

Appendix I Traffic Impact Analysis

APPENDIX

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**TRAFFIC IMPACT ANALYSIS FOR THE
AMWAY PROJECT**
Buena Park, California
November 11, 2025

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TRAFFIC IMPACT ANALYSIS FOR THE AMWAY PROJECT

BUENA PARK, CALIFORNIA

NOVEMBER 11, 2025

1.0 INTRODUCTION

This Traffic Impact Analysis was conducted by Linscott, Law & Greenspan, Engineers (LLG) to determine and evaluate the potential traffic impacts associated with the Amway Project (“Project”), which is a residential development proposed at 5600 Beach Boulevard in the City of Buena Park. The Project site is currently occupied by Amway, a health, wellness, and beauty manufacturer and direct-selling company.

The Project will demolish the existing structures on site totaling 370,031 SF of light industrial uses, and develop a total of 281 residential units, consisting of 50 affordable apartment units, 114 townhomes, and 117 units of duet-style homes (i.e., attached single-family units). The Project is expected to be completed and fully occupied by Year 2029.

This report presents a non-CEQA transportation assessment, including an inventory of existing characteristics and traffic volumes at key locations within the study area, forecasts of vehicular traffic anticipated to be generated by the Project (including trip generation comparisons between the proposed Project and the existing Amway), evaluation of potential non-CEQA impacts of Project-generated trips on the surrounding street system, queuing analyses at Caltrans-controlled intersections and Project driveways, traffic signal warrants, and evaluation of internal and multimodal circulation. This report also provides a CEQA assessment (Project screening) of VMT, active transportation, and public transit, in addition to traffic safety assessment related to collision history, truck trips within the study area, and sight distance at Project driveway intersections.

1.1 Study Scope

The study scope for this traffic impact report, including the base assumptions, technical methodologies, and geographic coverage, were developed in conjunction with City and Caltrans staff, and are in accordance with the *City of Buena Park Traffic Impact Analysis Guidelines – 2020 for Vehicle Miles Traveled and Level of Service Assessment* (June 2020). **Appendix A** presents the study’s scope of work approved by both the City and Caltrans.

Forty-three (43) key study intersections were selected for detailed non-CEQA peak hour traffic impact/level of service analysis during the weekday AM and PM commute peak hours (6:30 to 9:00 AM, and 3:00 to 7:00 PM, consistent with the City’s traffic study guidelines) under each of the four traffic scenarios described below, in addition to queuing analysis and traffic safety assessment.

The geographic scope identified for the study applies a very conservative approach because the proposed residential Project would result in fewer peak hour trips compared to existing peak hour trips generated by Amway currently occupying the Project site. Furthermore, the Project would be replacing truck trips generated by Amway with mostly passenger cars.

The temporal scope used as basis for this study is also conservative because the traffic counts were conducted for 2.5 hours during the AM commute period, and for 4 hours during the PM commute period, significantly exceeding the 2-hour period typically evaluated in most traffic studies.

The forty-three (43) intersections listed below provide regional and local access to the study area and define the extent of the boundaries for this traffic study.

Key Study Intersections

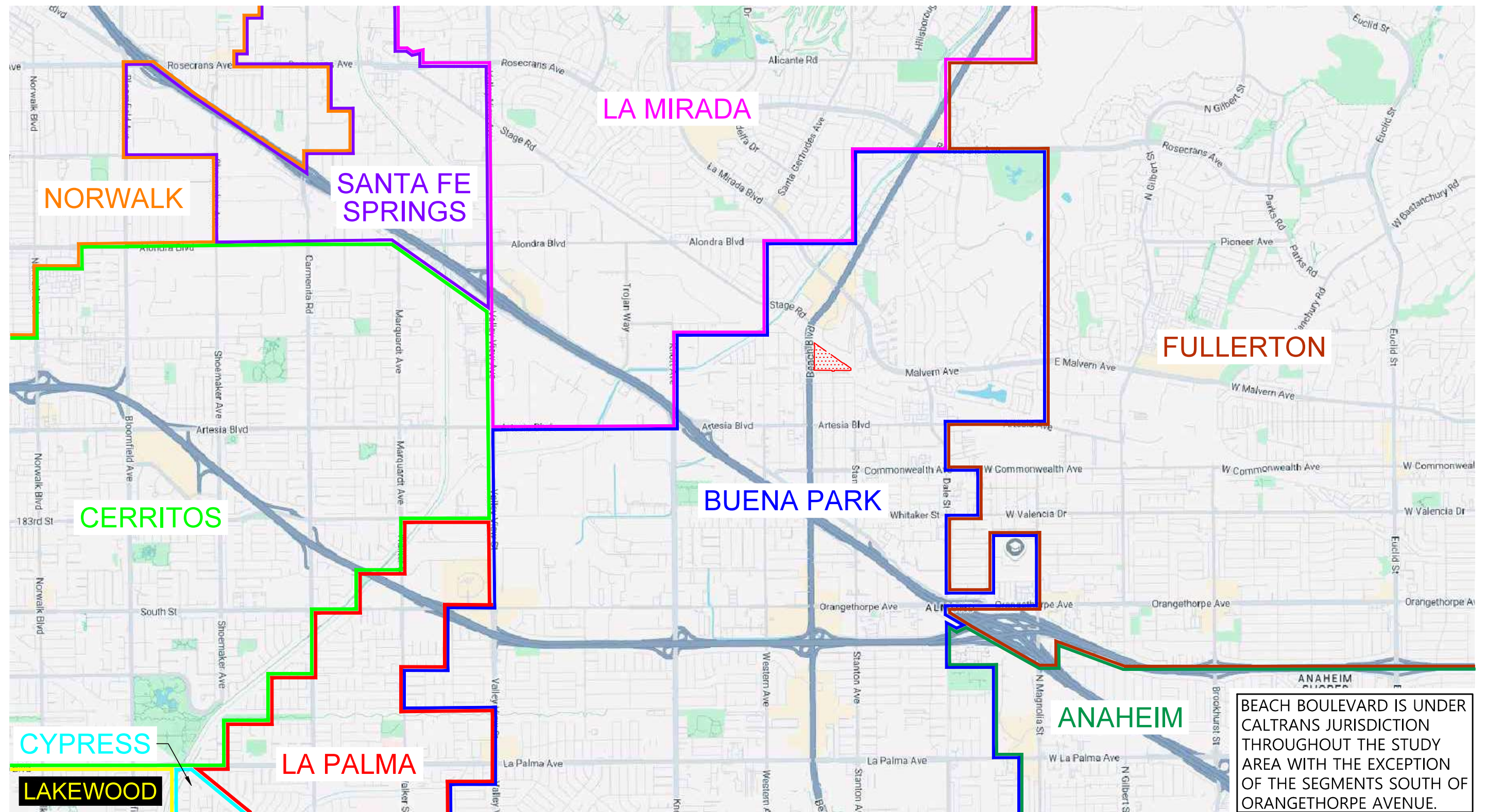
1. Beach Boulevard at Imperial Highway (Caltrans)
2. Beach Boulevard at Rosecrans Avenue (Caltrans)
3. Beach Boulevard at La Mirada Boulevard/Malvern Avenue (Caltrans)
4. Beach Boulevard at Stage Road/Cascade Way (Caltrans)
5. Beach Boulevard at Craig Avenue/Project Driveway “Street B” (Caltrans)
6. Beach Boulevard at Dr. Sam Way (Caltrans)
7. Beach Boulevard at Franklin Street (Caltrans)
8. Beach Boulevard at Artesia Boulevard (City of Buena Park)
9. Beach Boulevard at Commonwealth Avenue (Caltrans)
10. Beach Boulevard at Auto Center Drive (Caltrans)
11. Beach Boulevard at Orangethorpe Avenue (City of Buena Park)
12. Beach Boulevard at SR-91 WB Ramps (Caltrans)
13. Beach Boulevard at SR-91 EB Ramps (Caltrans)
14. Beach Boulevard at La Palma Avenue (City of Buena Park)
15. I-5 NB Ramps at Auto Center Drive (Caltrans)
16. I-5 SB Off Ramp at Auto Center Drive (Caltrans)
17. I-5 SB Off Ramp/Knott Avenue at Artesia Boulevard (Caltrans)
18. Firestone Boulevard/I-5 NB Ramps at Artesia Boulevard (Caltrans)
19. Botryoides Avenue at Artesia Boulevard (City of Buena Park)
20. Rostrata Ave at Artesia Boulevard (City of Buena Park)
21. Western Ave at Artesia Boulevard (City of Buena Park)
22. Homewood Avenue at Franklin Street (City of Buena Park)
23. Homewood Avenue at Holt Street (City of Buena Park)
24. Homewood Avenue at Artesia Boulevard (City of Buena Park)
25. Darlington Avenue at Franklin Street (City of Buena Park)
26. Darlington Avenue at Holt Street (City of Buena Park)
27. Darlington Avenue at Artesia Boulevard (City of Buena Park)
28. Marshall Avenue at Franklin Street (City of Buena Park)
29. Marshall Avenue at Holt Street (City of Buena Park)
30. Marshall Avenue at Artesia Boulevard (City of Buena Park)
31. Staton Avenue at Franklin Street (City of Buena Park)
32. Staton Avenue at Taylor Street (City of Buena Park)
33. Staton Avenue at Holt Street (West) (City of Buena Park)
34. Staton Avenue at Holt Street (East) (City of Buena Park)
35. Staton Avenue at Artesia Boulevard (City of Buena Park)

36. Staton Avenue at 4th Street (City of Buena Park)
37. Staton Avenue at Commonwealth Avenue (City of Buena Park)
38. Staton Avenue at 7th Street (City of Buena Park)
39. Staton Avenue at Whitaker Street (City of Buena Park)
40. Staton Avenue at Auto Center Drive/9th Street (City of Buena Park)
41. Dale Street at Malvern Avenue (City of Buena Park)
42. Dale Street at Artesia Avenue (City of Buena Park)
43. Dale Street at Commonwealth Avenue (City of Buena Park)

Figures 1 and 2 present a Vicinity Map and the Study Intersections, which illustrate the general location of the Project and depict the study locations and surrounding street system.

The following four traffic scenarios were evaluated in the study:

- **Existing (2025)** - The analysis of existing traffic conditions is intended to provide a base of analysis for the remainder of the study. The existing conditions analysis includes an assessment of the streets in the area, current traffic volumes, and operating conditions.
- **Existing (2025) Plus Project** - This is an analysis of existing traffic conditions with the addition of Project-generated traffic. Potential traffic impacts will be determined, and additional improvement measures to address the deficiencies will be identified, if necessary.
- **Year 2029 Cumulative Base** - This phase of analysis projects future traffic growth and operating conditions in the Year 2029 (completion year for the Project) which could be expected to result from regional growth and related projects without the addition of Project traffic.
- **Year 2029 Cumulative Plus Project** - This is an analysis of future traffic conditions in the Year 2029 (completion year for the Project) with the addition of Project-generated traffic. Potential traffic impacts will be determined, and additional improvement measures to address the deficiencies will be identified, if necessary.



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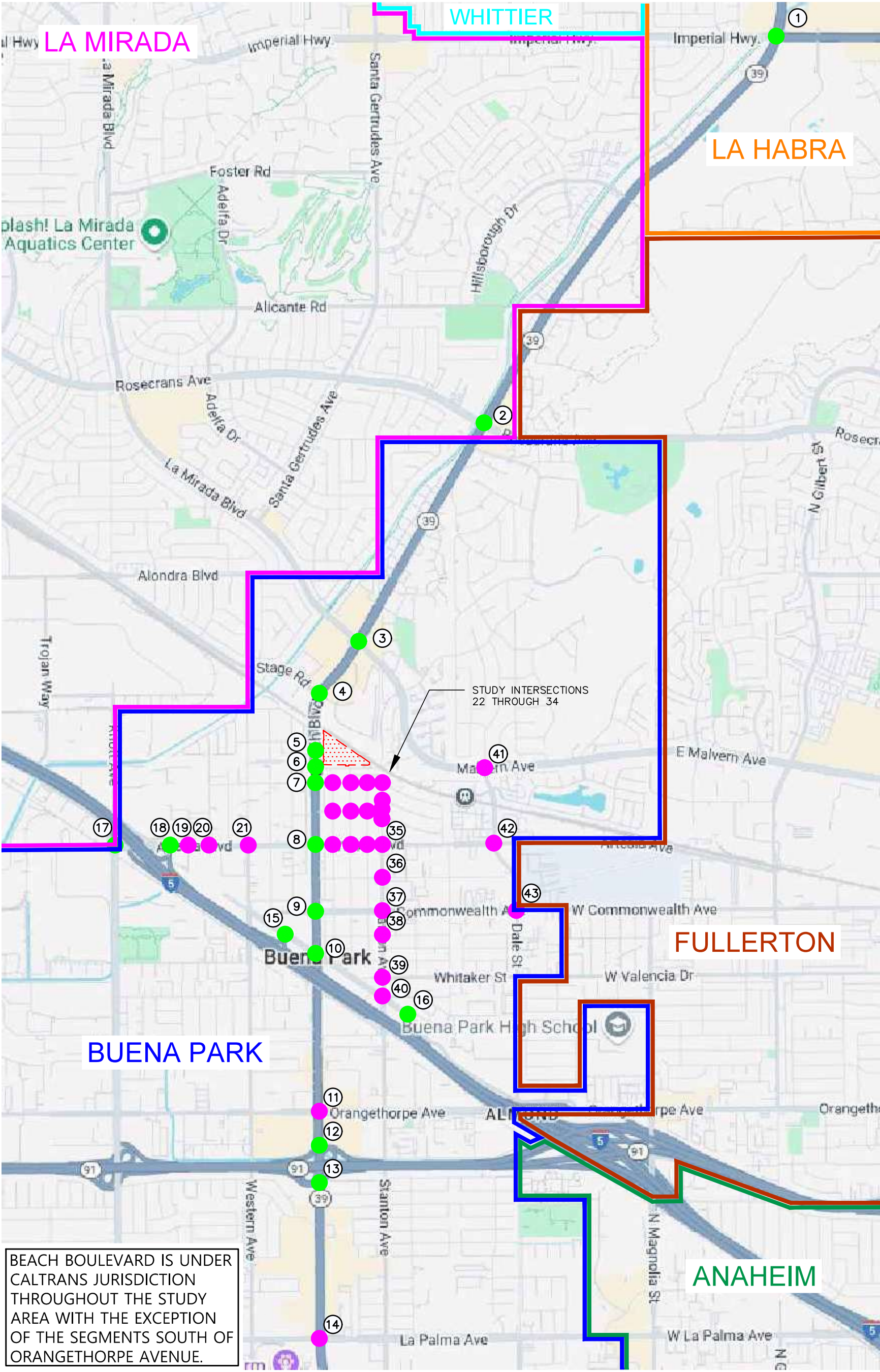
SOURCE: GOOGLE MAPS



KEY
 = PROJECT SITE

FIGURE 1

VICINITY MAP
 AMWAY, BUENA PARK



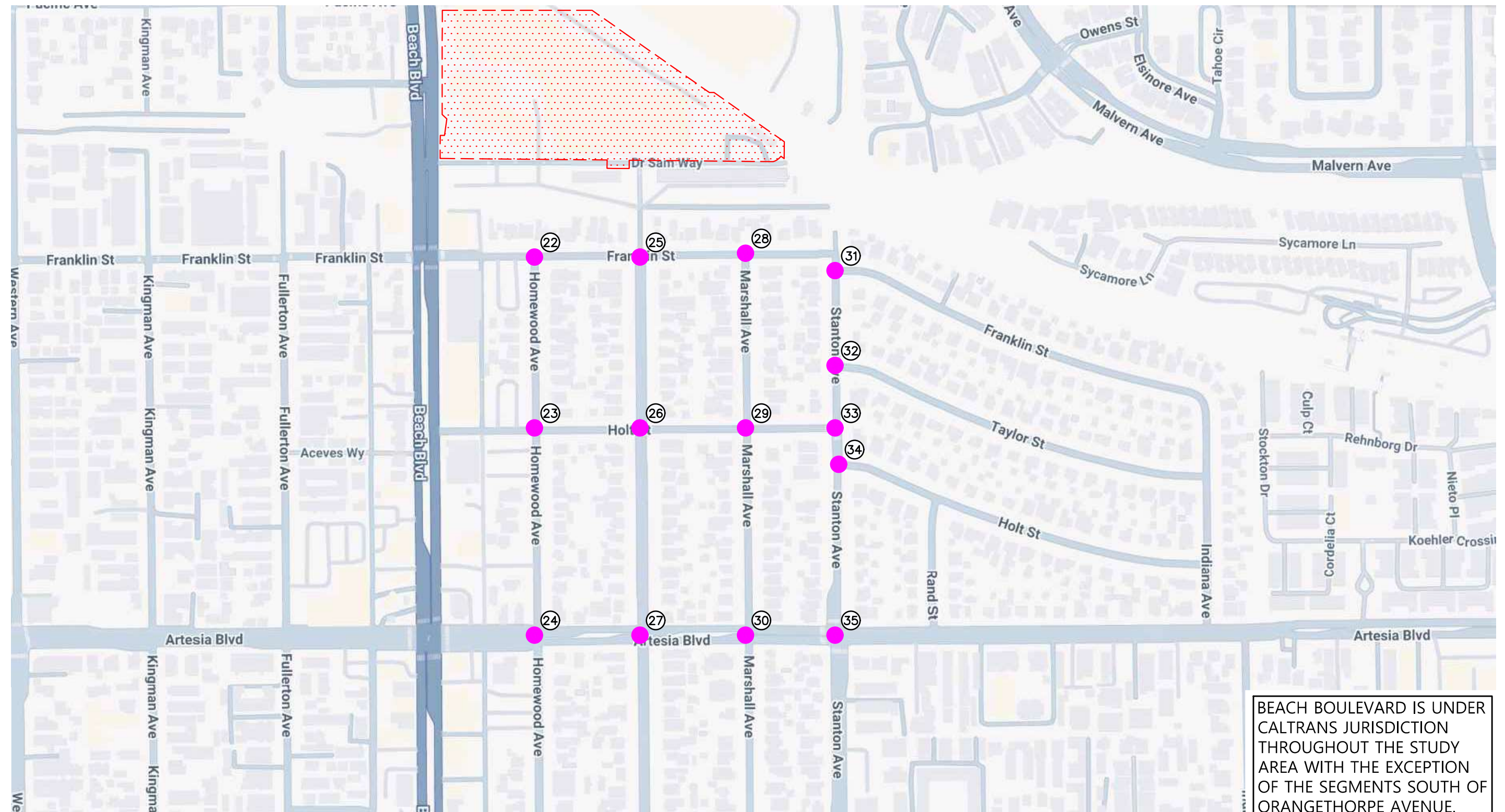
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SOURCE: GOOGLE MAPS

FIGURE 2A

STUDY INTERSECTIONS
AMWAY, BUENA PARK



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SOURCE: GOOGLE MAPS

- KEY**
- = CITY OF BUENA PARK INTERSECTION
 - = PROJECT SITE



FIGURE 2B

STUDY INTERSECTIONS
AMWAY, BUENA PARK

2.0 PROJECT DESCRIPTION

The Project site is located at 5600 Beach Boulevard in the City of Buena Park, and is currently occupied by Amway. The Project will demolish the existing structures on site totaling 370,031 SF of light industrial uses, and develop a total of 281 residential units, consisting of 50 affordable apartment units, 114 townhomes, and 117 units of duet-style homes (i.e., attached single-family units). The Project is expected to be completed and fully occupied by Year 2029.

Figure 3 presents the proposed Project site plan, prepared by KTGy.

2.1 Project Site Access and Multimodal Setting

Access to the Project site will be provided via two right-turn in/out, stop-controlled driveways (i.e., Dr. Sam Way, and Street B) that intersect Beach Boulevard, and a full-access, stop-controlled driveway at Darlington Avenue. The proposed intersection control and lane geometry at each of the Project site access points are consistent with existing intersections (i.e., Beach Boulevard/Dr. Sam Way, Darlington Avenue/Franklin Street), and maintain the existing curb cut on Beach Boulevard at Street B.

Within the study area, Beach Boulevard is controlled by Caltrans, and is designated as a “major highway” and truck route in the City’s Mobility Element. The Project site plan adopts the objectives and standards of the City’s Mobility Element, Complete Streets, and Active Transportation.

The Project proposes crosswalks and pedestrian connections on site, and maintains those along Beach Boulevard.

The Project site is located 0.43 miles (1.1-mile driving distance) from the Buena Park Metrolink Station, and is located within a Transit Priority Area (TPA) and Major Transit Stop, as defined by SCAG within the City Limits. Although the Project site is not located along a High Quality Transit Corridor (HQTC), it is only 1.3 miles from the HQTC’s northern boundary along Beach Boulevard at Orangethorpe Avenue.



SOURCE: KTG

3.0 EXISTING (2025) CONDITIONS

3.1 Existing Street System

A comprehensive inventory of the street system within the study area was undertaken to develop a detailed description of existing traffic conditions. **Figure 4** illustrates the existing physical characteristics of the key intersections and streets, including intersection geometry and traffic control, number of travel lanes, median type, parking designations, and posted speed limits.

