Year (2022) With Project		Long-Range Year (2040) With Project		
			Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening	Morning	Evening	
Nason Street (NS) at:													
Alessandro Boulevard (EW) - #7	Northbound Left	285	50	153	129	127	185	122	172	196	442	506	Yes[2]
Brodiaea Avenue (EW) - #8	Northbound Left	160	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
	Northbound Right	570	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
	Southbound Right	1200	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
	Eastbound Right	220	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
	Westbound Right	280	<25	50	<25	<25	<25	150	<25	50	<25	53	Yes
	Northbound Right	270	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
Project Driveway (EW) - #9	Westbound Right	240	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
	Northbound Right	540	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
Hospital Road (EW) - #10	Northbound Left	230	66	<25	51	<25	61	26	74	32	88	36	Yes
	Southbound Right	245	32	13	27	<25	25	<25	29	<25	45	26	Yes
	Southbound Left	250	227	156	<25	28	125	112	192	160	178	162	Yes
	Eastbound Right	650	<25	34	<25	27	<25	29	<25	36	6	38	Yes
	Eastbound Left	650	89	301	75	206	92	218	112	344	93	372	Yes
	Westbound Right	230	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
	Westbound Left	230	27	84	<25	<25	<25	<25	31	94	<25	93	Yes
West Project Driveway (NS) at:	Northbound Right	37	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
Brodiaea Avenue (EW) - #13	Northbound Left	37	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
	Eastbound Right	280	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
	Westbound Left	265	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
Center Project Driveway (NS) at:	Northbound Right	37	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
Brodiaea Avenue (EW) - #14	Northbound Left	37	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
	Eastbound Right	265	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
	Westbound Left	600	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
East Project Driveway (NS) at:	Northbound Left	37	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes
Brodiaea Avenue (EW) - #15	Eastbound Right	600	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	Yes

[1] Assuming 25 feet of queue per vehicle, a queue length of less than 25 feet indicates nominal queuing.

[2] The traffic impact analysis assumes a single left turn pocket for northbound Nason Street at Alessandro Boulevard. The maximum projected queue length is just slightly greater than the single lane storage capacity. In the future, there will be two northbound left turn lanes. At that point, the queuing will be adequately accommodated within the provided storage area.

XI. RECOMMENDATIONS

A. Site Access

The project site is proposed to provide access to Nason Street and Brodiaea Avenue.

Existing signing and striping along Nason Street adjacent to the project site needs to be modified to accommodate the proposed project access.

The existing traffic signal at Nason Street (NS) at Hospital Road (EW) - #10 needs to be modified to accommodate the proposed project access.

With more than one entrance, adequate emergency access is assured because there is more than one way of reaching any point within the site.

As is the case for any roadway design, the City of Moreno Valley should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

B. Roadway Improvements

Site-specific circulation and access recommendations are depicted on Figure 54.

Construct Nason Street from Brodiaea Avenue to Hospital Road its ultimate half-section width as a Divided Major Arterial (120 foot right-of-way) in conjunction with development, including landscaping and parkway improvements, as necessary.

Construct Brodiaea Avenue from Nason Street to the east project boundary at its ultimate half-section width in conjunction with development, including landscaping and parkway improvements, as necessary.

On-site traffic signing/striping should be implemented in conjunction with detailed construction plans for the project site.

Sight distance at project accesses shall comply with standard California Department of Transportation and City of Moreno Valley sight distance standards. The final grading, landscaping, and street improvement plans shall demonstrate that sight distance standards are met. Such plans must be reviewed by the City and approved as consistent with this measure prior to issue of grading permits.

Participate in the phased construction of off-site traffic signals through payment of traffic signal mitigation fees. The traffic signals within the study area at buildout should specifically include an interconnect of the traffic signals to function in a coordinated system.

As is the case for any roadway design, the City of Moreno Valley should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