Regional access is provided by several transportation facilities located near the Project. Beach Boulevard (SR-39) is a State highway and classified in the City's Mobility Element as a Major Highway north of SR-91 and a Principal Highway south of SR-91, and is also classified in the CMP as a Smart Street. Beach Boulevard provides regional connections to other key corridors and freeway interchanges in Orange County, and is located on the western frontage of the Project site. The Artesia Freeway (SR-91) provides east-west regional access from Orange County to Los Angeles and Riverside Counties and is located 1.5 miles to the south of the Project. The Santa Ana Freeway (I-5) provides north-south regional connections from Orange County to Los Angeles and San Diego Counties and is located 0.8 miles to the south of the Project site. The Buena Park Metrolink station, served by the Orange County Line and 91 Line that provide access to San Diego and Riverside, is located 0.4 miles to the east of the Project via Dale Street.

3.2 Existing Volumes

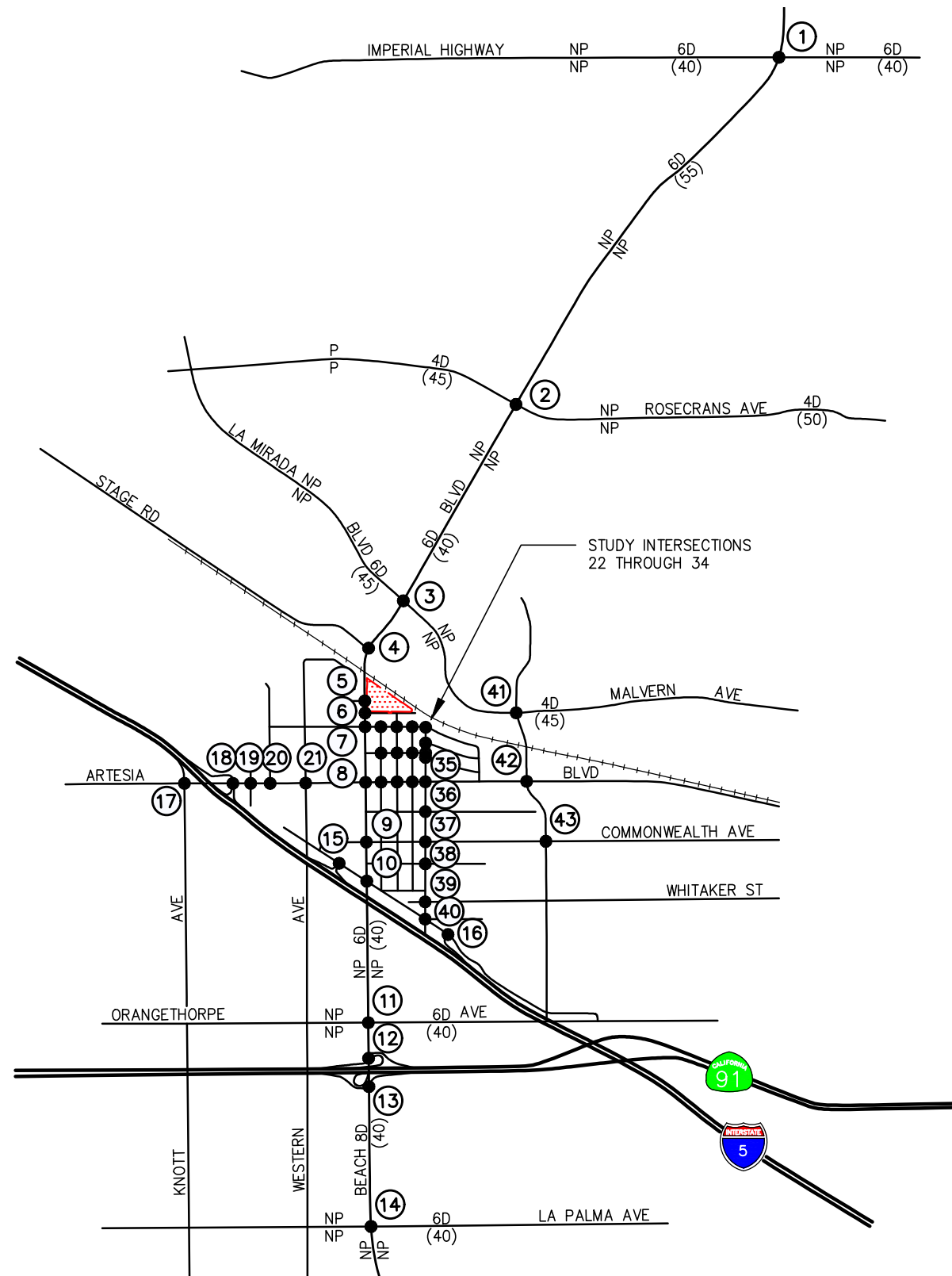
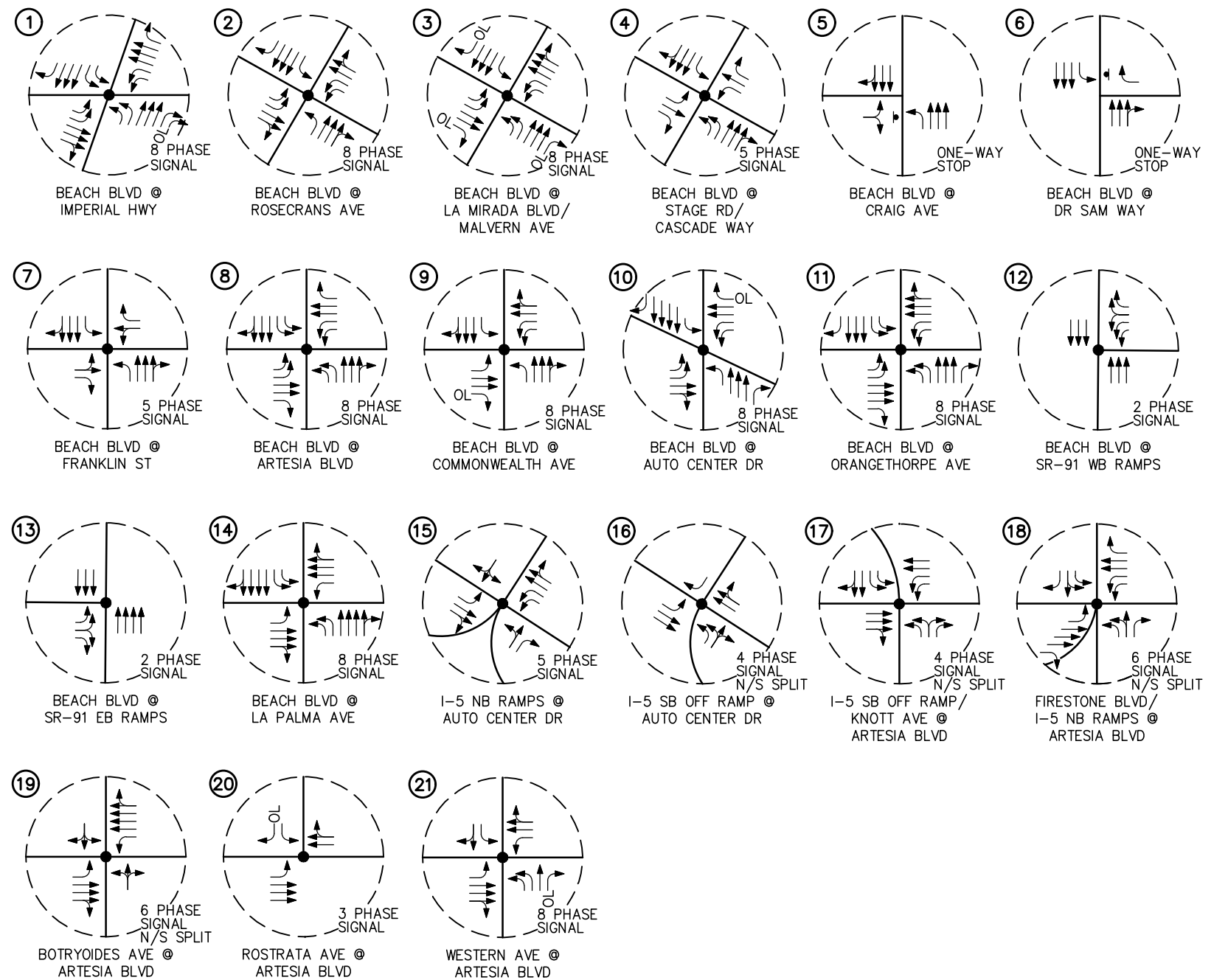
Traffic counts were conducted at the 43 key intersections during the weekday AM and PM peak period while school was in session (6:30 to 9:00 AM, 3:00 to 7:00 PM) on Tuesday, August 26th, 2025. **Figures 5** and **6** illustrate the existing weekday AM and PM peak hour traffic volumes at the 43 key intersections, respectively.

3.3 Existing Public Transportation Setting and AB 2097

Figure 7 illustrates the existing multimodal infrastructure in the Project vicinity. **Figure 8** illustrates public transit services, Transit Priority Areas (TPAs), major transit stops, and High Quality Transportation Corridors (HQTCs) within the study area. **Figure 9** illustrates the TPAs for the North Orange County Cities based on the *NOCC+ (North Orange County Collaborative) VMT Traffic Study Screening Tool*.

Public transit bus service is provided in the Project area by OCTA and Los Angeles County Metro. Two OCTA bus routes and one Metro bus route serve the Project site via Beach Boulevard and Artesia Boulevard. The bus routes are described below:

1. OCTA Route 29: provides service from La Habra to Huntington Beach along Beach Boulevard within the study area.
2. OCTA Route 123: provides service from Anaheim to Huntington Beach along Artesia Boulevard within the study area.
3. Metro Route 460: provides service from Anaheim to Downtown Los Angeles along Beach Boulevard within the study area.



KEY

← = APPROACH LANE ASSIGNMENT

● = TRAFFIC SIGNAL, ▼ = STOP SIGN

OL = OVERLAP, F = FREE RIGHT-TURN

P = PARKING, NP = NO PARKING

U = UNDIVIDED, D = DIVIDED

2 = NUMBER OF TRAVEL LANES

(XX) = POSTED SPEED LIMIT (MPH)

[Red Box] = PROJECT SITE



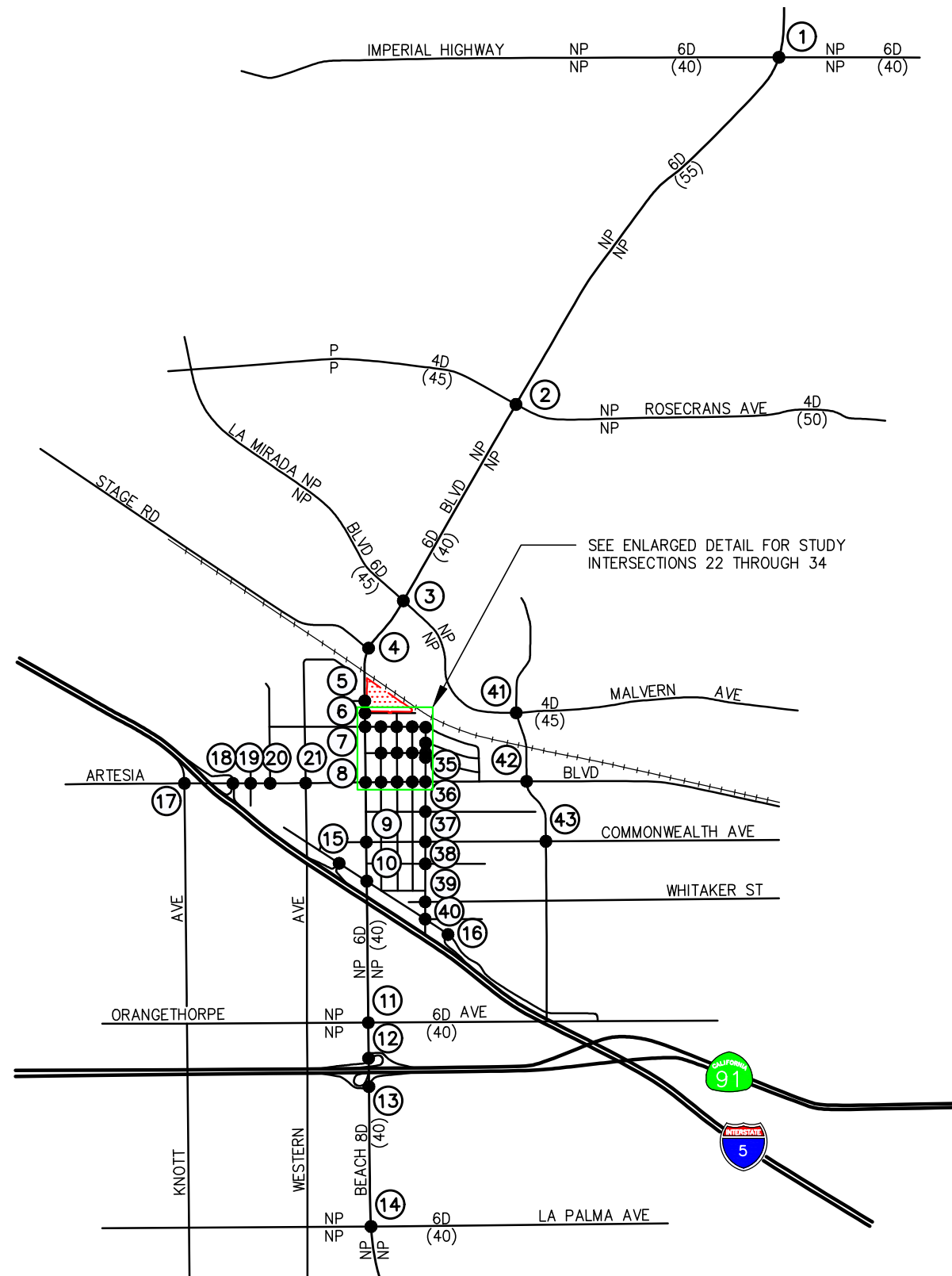
NO SCALE

FIGURE 4A

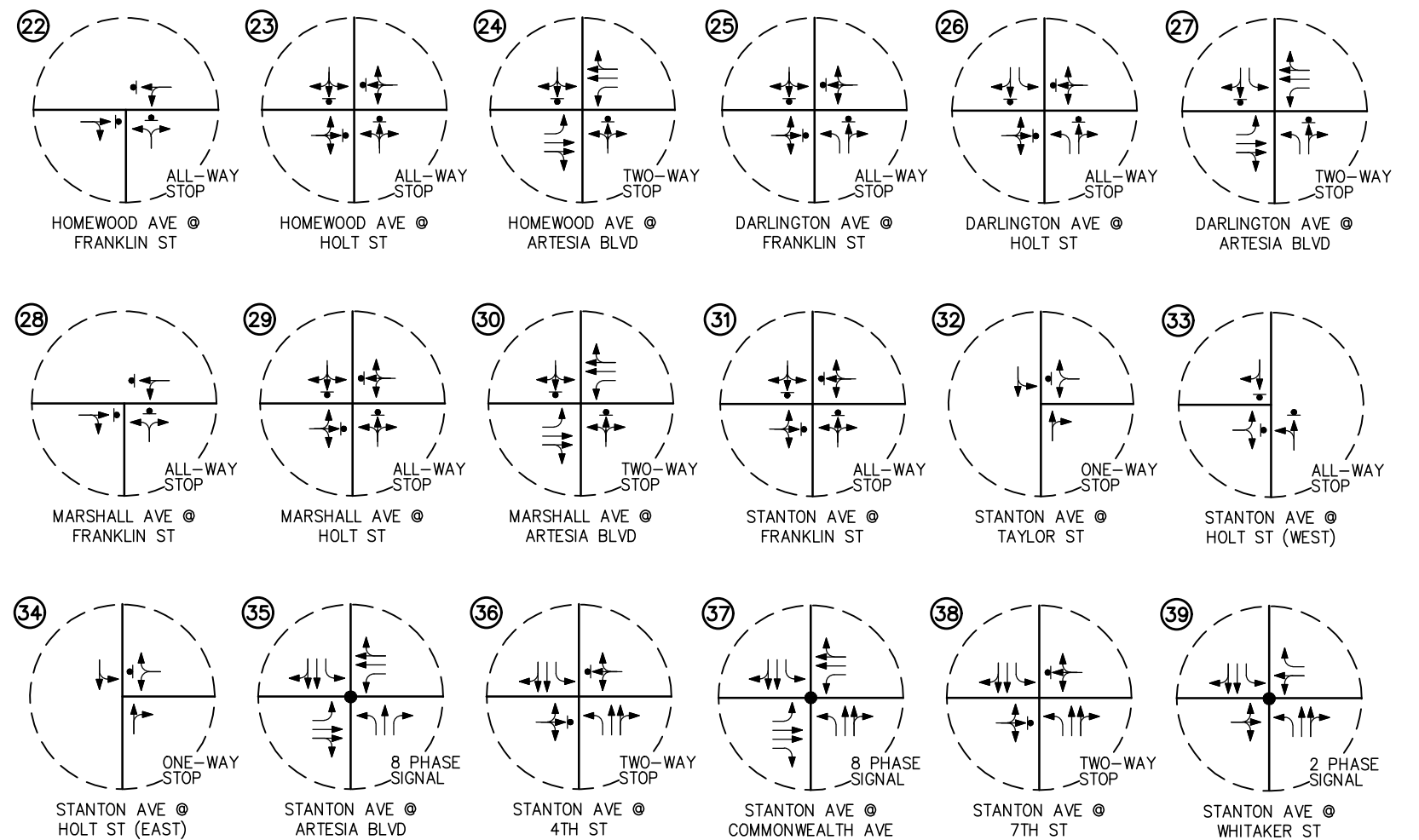
EXISTING ROADWAY AND INTERSECTION

PHYSICAL CHARACTERISTICS

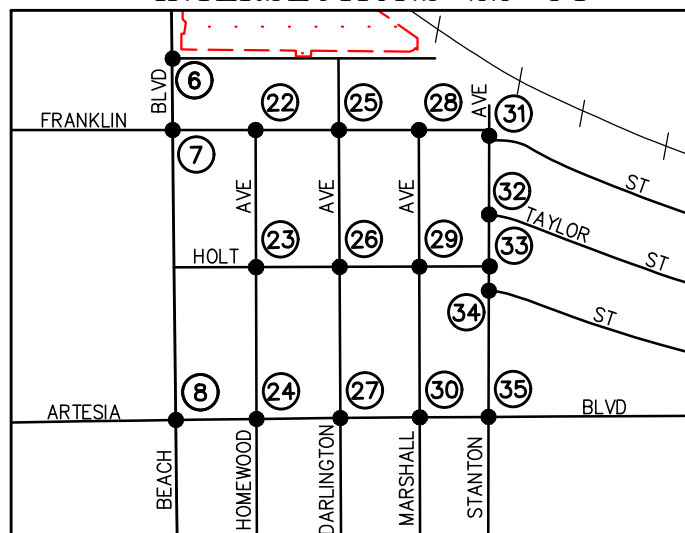
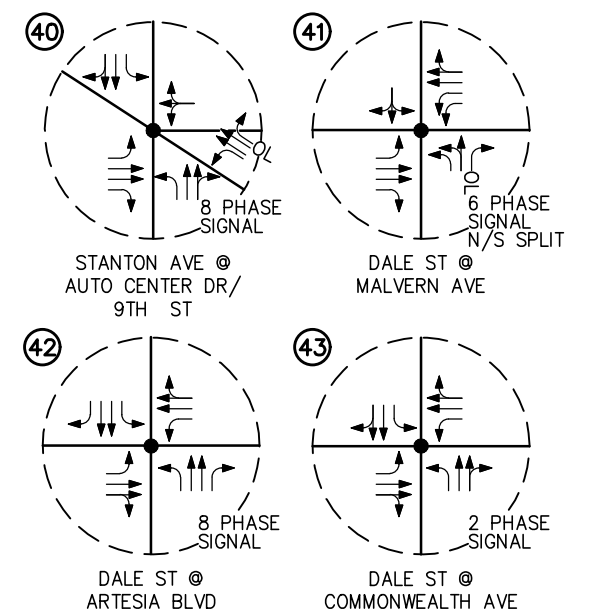
AMWAY, BUENA PARK



SEE ENLARGED DETAIL FOR STUDY INTERSECTIONS 22 THROUGH 34

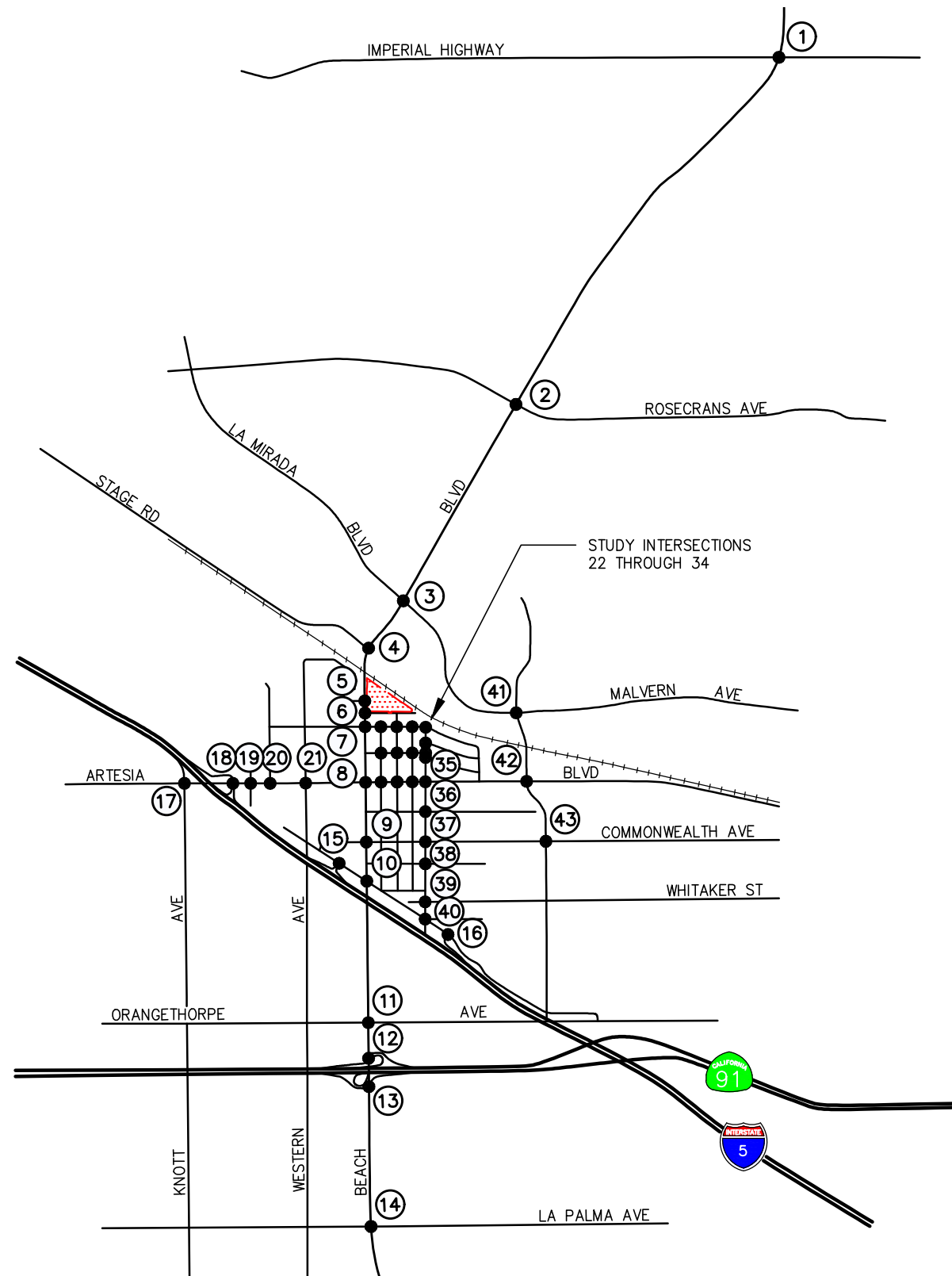
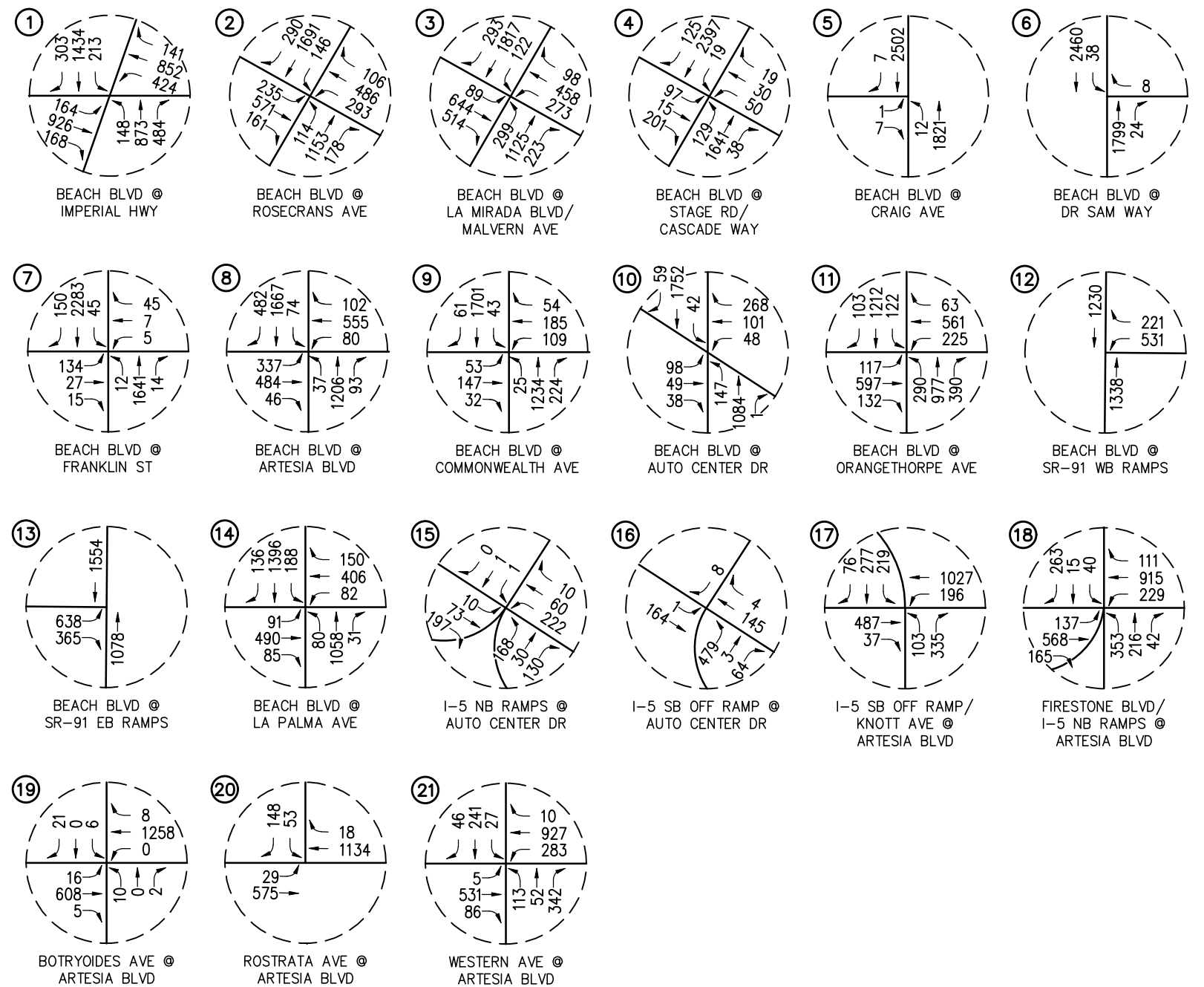


ENLARGED DETAIL FOR INTERSECTIONS 22-34



- KEY**
- ← = APPROACH LANE ASSIGNMENT
 - = TRAFFIC SIGNAL, ▼ = STOP SIGN
 - OL = OVERLAP, F = FREE RIGHT-TURN
 - P = PARKING, NP = NO PARKING
 - U = UNDIVIDED, D = DIVIDED
 - 2 = NUMBER OF TRAVEL LANES
 - (XX) = POSTED SPEED LIMIT (MPH)
 - = PROJECT SITE

FIGURE 4B
EXISTING ROADWAY AND INTERSECTION
PHYSICAL CHARACTERISTICS
 AMWAY, BUENA PARK



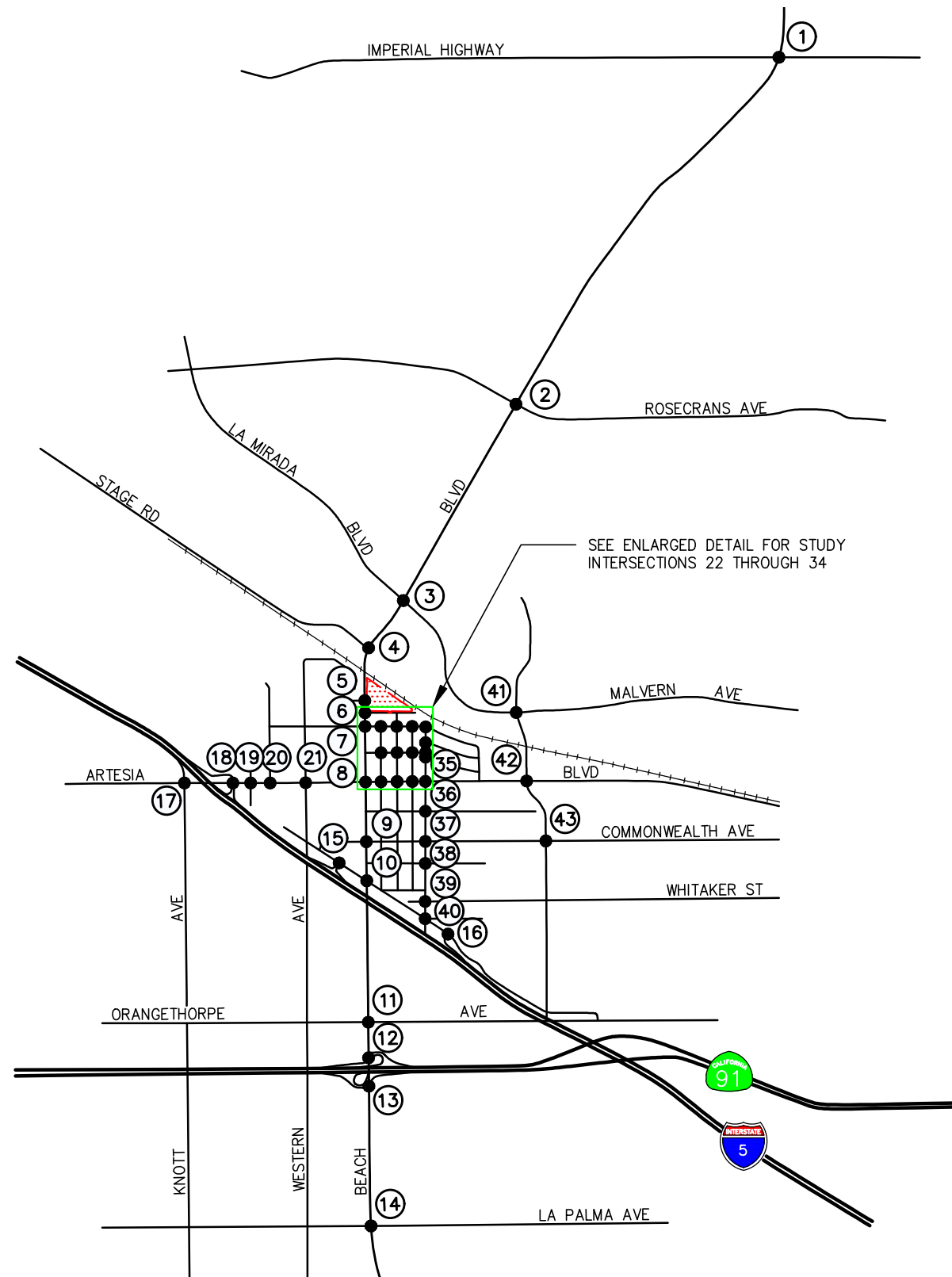
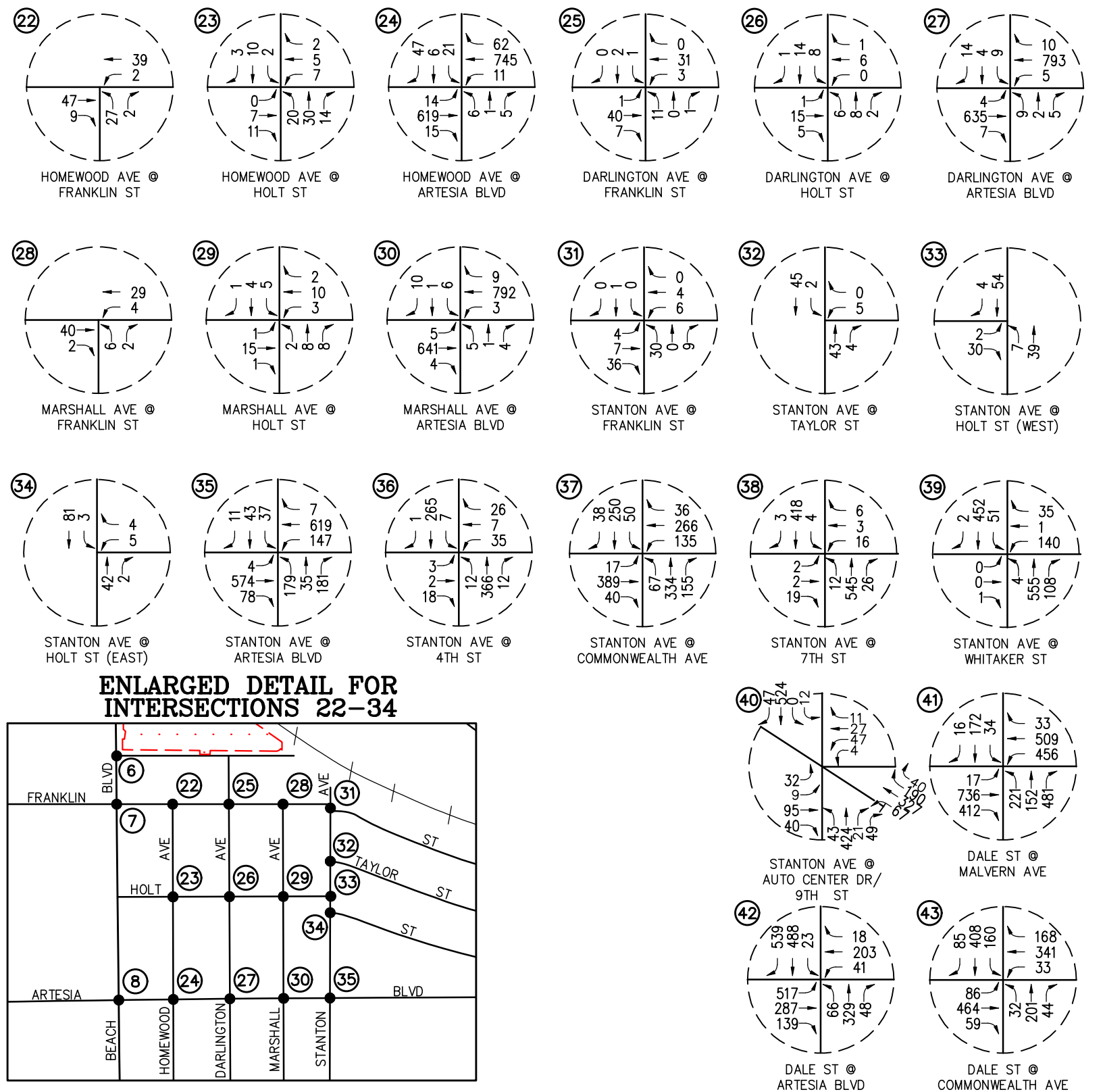
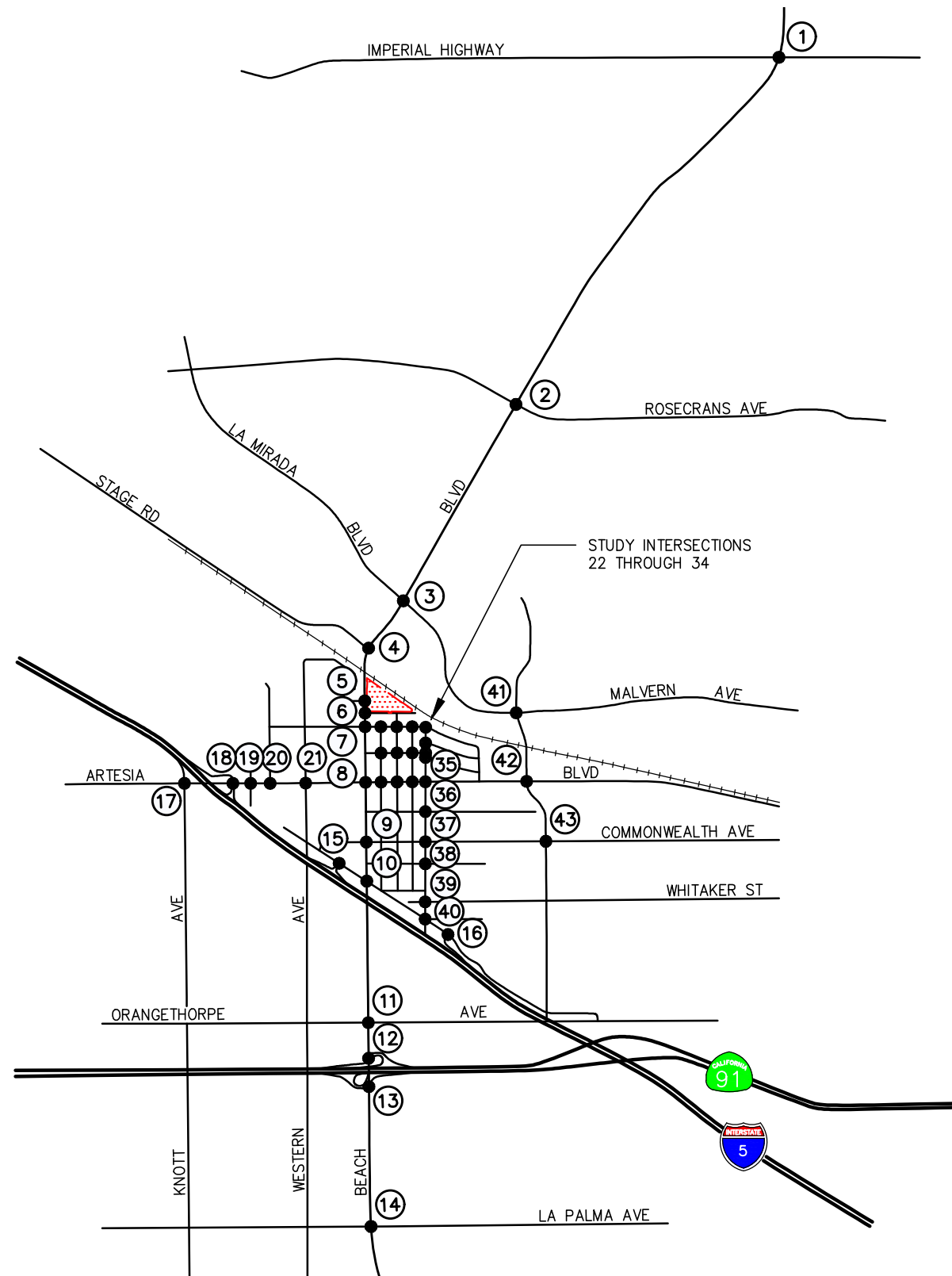
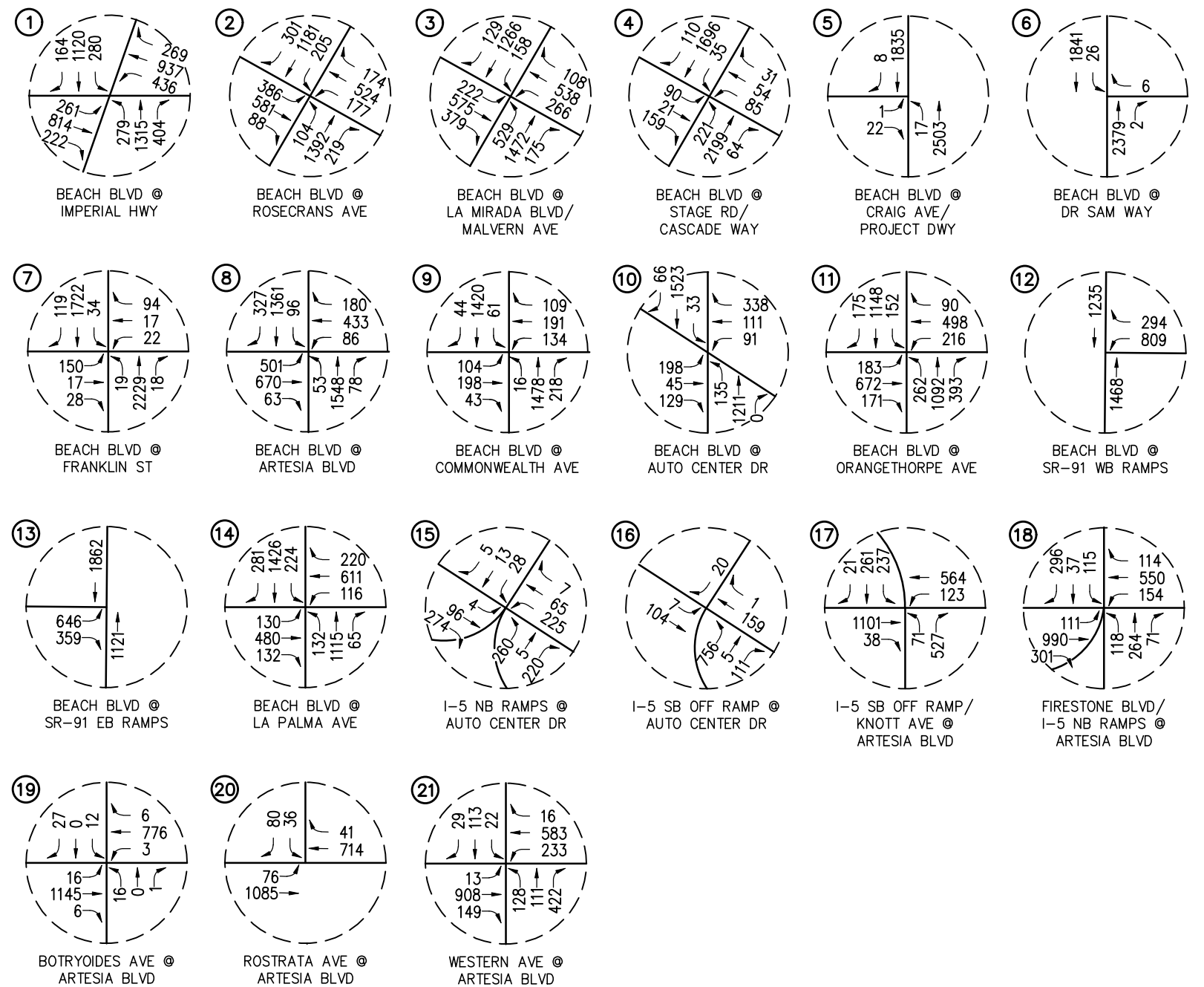