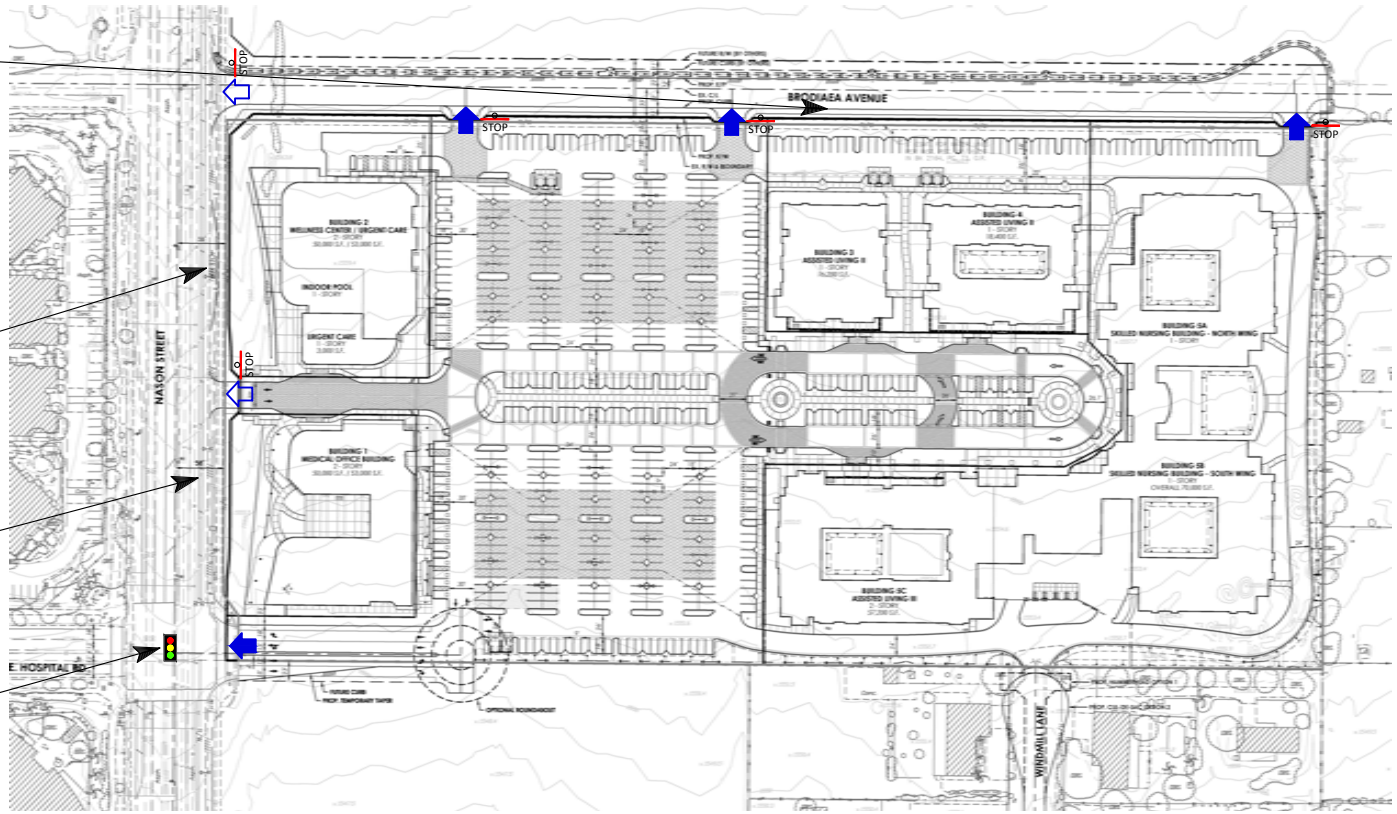
Figure 54
Circulation Recommendations

Construct Brodiaea Avenue from Nason Street to the east project boundary at its ultimate half-section width in conjunction with development, including landscaping and parkway improvements, as necessary.

Construct Nason Street from Brodiaea Avenue to Hospital Road its ultimate half-section width as a Divided Major Arterial (120 foot right-of-way) in conjunction with development, including landscaping and parkway improvements, as necessary.

Existing signing and striping along Nason Street adjacent to the project site needs to be modified to accommodate the proposed project access.

The existing traffic signal at Nason Street (NS) at Hospital Road (EW) - #10 needs to be modified to accommodate the proposed project access.



On-site traffic signing/striping should be implemented in conjunction with detailed construction plans for the project site.

Sight distance at project accesses shall comply with standard California Department of Transportation and City of Moreno Valley sight distance standards. The final grading, landscaping, and street improvement plans shall demonstrate that sight distance standards are met. Such plans must be reviewed by the City and approved as consistent with this measure prior to issue of grading permits.

Participate in the phased construction of off-site traffic signals through payment of traffic signal mitigation fees. The traffic signals within the study area at buildout should specifically include an interconnect of the traffic signals to function in a coordinated system.

As is the case for any roadway design, the City of Moreno Valley should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

Legend

= Traffic Signal
= Stop Sign
= Full Access Driveway
= Right Turns In/Out Only Access Driveway