FIGURE 5B

EXISTING (2025) AM PEAK HOUR TRAFFIC VOLUMES
AMWAY, BUENA PARK



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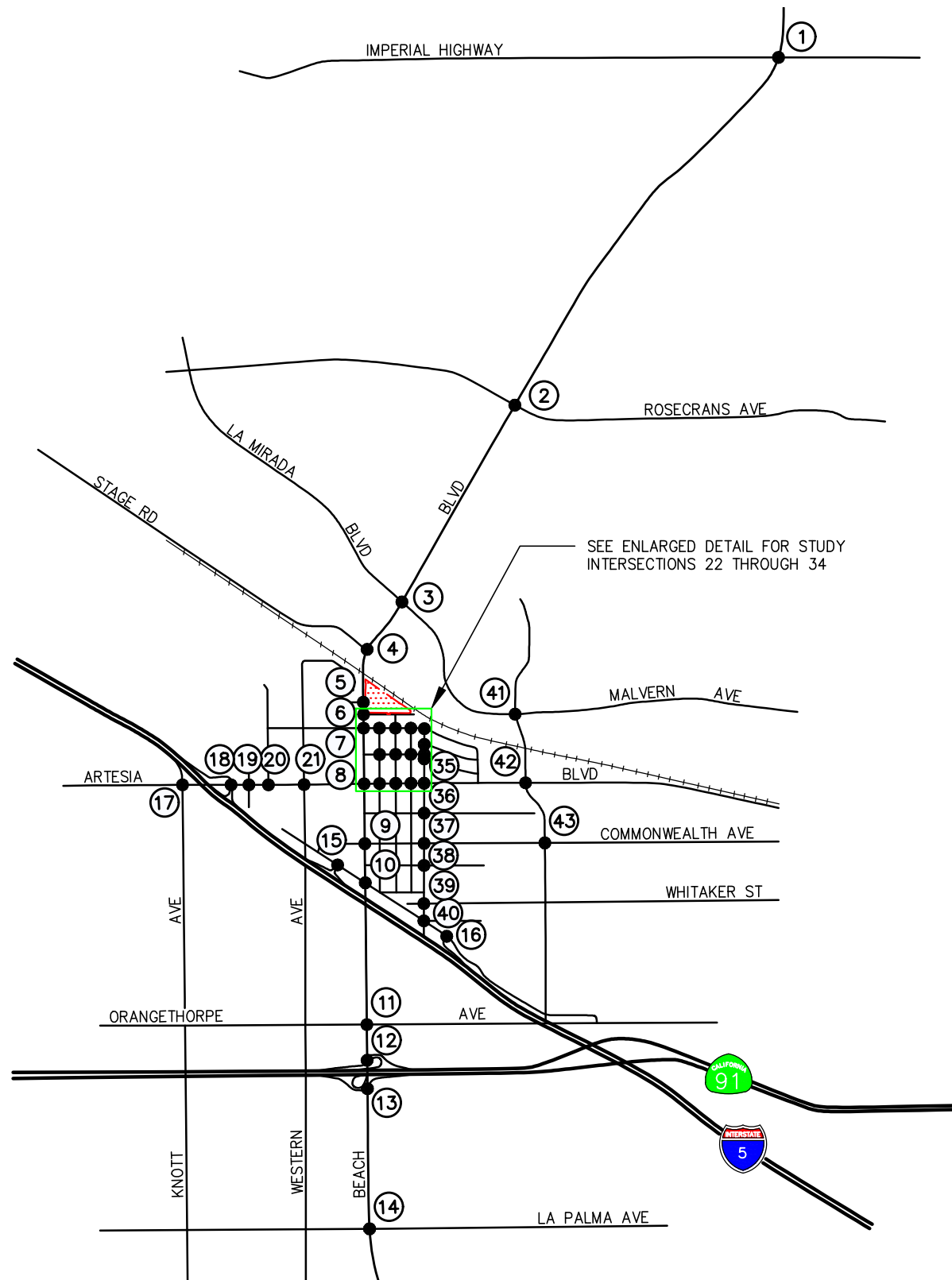
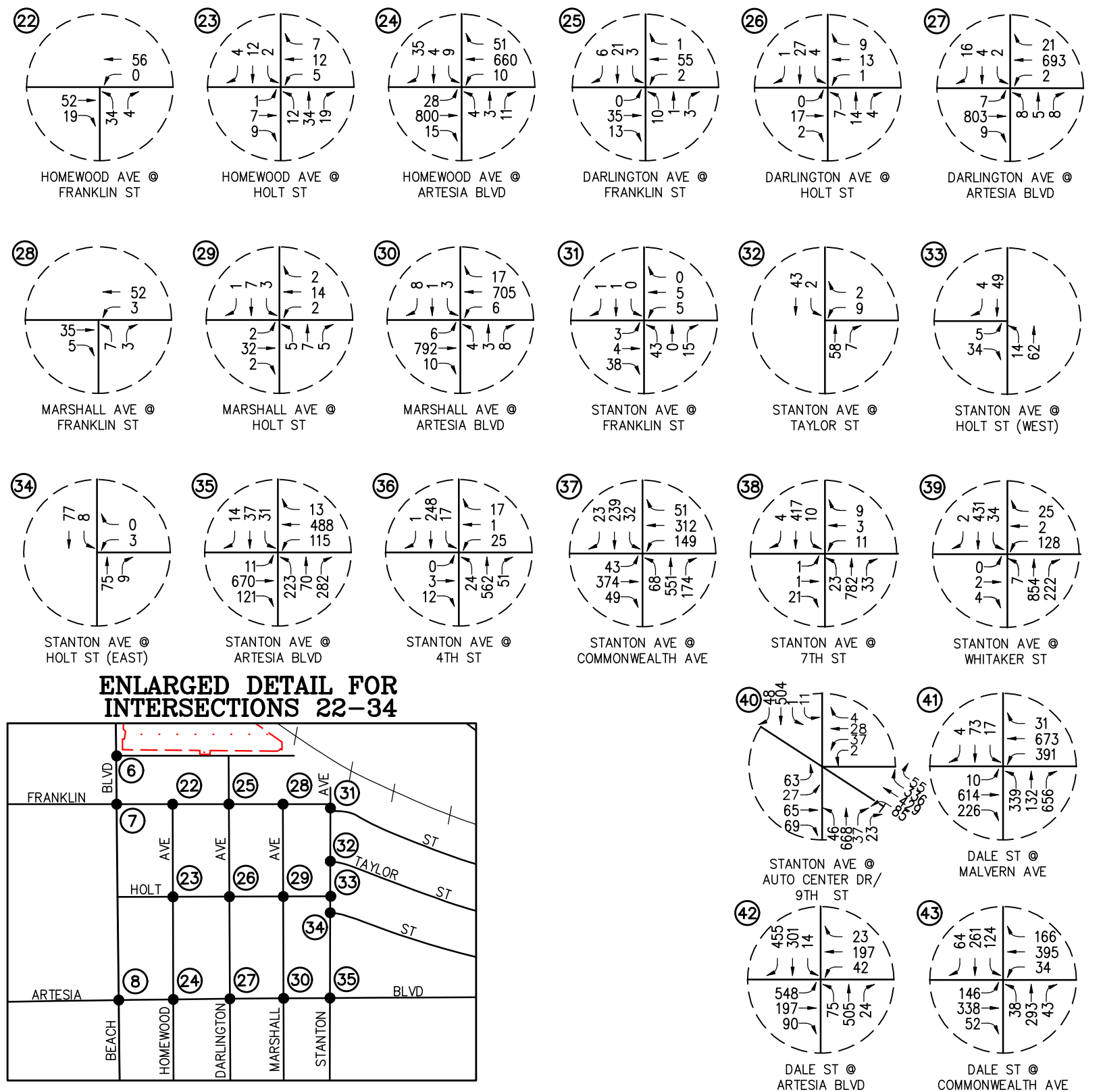
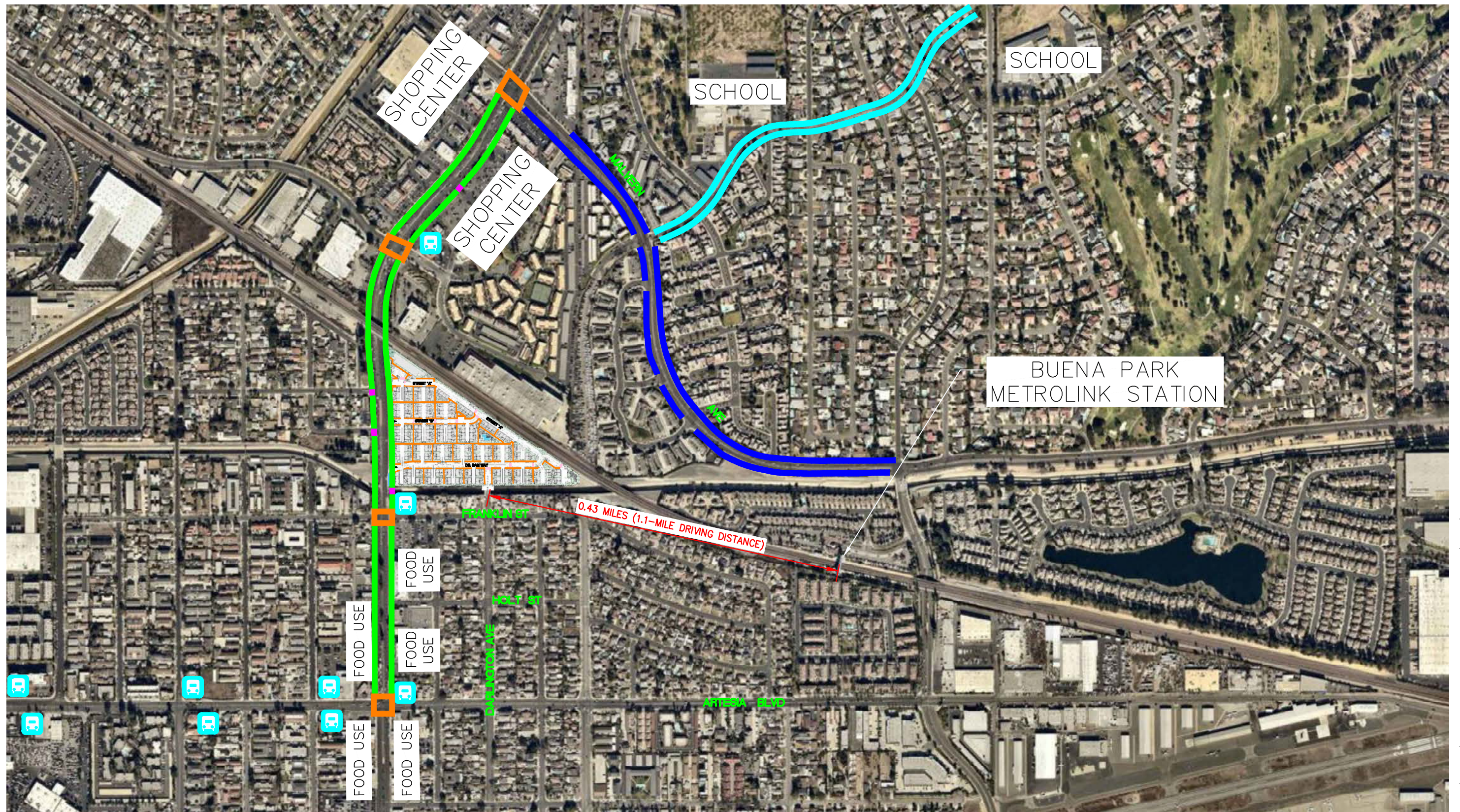


FIGURE 6B

EXISTING (2025) PM PEAK HOUR TRAFFIC VOLUMES
AMWAY, BUENA PARK



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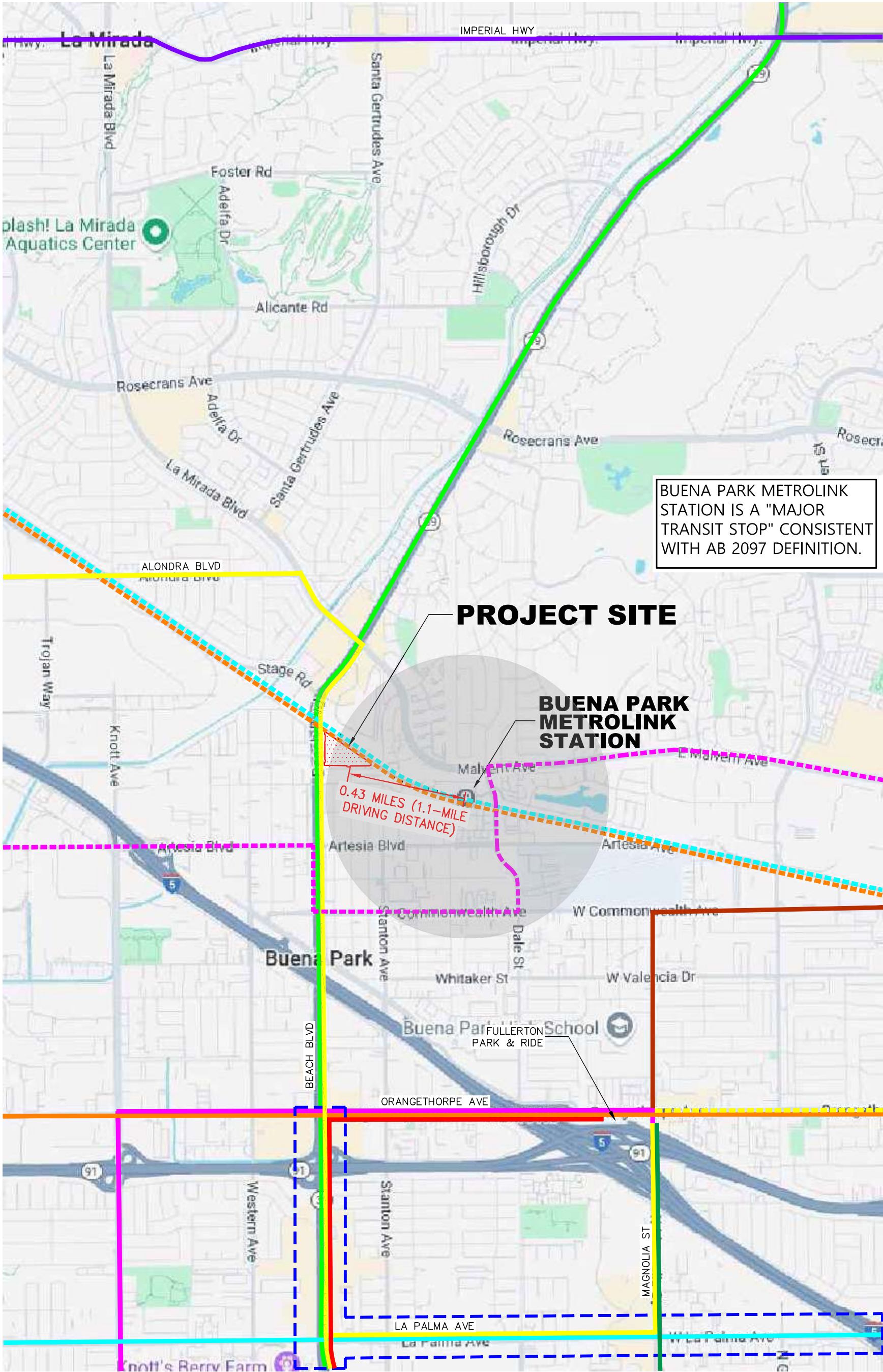
SOURCE: NEAR MAPS

KEY

- = TRANSIT STOP
- = EXISTING SIDEWALKS
- = UNSIGNALIZED CROSSWALKS
- = SIGNALIZED CROSSWALKS
- = CLASS II BIKE LANE
- = CLASS III BIKE LANE

FIGURE 7

MULTIMODAL CIRCULATION
AMWAY, BUENA PARK



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SOURCE: GOOGLE MAPS
KEY

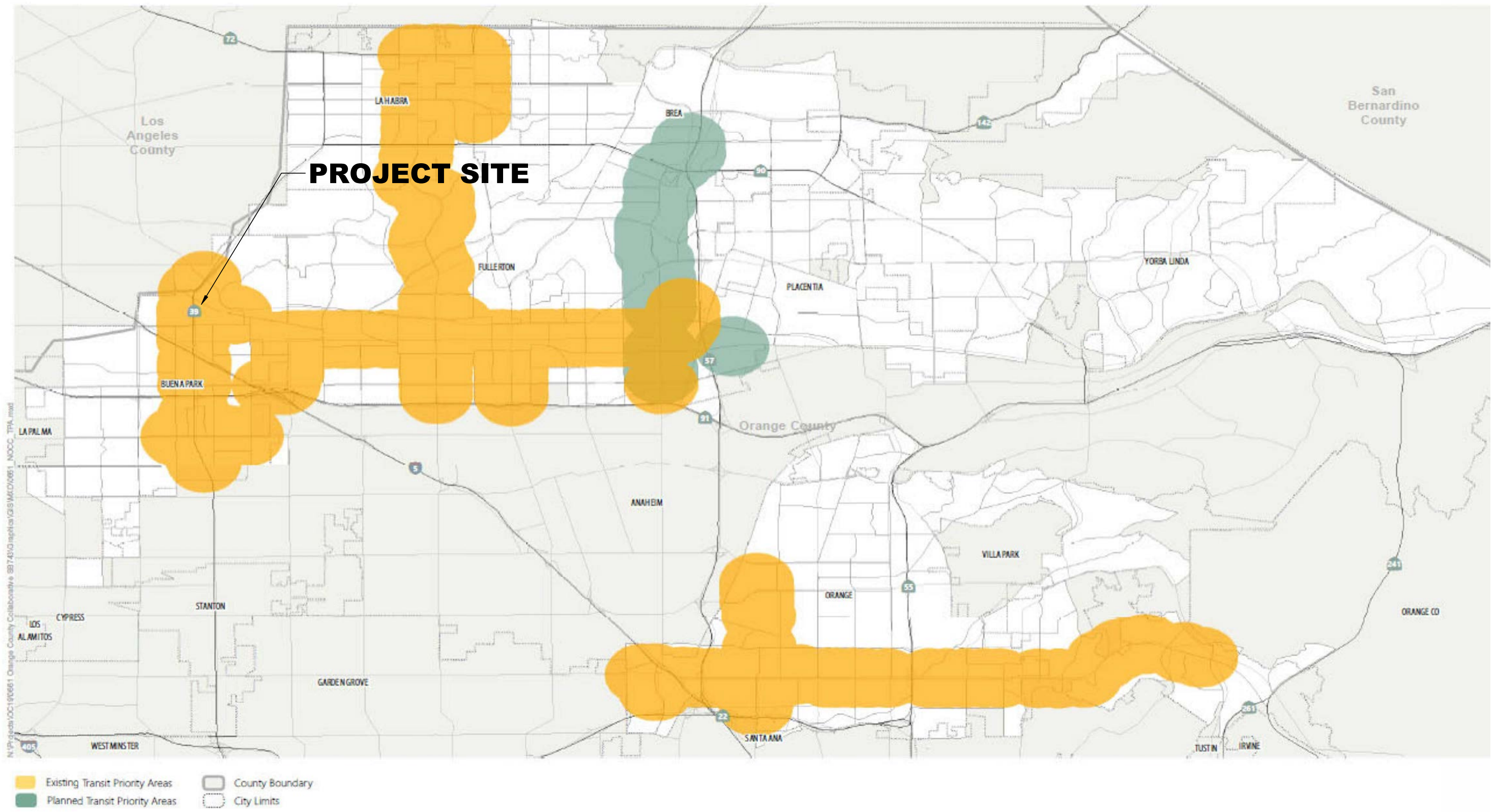


- [Red dotted rectangle] = PROJECT SITE
- [Blue dashed rectangle] = HQTC PER SCAG
- [Grey circle] = TPA/MAJOR TRANSIT STOP PER SCAG
- METRO ROUTES:**
 - [Yellow line] = ROUTE 460

- OCTA ROUTES:**
 - [Pink line] = ROUTE 25
 - [Brown line] = ROUTE 26
 - [Green line] = ROUTE 29
 - [Orange line] = ROUTE 30
 - [Dark green line] = ROUTE 33
 - [Light green line] = ROUTE 35
 - [Cyan line] = ROUTE 38

- OCTA ROUTES:**
 - [Pink line] = ROUTE 123
 - [Red line] = ROUTE 529
- METROLINK LINES:**
 - [Orange dashed line] = ORANGE COUNTY
 - [Cyan dashed line] = PERRIS VALLEY
- NORWALK ROUTES:**
 - [Purple dotted line] = ROUTE 4

FIGURE 8
PUBLIC TRANSIT SERVICE,
TPA, MAJOR TRANSIT
STOP, AND HQTC AREAS
AMWAY, BUENA PARK



n:\4900\2254925 - amway, buena park\dwg\4925 f-8.dwg LDP 18:58:59 10-02-2025 kopulsky

SOURCE: NORTH ORANGE COUNTY COLLABORATIVE VMT TRAFFIC STUDY SCREENING TOOL

The Buena Park Metrolink Station is located 0.4 miles to the east of the Project and provides service to the Orange County Line that connects Oceanside to Los Angeles Union Station, and the 91/Perris Valley Line that connects South Perris to Los Angeles Union Station.

As previously described and shown on *Figures 8 and 9*, the Project site is located 0.43 miles (1.1-mile driving distance) from the Buena Park Metrolink Station, and is located within a TPA and Major Transit Stop, as defined by SCAG within the City Limits. Although the Project site is not located along an HQTC, it is only 1.3 miles from the HQTC's northern boundary along Beach Boulevard at Orangethorpe Avenue.

Based on *Figures 7 through 9* that demonstrate the availability of alternate forms of transportation near the Project site, the Project would meet the criteria set forth in California Assembly Bill (AB) 2097, which prohibits public agencies from requiring minimum parking for residential, commercial, or other development projects within a 0.5 miles of a "major transit stop" or "high-quality transit corridor". This Statewide law, effective since January 1, 2023, aims to lower housing costs, increase housing affordability, and reduce greenhouse gas emissions by removing expensive and unnecessary parking mandates near transit.

3.4 Existing Intersection Peak Hour LOS Analysis

Level of Service (LOS) qualitatively measures the operating conditions within a traffic system and how drivers and passengers perceive these conditions. Level of service ranges from LOS A to overloaded conditions at LOS F. The City Buena Park and Caltrans recognize LOS D as the minimum satisfactory service level at intersections.

The majority (41) of the 43 study intersections (i.e., Intersections #3 to #43) are located within the City of Buena Park (fully or partially); therefore, existing weekday AM and PM peak hour operating conditions for these 41 study intersections were evaluated using the *Intersection Capacity Utilization* (ICU) methodology for signalized intersections and the *Highway Capacity Manual 7th Edition* (HCM 7) methodology for unsignalized intersections per City of Buena Park requirements.

Given that all of the intersections along Beach Boulevard (i.e., Intersections #1 to #18) are Caltrans-controlled, they were analyzed under the HCM methodology.

It should be noted that the intersection of the proposed Project Driveway ("Street B") with Beach Boulevard (Intersection #5) would form an unsignalized three-legged, T-intersection, but as a conservative step in this traffic study, it has been evaluated as a four-legged intersection with Craig Avenue on the west side of Beach Boulevard.

3.4.1 Intersection Capacity Utilization (ICU) Method of Analysis (Signalized Intersections)

Weekday AM and PM peak hour operating conditions for key signalized study intersections located within the City's jurisdiction were evaluated using the *Intersection Capacity Utilization (ICU)* method. The ICU technique is intended for signalized intersection analysis and estimates the volume to capacity (V/C) relationship for an intersection based on the individual V/C ratios for key

conflicting traffic movements. The ICU numerical value represents the percent signal (green) time and thus capacity, required by existing and/or future traffic. It should be noted that the ICU methodology assumes uniform traffic distribution per intersection approach lane and optimal signal timing. The ICU calculations use a lane capacity of 1,700 vehicles per hour (vph) for through and all turn lanes. A clearance adjustment factor of 0.05 was added to each Level of Service calculation.

The ICU value translates to a Level of Service (LOS) estimate, which is a relative measure of the intersection performance. The ICU value is the sum of the critical volume to capacity ratios at an intersection; it is not intended to be indicative of the LOS of each of the individual turning movements. The six qualitative categories of Level of Service have been defined along with the corresponding ICU value range and are shown in *Table 1*.

TABLE 1
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (ICU OR V/C METHODOLOGY)

Level of Service (LOS)	Intersection Capacity Utilization Value (ICU)	Level of Service Description
A	≤ 0.600	EXCELLENT. No vehicle waits longer than one red light, and no approach phase is fully used.
B	0.601 – 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 – 0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 – 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 – 1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Potentially very long delays with continuously increasing queue lengths.

3.4.2 Highway Capacity Manual (HCM) Method of Analysis (Signalized Intersections)

Based on the HCM operations method of analysis, level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometry, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents, and when there are no other vehicles on the road.

In Chapter 19 of the HCM, only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay*. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In contrast, in previous versions of the HCM (1994 and earlier), delay included only stopped delay. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle. The six qualitative categories of Level of Service that have been defined along with the corresponding HCM control delay value range for signalized intersections are shown in *Table 2*.

3.4.3 Highway Capacity Manual (HCM) Method of Analysis (Unsignalized Intersections)

The HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. LOS criteria for unsignalized intersections differ from LOS criteria for signalized intersections as signalized intersections are designed for heavier traffic and therefore a greater delay.

3.4.3.1 Two-Way Stop-Controlled Intersections

Two-way stop-controlled intersections are comprised of a major street, which is uncontrolled, and a minor street, which is controlled by stop signs. Level of service for a two-way stop-controlled intersection is determined by the computed or measured control delay. The control delay by movement, by approach, and for the intersection as a whole is estimated by the computed capacity for each movement. LOS is determined for each minor street movement (or shared movement) as well as major street left turns. The worst side street approach delay is reported. LOS is not defined for the intersection as a whole or for major street approaches, as it is assumed that major street through vehicles experience zero delay. The HCM control delay value range for two-way stop-controlled intersections is shown in *Table 3*

3.4.3.2 All-Way Stop-Controlled Intersections

All-way stop-controlled intersections require every vehicle to stop at the intersection before proceeding. Because each driver must stop, the decision to proceed into the intersection is a function of traffic conditions on the other approaches. The time between subsequent vehicle departures depends on the degree of conflict that results between the vehicles and vehicles on the other approaches. This methodology determines the control delay for each lane on the approach, computes a weighted average for the whole approach, and computes a weighted average for the intersection as a whole. Level of service (LOS) at the approach and intersection levels is based

TABLE 2
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (HCM METHODOLOGY)¹

Level of Service (LOS)	Control Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	≤ 10.0	This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	> 10.0 and ≤ 20.0	This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.
C	> 20.0 and ≤ 35.0	Average traffic delays. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	> 35.0 and ≤ 55.0	Long traffic delays At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55.0 and ≤ 80.0	Very long traffic delays This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths and high v/c ratios. Individual cycle failures are frequent occurrences.
F	≥ 80.0	Severe congestion This level, considered to be unacceptable to most drivers, often occurs with over saturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

¹ Source: *Highway Capacity Manual 7*, Chapter 19: Signalized Intersections.

TABLE 3
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM METHODOLOGY) ^{2,3}

Level of Service (LOS)	Highway Capacity Manual (HCM) Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	≤ 10.0	Little or no delay
B	> 10.0 and ≤ 15.0	Short traffic delays
C	> 15.0 and ≤ 25.0	Average traffic delays
D	> 25.0 and ≤ 35.0	Long traffic delays
E	> 35.0 and ≤ 50.0	Very long traffic delays
F	> 50.0	Severe congestion

² Source: *Highway Capacity Manual 7*, Chapter 20: Two-Way Stop-Controlled Intersections. The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

³ Source: *Highway Capacity Manual 7*, Chapter 43: All-Way Stop-Controlled Intersections. For approaches and intersection-wide assessment, LOS is defined solely by control delay.

solely on control delay. The HCM control delay value range for all-way stop-controlled intersections is shown in *Table 3*.

3.5 Existing Intersection Peak Hour LOS Analysis Results

Based upon the level of service methodologies described, the existing peak hour traffic volumes presented were used in conjunction with existing lane configurations to determine the current traffic operating conditions at the 43 key intersections. **Table 4** summarizes the existing levels of service for the 43 key intersections during the weekday AM and PM peak hours respectively.

As *Table 4* indicates, 39 of the 43 key intersections currently operate at acceptable LOS D or better (LOS E or better at CMP intersections) during the AM and PM peak hours of a typical weekday. The intersection of Beach Boulevard at Craig Avenue (i.e., Intersection #5) currently operates at a deficient LOS F during the AM peak hour. The intersections of Beach Boulevard at Imperial Highway (i.e., Intersection #1) and Beach Boulevard at Franklin Street (i.e., Intersection #7) currently operate at a deficient LOS F during the AM and PM peak hours. The intersection of Firestone Boulevard/I-5 NB Ramps at Artesia Boulevard (i.e., Intersection #18) currently operates at a deficient LOS E during the AM peak hour.

Appendix B and *Appendix C* contain the detailed level of service worksheets using the ICU methodology and HCM methodology, respectively. *Appendix D* includes the raw/unadjusted traffic counts collected at each of the 43 key intersections during the weekday AM and PM peak periods.

TABLE 4
EXISTING (2025) INTERSECTION PEAK HOUR LEVELS OF SERVICE

Study Intersections (Jurisdiction)	Peak Hour	Existing (2025)			
		ICU	Delay (s/v)	LOS	Poor LOS?
1) Beach Boulevard at Imperial Highway (Caltrans)	HCM: AM HCM: PM	-- --	303.9 385.0	F F	Yes Yes
2) Beach Boulevard at Rosecrans Avenue (Caltrans)	HCM: AM HCM: PM	-- --	38.3 40.0	D D	No No
3) Beach Boulevard at La Mirada Boulevard/Malvern Avenue (Caltrans)	HCM: AM HCM: PM	-- --	39.7 41.7	D D	No No
4) Beach Boulevard at Stage Road/Cascade Way (Caltrans)	HCM: AM HCM: PM	-- --	16.1 15.3	B B	No No
5) Beach Boulevard at Craig Avenue/Project Driveway "Street B" (Caltrans) [a]	HCM: AM HCM: PM	-- --	98.1 34.3	F D	Yes No
6) Beach Boulevard at Dr. Sam Way (Caltrans) [a]	HCM: AM HCM: PM	-- --	20.7 29.2	C D	No No
7) Beach Boulevard at Franklin Street (Caltrans)	HCM: AM HCM: PM	-- --	251.4 371.3	F F	Yes Yes
8) Beach Boulevard at Artesia Boulevard (Caltrans)	HCM: AM HCM: PM	-- --	31.9 34.8	C C	No No
9) Beach Boulevard at Commonwealth Avenue (Caltrans)	HCM: AM HCM: PM	-- --	16.6 20.0	B B	No No
10) Beach Boulevard at Auto Center Drive (Caltrans)	HCM: AM HCM: PM	-- --	19.8 26.4	B C	No No
11) Beach Boulevard at Orangethorpe Avenue (Buena Park)	AM PM	0.556 0.547	-- --	A A	No No
12) Beach Boulevard at SR-91 WB Ramps (Caltrans)	HCM: AM HCM: PM	-- --	12.0 14.9	B B	No No
13) Beach Boulevard at SR-91 EB Ramps (Caltrans)	HCM: AM HCM: PM	-- --	15.2 15.0	B B	No No
14) Beach Boulevard at La Palma Avenue (Buena Park)	AM PM	0.461 0.579	-- --	A A	No No
15) I-5 NB Ramps at Auto Center Drive (Caltrans)	HCM: AM HCM: PM	-- --	31.2 33.7	C C	No No
16) I-5 SB Off Ramp at Auto Center Drive (Caltrans)	HCM: AM HCM: PM	-- --	17.1 16.2	B B	No No
17) I-5 SB Off Ramp/Knott Avenue at Artesia Boulevard (Caltrans)	HCM: AM HCM: PM	-- --	30.8 33.7	C C	No No
18) Firestone Boulevard/I-5 NB Ramps at Artesia Boulevard (Caltrans)	HCM: AM HCM: PM	-- --	56.2 54.0	E D	Yes No

TABLE 4 (CONTINUED)
EXISTING (2025) INTERSECTION PEAK HOUR LEVELS OF SERVICE

Study Intersections (Jurisdiction)	Peak Hour	Existing (2025)			
		ICU	Delay (s/v)	LOS	Poor LOS?
19) Botryoides Avenue at Artesia Boulevard (Buena Park)	AM PM	0.269 0.310	-- --	A A	No No
20) Rostrata Avenue at Artesia Boulevard (Buena Park)	AM PM	0.476 0.338	-- --	A A	No No
21) Western Avenue at Artesia Boulevard (Buena Park)	AM PM	0.540 0.518	-- --	A A	No No
22) Homewood Avenue at Franklin Street (Buena Park) [b]	HCM: AM HCM: PM	-- --	7.3 7.3	A A	No No
23) Homewood Avenue at Holt Street (Buena Park) [b]	HCM: AM HCM: PM	-- --	7.1 7.1	A A	No No
24) Homewood Avenue at Artesia Boulevard (Buena Park) [a]	HCM: AM HCM: PM	-- --	22.7 22.8	C C	No No
25) Darlington Avenue at Franklin Street (Buena Park) [b]	HCM: AM HCM: PM	-- --	7.3 7.3	A A	No No
26) Darlington Avenue at Holt Street (Buena Park) [b]	HCM: AM HCM: PM	-- --	7.3 7.3	A A	No No
27) Darlington Avenue at Artesia Boulevard (Buena Park) [a]	HCM: AM HCM: PM	-- --	23.0 26.1	C D	No No
28) Marshall Avenue at Franklin Street (Buena Park) [b]	HCM: AM HCM: PM	-- --	7.2 7.2	A A	No No
29) Marshall Avenue at Holt Street (Buena Park) [b]	HCM: AM HCM: PM	-- --	7.0 7.1	A A	No No
30) Marshall Avenue at Artesia Boulevard (Buena Park) [a]	HCM: AM HCM: PM	-- --	21.0 22.6	C C	No No
31) Staton Avenue at Franklin Street (Buena Park) [b]	HCM: AM HCM: PM	-- --	7.0 7.1	A A	No No
32) Staton Avenue at Taylor Street (Buena Park) [a]	HCM: AM HCM: PM	-- --	9.0 9.0	A A	No No
33) Staton Avenue at Holt Street (West) (Buena Park) [b]	HCM: AM HCM: PM	-- --	7.2 7.3	A A	No No

TABLE 4 (CONTINUED)
EXISTING (2025) INTERSECTION PEAK HOUR LEVELS OF SERVICE

Study Intersections (Jurisdiction)	Peak Hour	Existing (2025)			
		ICU	Delay (s/v)	LOS	Poor LOS?
34) Staton Avenue at Holt Street (East) (Buena Park) [a]	HCM: AM	--	8.9	A	No
	HCM: PM	--	9.4	A	No
35) Staton Avenue at Artesia Boulevard (Buena Park)	AM	0.456	--	A	No
	PM	0.534	--	A	No
36) Staton Avenue at 4th Street (Buena Park) [a]	HCM: AM	--	13.4	B	No
	HCM: PM	--	16.8	C	No
37) Staton Avenue at Commonwealth Avenue (Buena Park)	AM	0.417	--	A	No
	PM	0.480	--	A	No
38) Staton Avenue at 7th Street (Buena Park) [a]	HCM: AM	--	13.3	B	No
	HCM: PM	--	15.4	C	No
39) Staton Avenue at Whitaker Avenue (Buena Park)	AM	0.358	--	A	No
	PM	0.465	--	A	No
40) Staton Avenue at Auto Center Drive/9th Street (Buena Park)	AM	0.374	--	A	No
	PM	0.488	--	A	No
41) Dale Street at Malvern Avenue (Buena Park)	AM	0.706	--	C	No
	PM	0.672	--	B	No
42) Dale Street at Artesia Boulevard (Buena Park)	AM	0.775	--	C	No
	PM	0.749	--	C	No
43) Dale Street at Commonwealth Avenue (Buena Park)	AM	0.416	--	A	No
	PM	0.473	--	A	No

Notes:

Italicized text corresponds to an unsignalized/stop-controlled intersection.

[a] = Intersection operates with one-way or two-way stop control and the delay reported is for the worst approach at the intersection

[b] = Intersection operates with all-way stop control and the delay reported is the average of the entire intersection.

s/v = seconds per vehicle

4.0 TRAFFIC FORECASTS

In order to determine potential non-CEQA traffic impacts of the Project, a multi-step process has been utilized. The first step is traffic generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is estimated by applying the appropriate vehicle trip generation equations or rates to the Project development tabulation with applicable trip adjustments/credits to account for the existing land uses on site, internal capture, and/or alternative modes of transportation.

The second step of the forecasting process is traffic distribution, which identifies the origins and destinations of inbound and outbound Project traffic. These origins and destinations are typically based on demographics and existing/expected future travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of Project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and Project traffic assignments developed, the non-CEQA traffic impact of the proposed Project is isolated by comparing levels of service at key intersections using expected traffic volumes with and without Project-generated traffic. The significance of the Project's non-CEQA impacts, and the need for site-specific and/or cumulative local area traffic improvements, can then be determined.

4.1 Project Traffic Generation

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation equations and/or rates used in the traffic forecasting procedure are found in the 12th Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE) [Washington D.C., 2025]. As presented in **Table 5**, the trip rates for ITE Land Use 215: Single-Family Attached Housing for duets, ITE Land Use 220: Multifamily Housing Low Rise for townhomes, and ITE Land Use 223: Affordable Housing Income Limits for affordable apartment units were applied in estimating the residential Project's tripmaking potential. To estimate the trips generated by the existing Amway that would be demolished as part of the Project, ITE Land Use 110: General Light Industrial trip equations were applied.

As indicated in *Table 5*, based on the application of ITE 12th Edition trip rates, the Project trips are estimated to be 1,718 daily trips on a weekday, 120 AM peak hour trips, and 142 PM peak hour trips.

Compared to the existing Amway currently occupying the Project site, the proposed residential Project would result in 386 additional daily trips, 58 fewer AM peak hour trips, and 39 fewer PM peak hour trips. Furthermore, the Project would be replacing truck trips currently generated by

Amway with mostly passenger cars, and would change the directionality of the trips during each commute peak period (i.e., Amway's inbound focus during the AM peak would change to outbound for the Project; Amway's outbound focus during the PM peak would change to inbound for the Project).

4.2 Project Traffic Distribution and Assignment

The geographic distribution of traffic generated by developments such as the Project is dependent upon the following factors:

- the Project's market/service area
- location of site access points in relation to the surrounding street system
- location of parking areas, and ingress/egress availability at the parking areas
- the site's proximity to major traffic carriers and regional access routes
- physical characteristics of the circulation system such as lane channelization and presence of traffic signals that affect travel patterns
- presence of traffic congestion in the surrounding vicinity

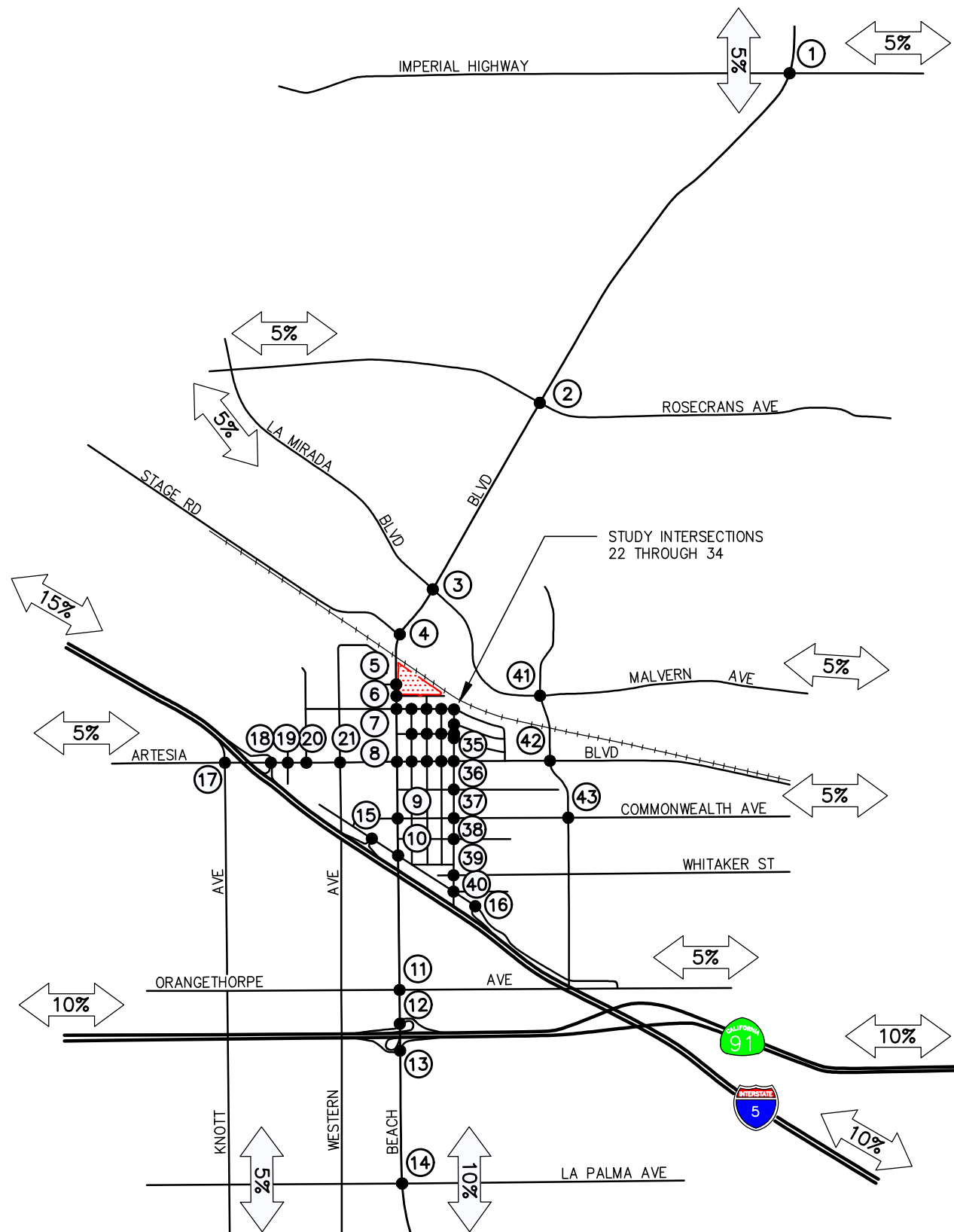
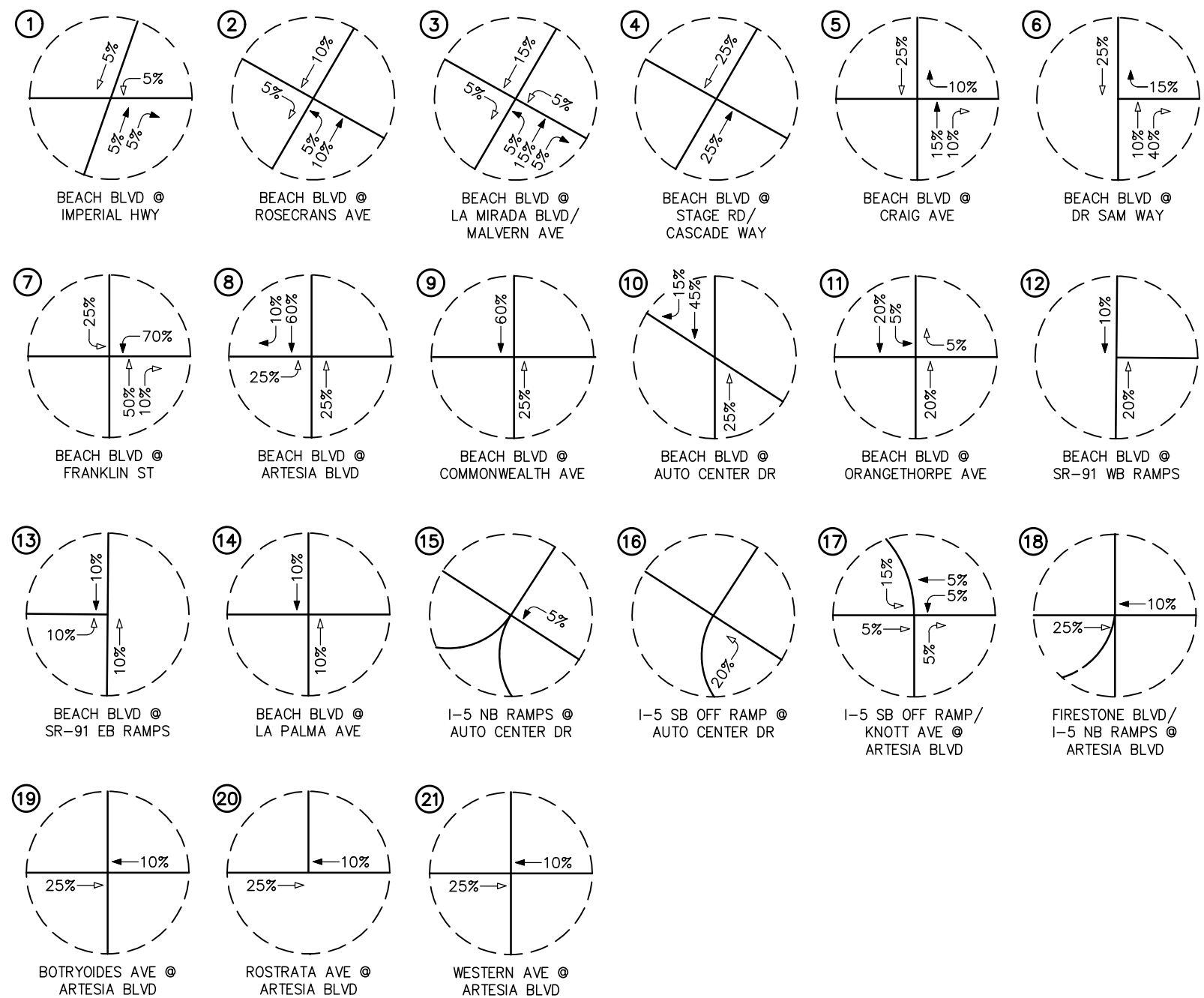
Based on the above considerations, a project trip distribution pattern was developed and presented on **Figure 10**. The net Project trips were assigned to the local street network using the trip generation at the bottom of *Table 5*, and the Project distribution pattern illustrated in *Figure 10*. **Figures 11** and **12** present the Project-generated traffic volumes for the AM and PM peak hours, respectively.

4.3 Existing (2025) Plus Project Traffic Volumes

Figures 13 and **14** illustrate the Existing (2025) Plus Project traffic volumes at the 43 key intersections during the AM and PM peak hours, respectively.

4.4 Year 2029 Cumulative Base

The Cumulative Base or "background" traffic projections account for existing traffic volumes, and include two growth elements over existing traffic volumes: (1) increase in the existing traffic volumes due to overall regional growth; and, (2) traffic generated by specific developments expected to be constructed by Year 2029 (the anticipated completion year for the Project) in the vicinity of the Project study area. The following sections describe these two growth elements in existing traffic volumes.



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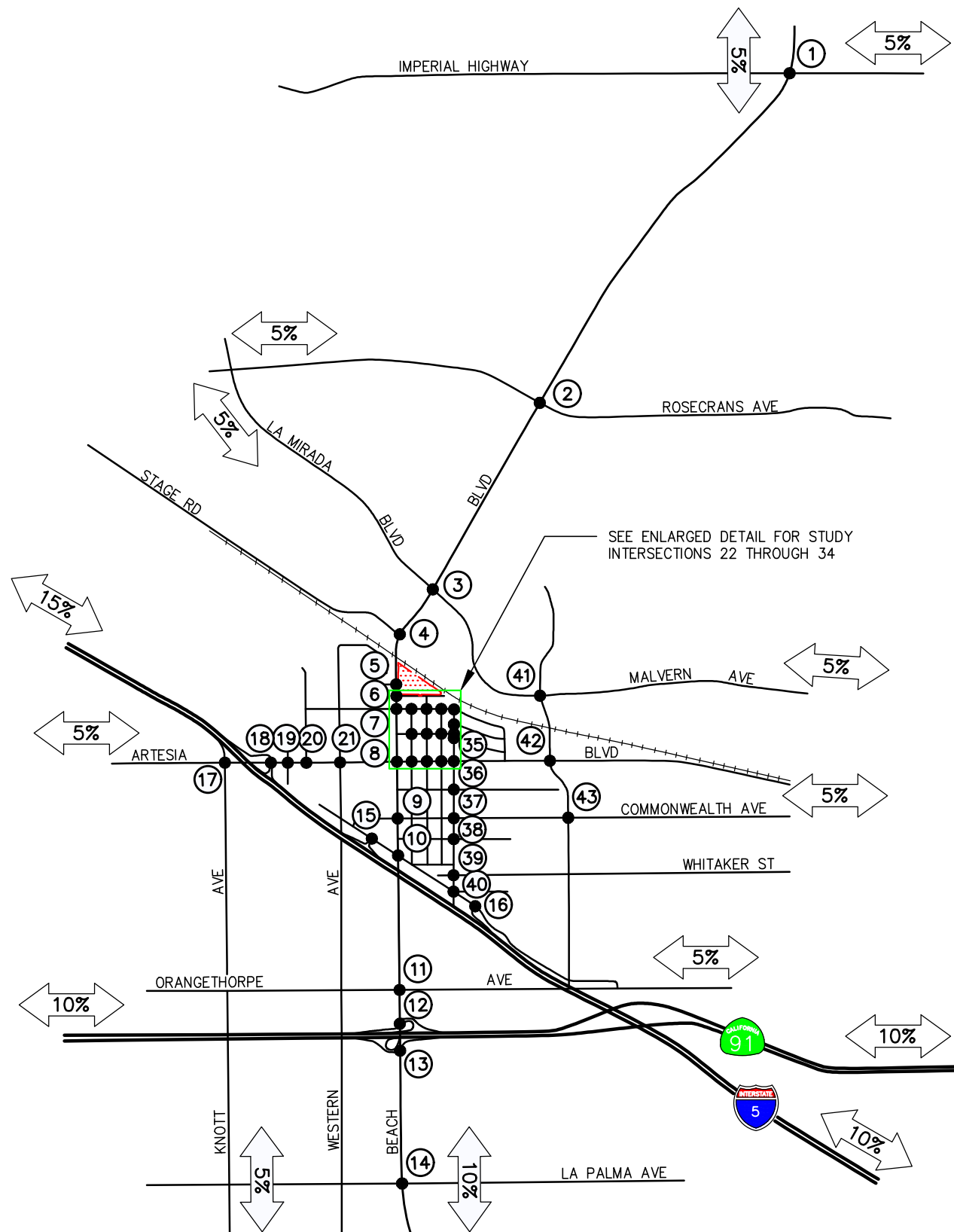
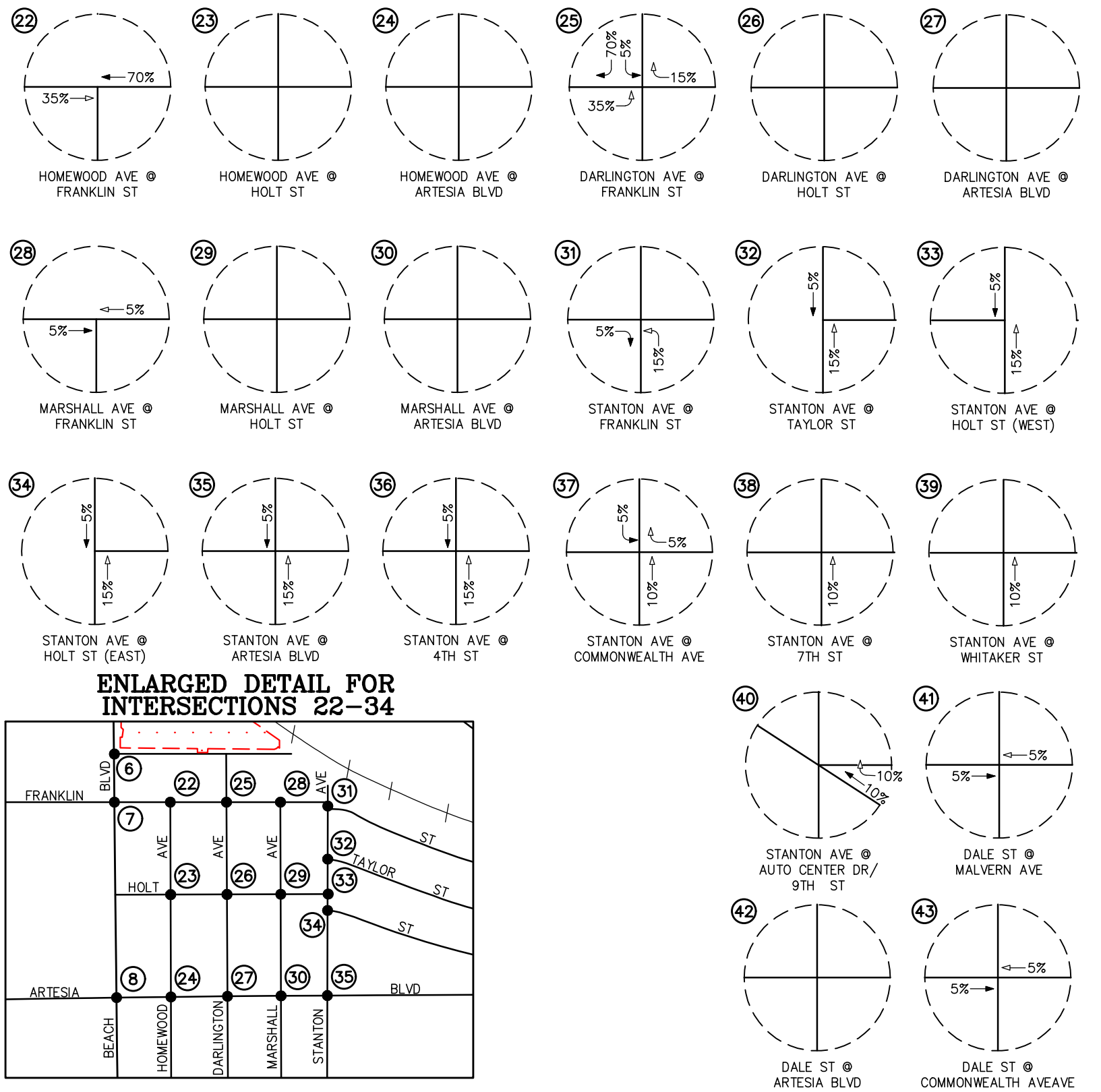
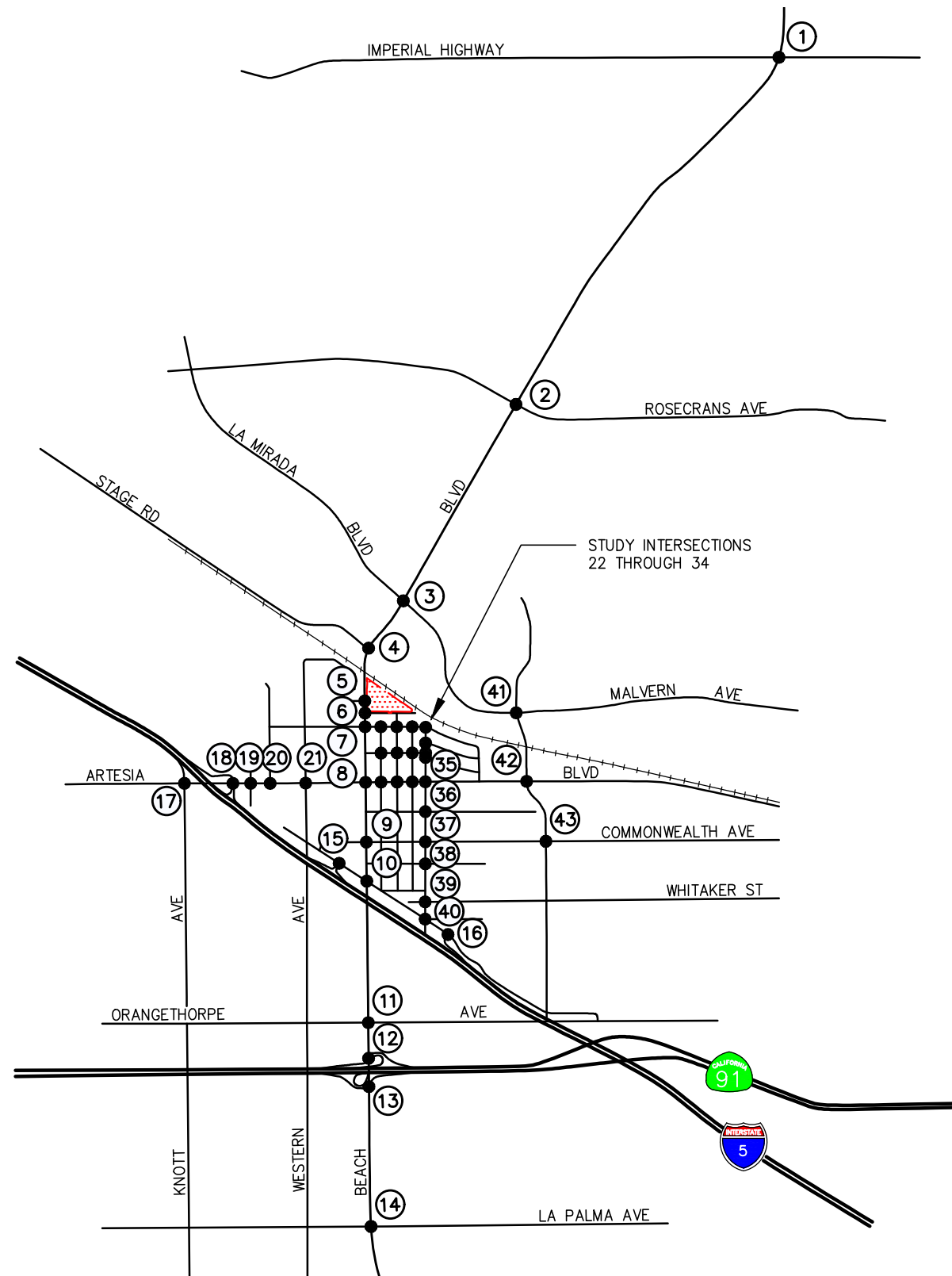
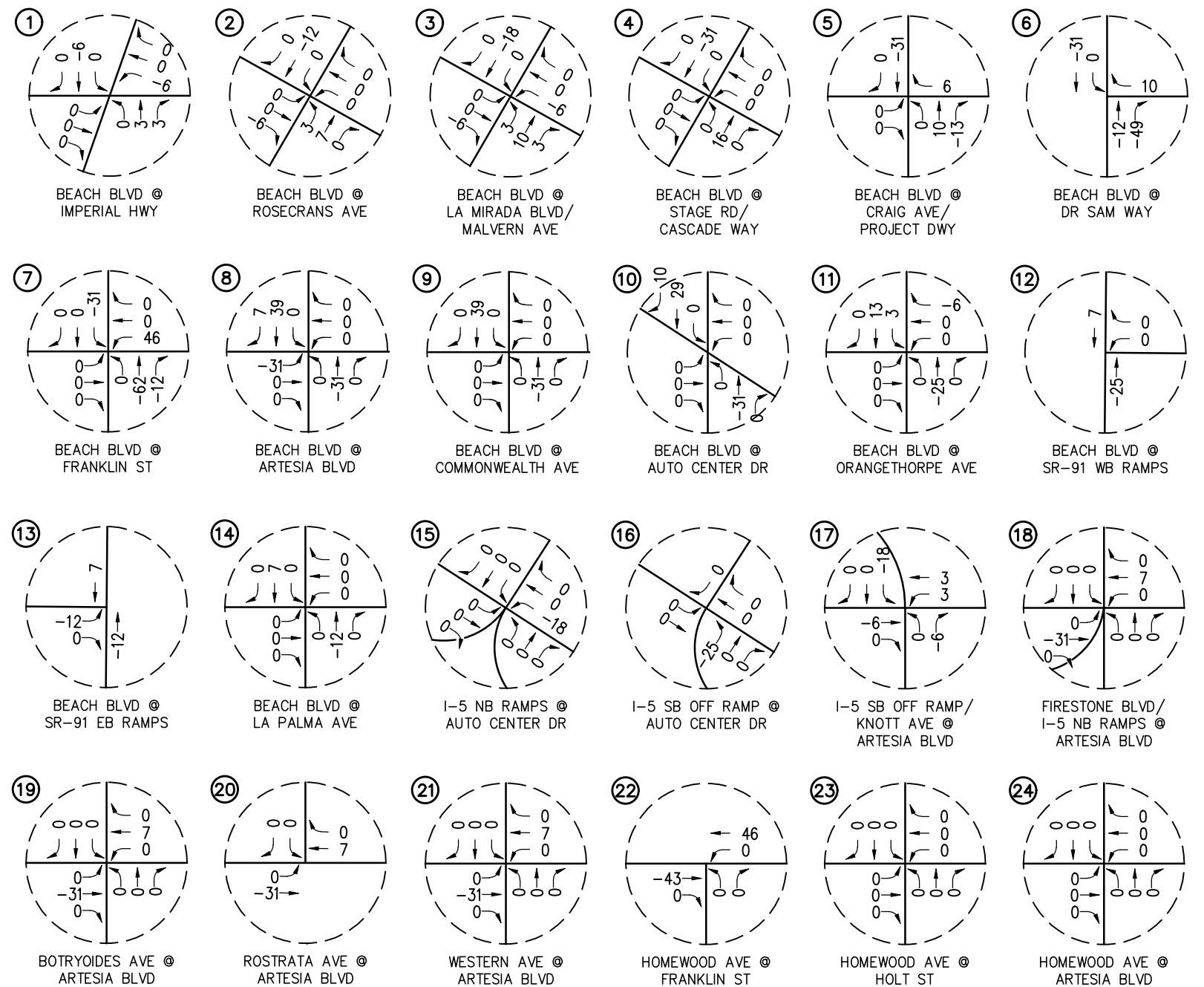
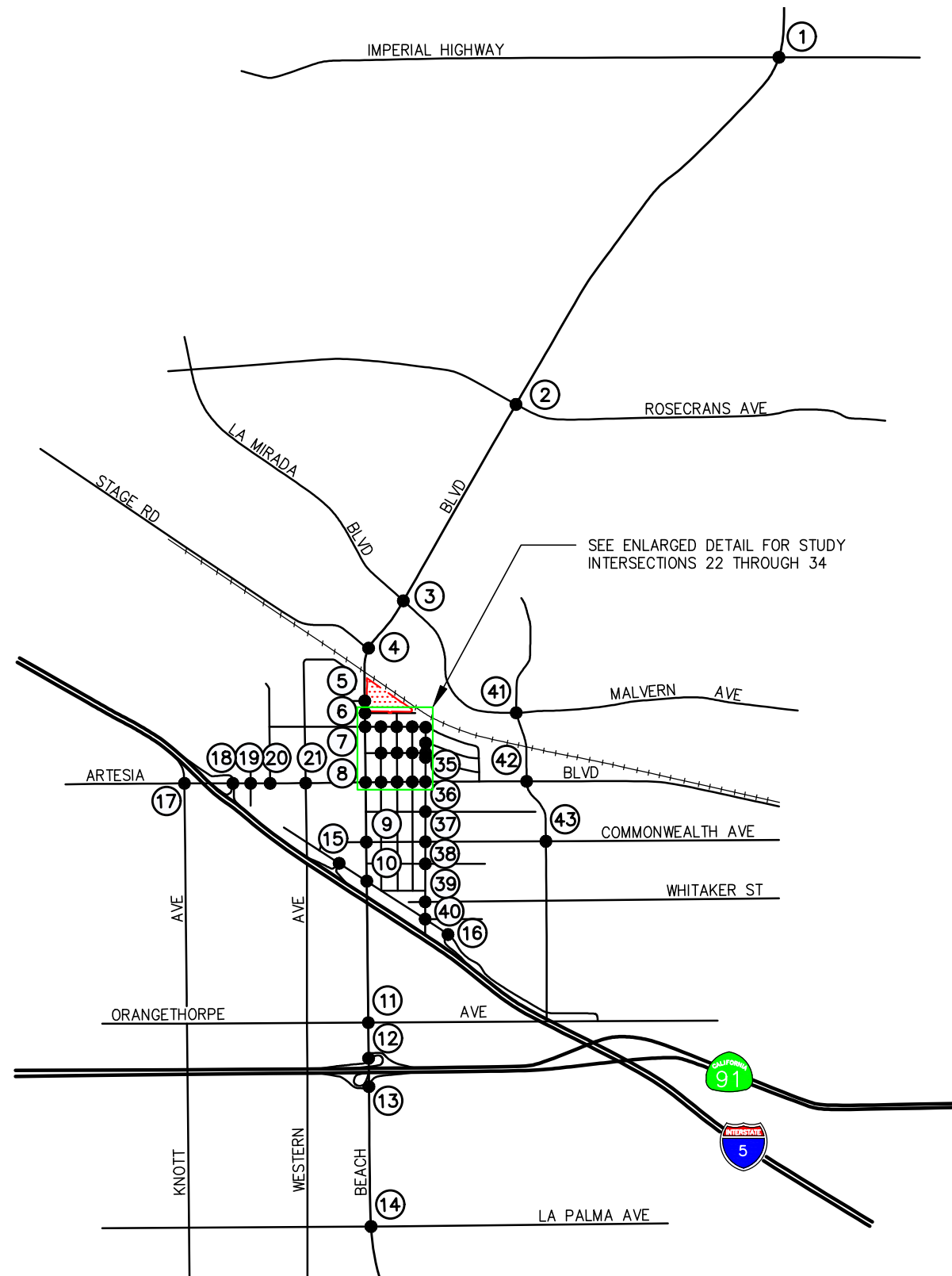
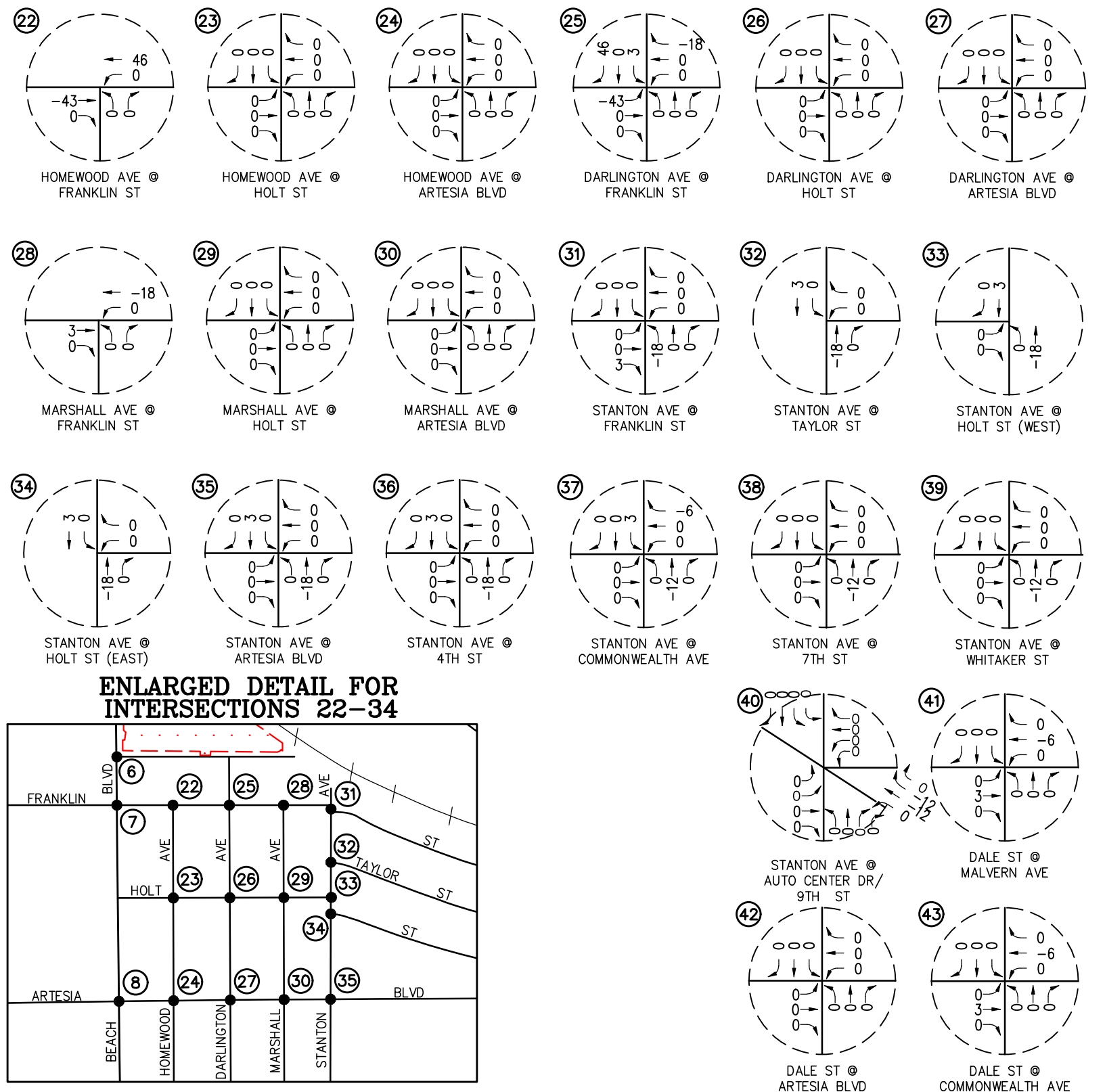
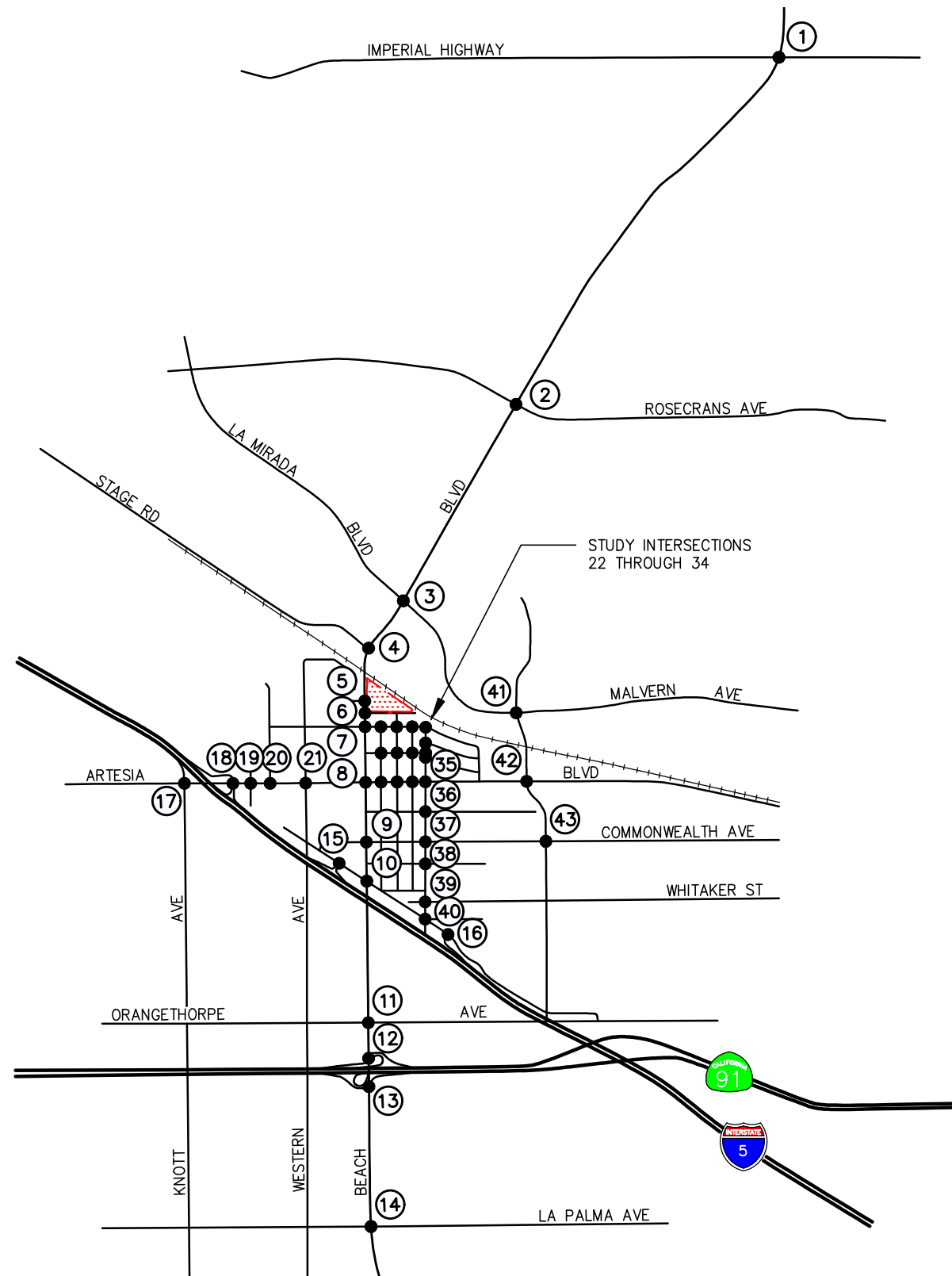
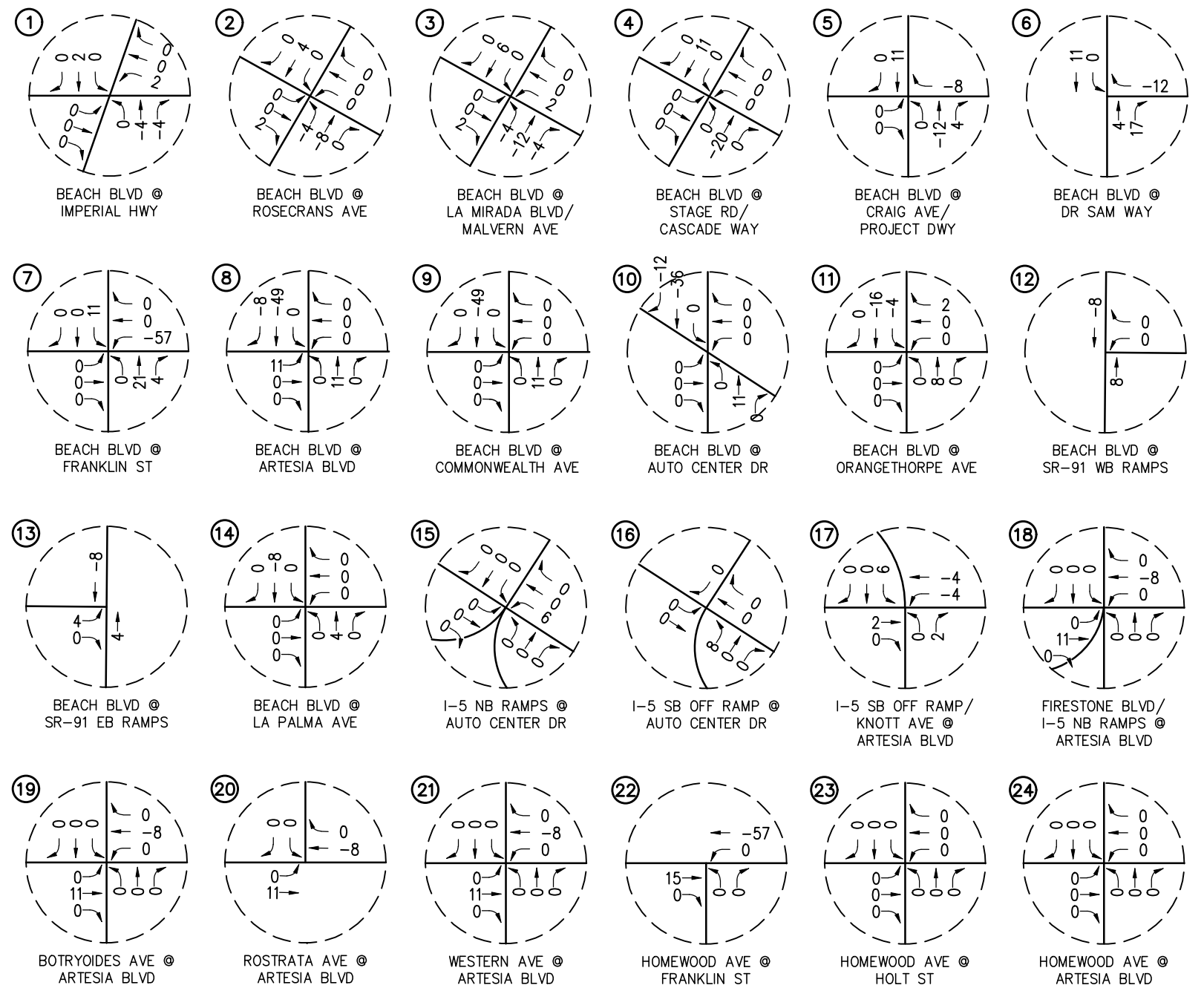


FIGURE 10B

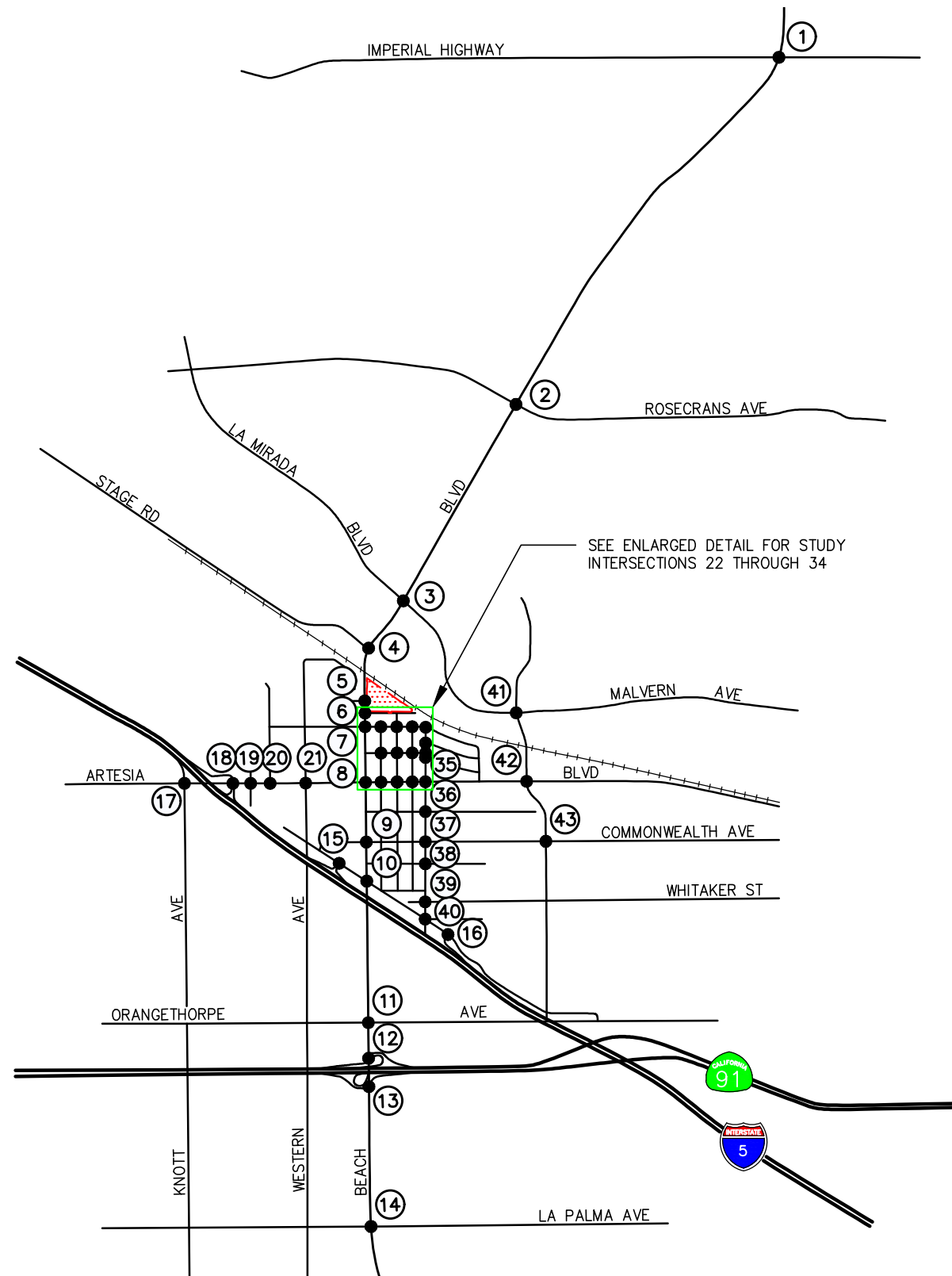
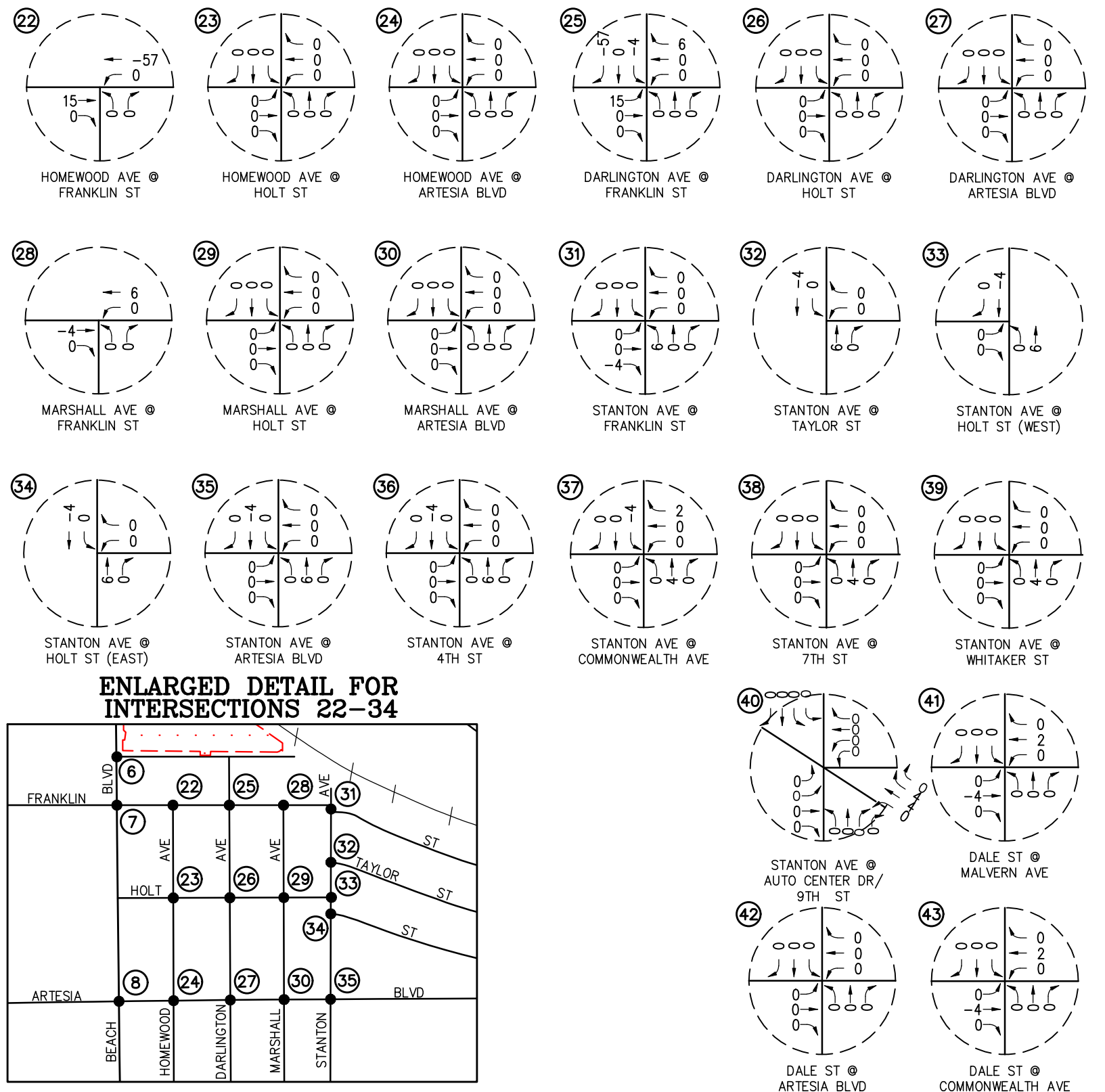


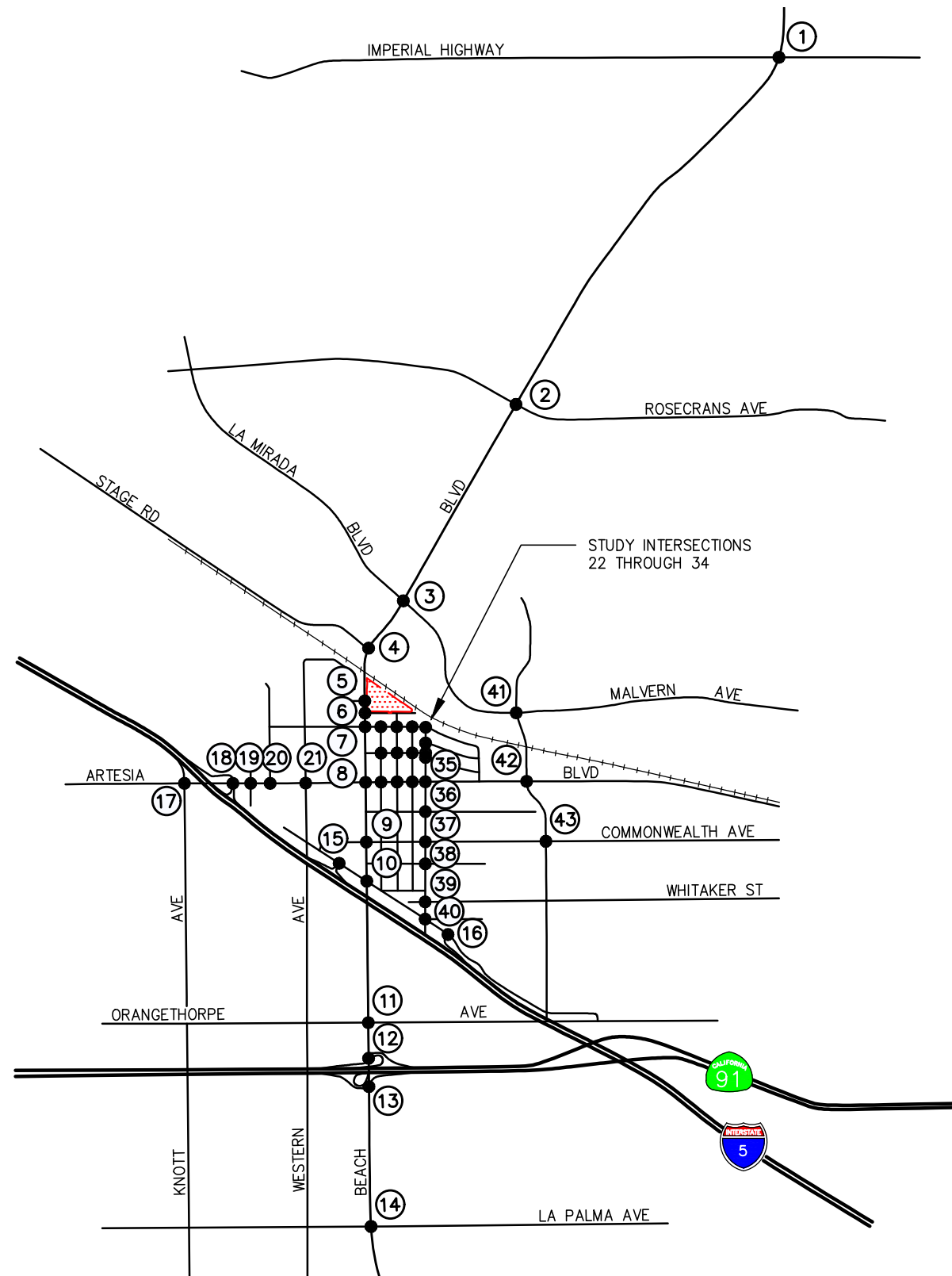
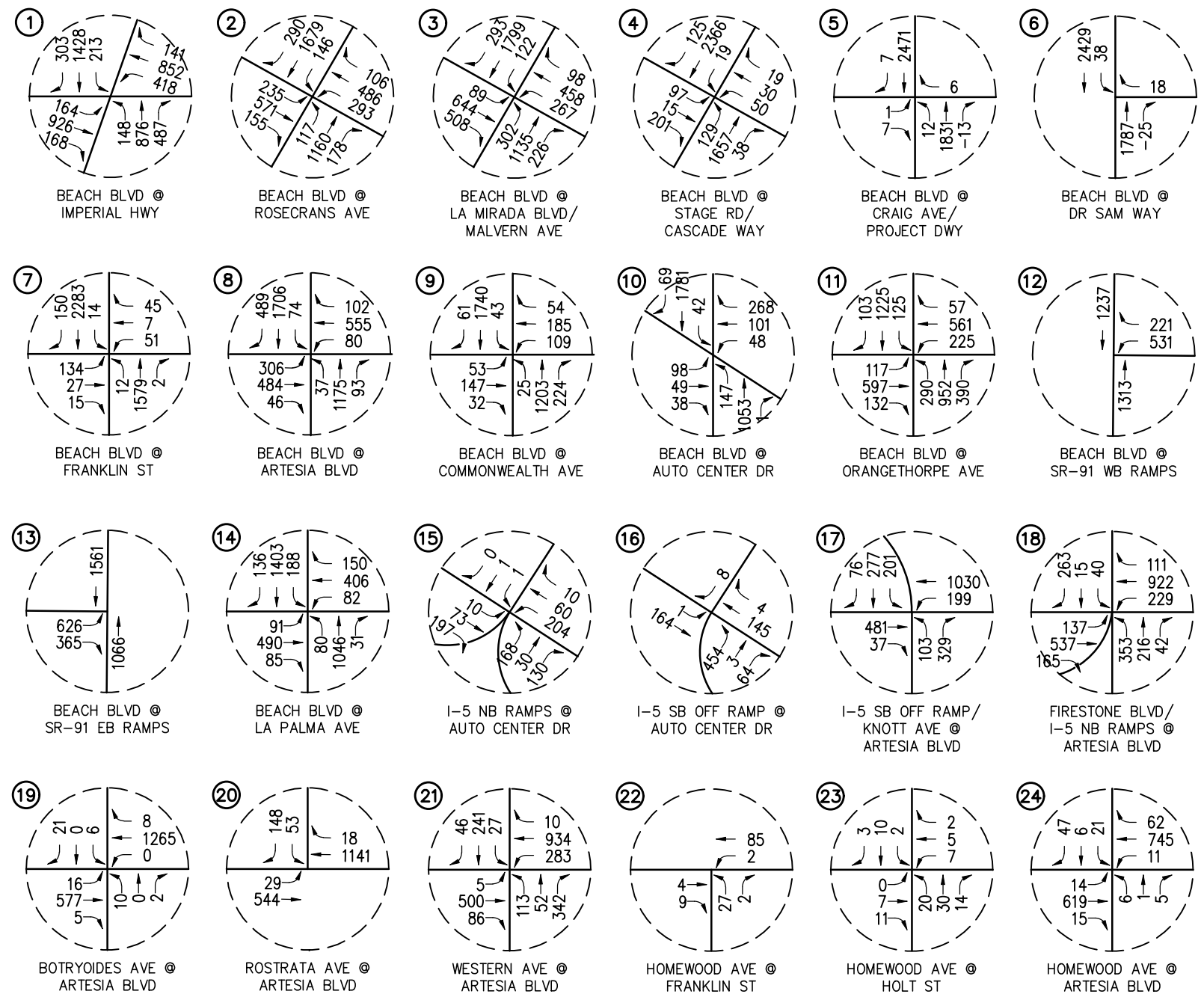
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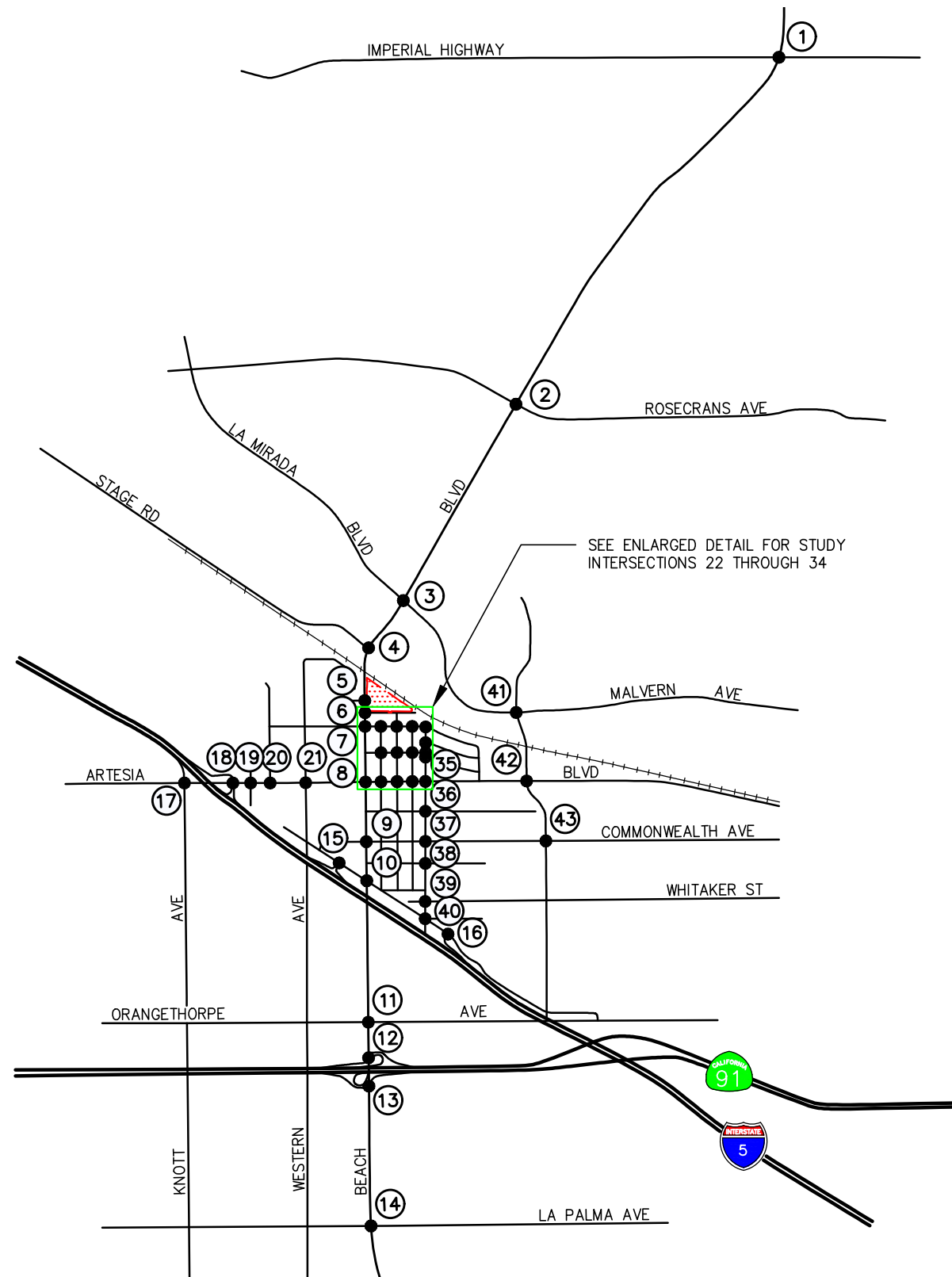
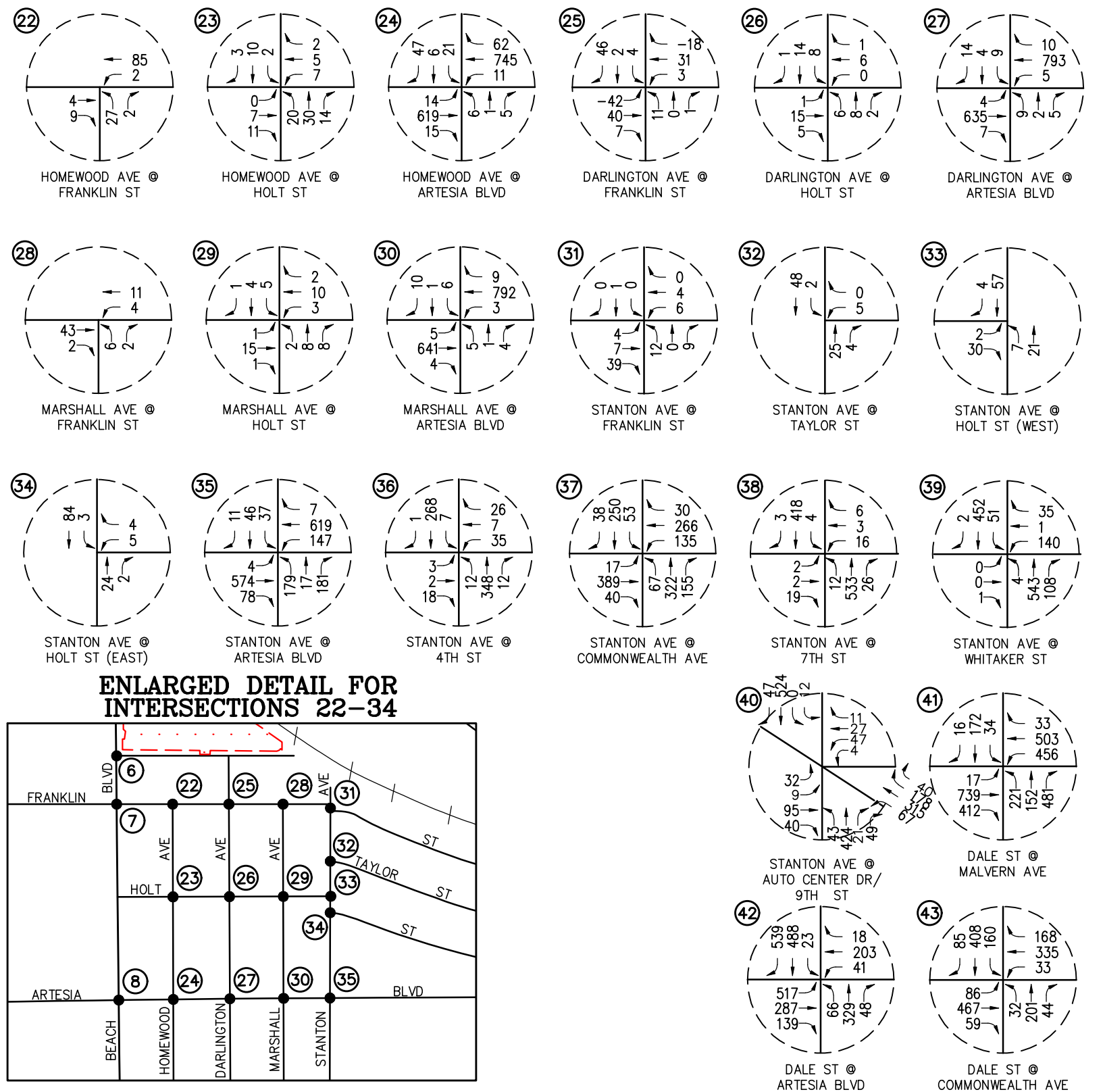


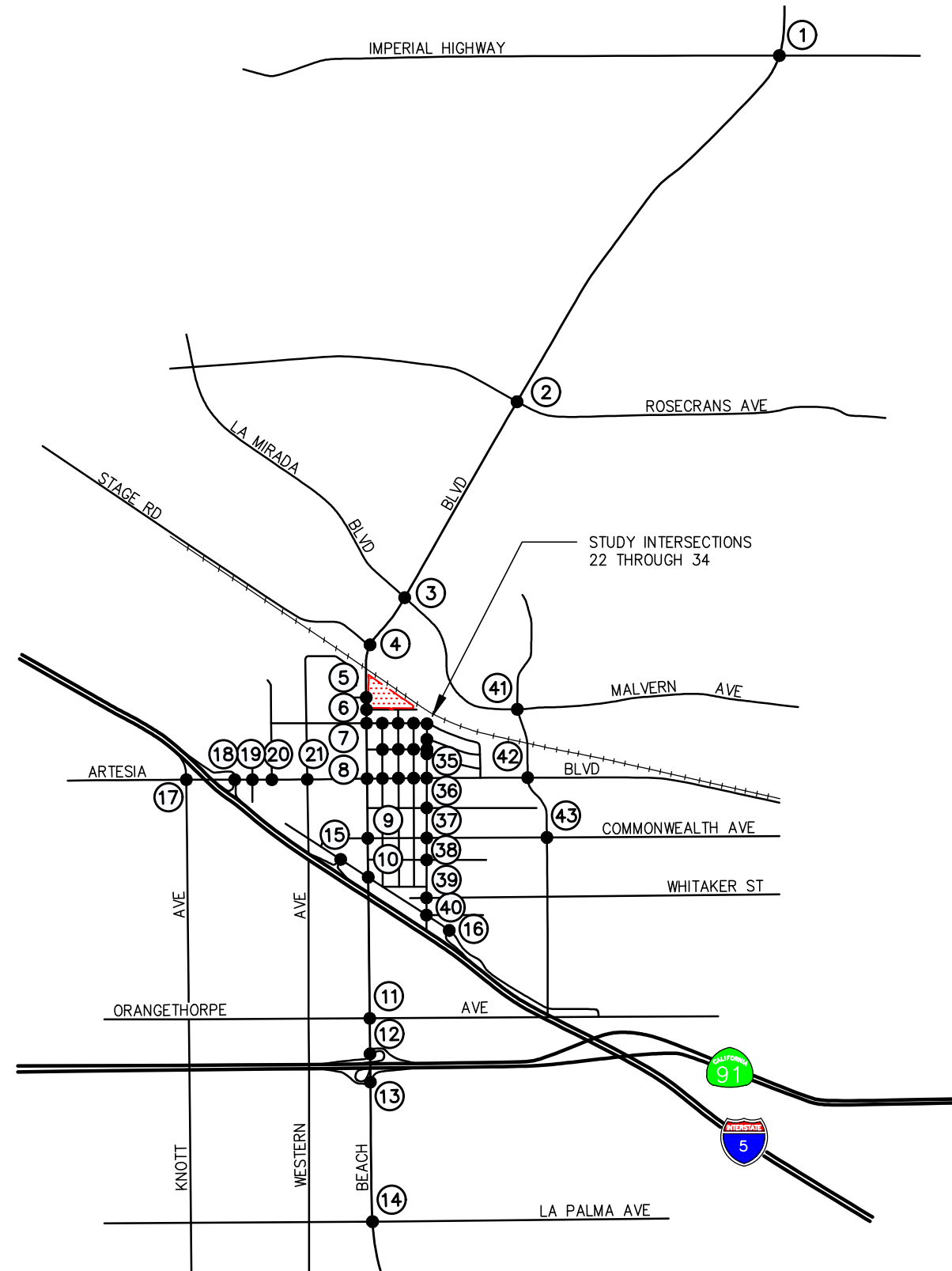
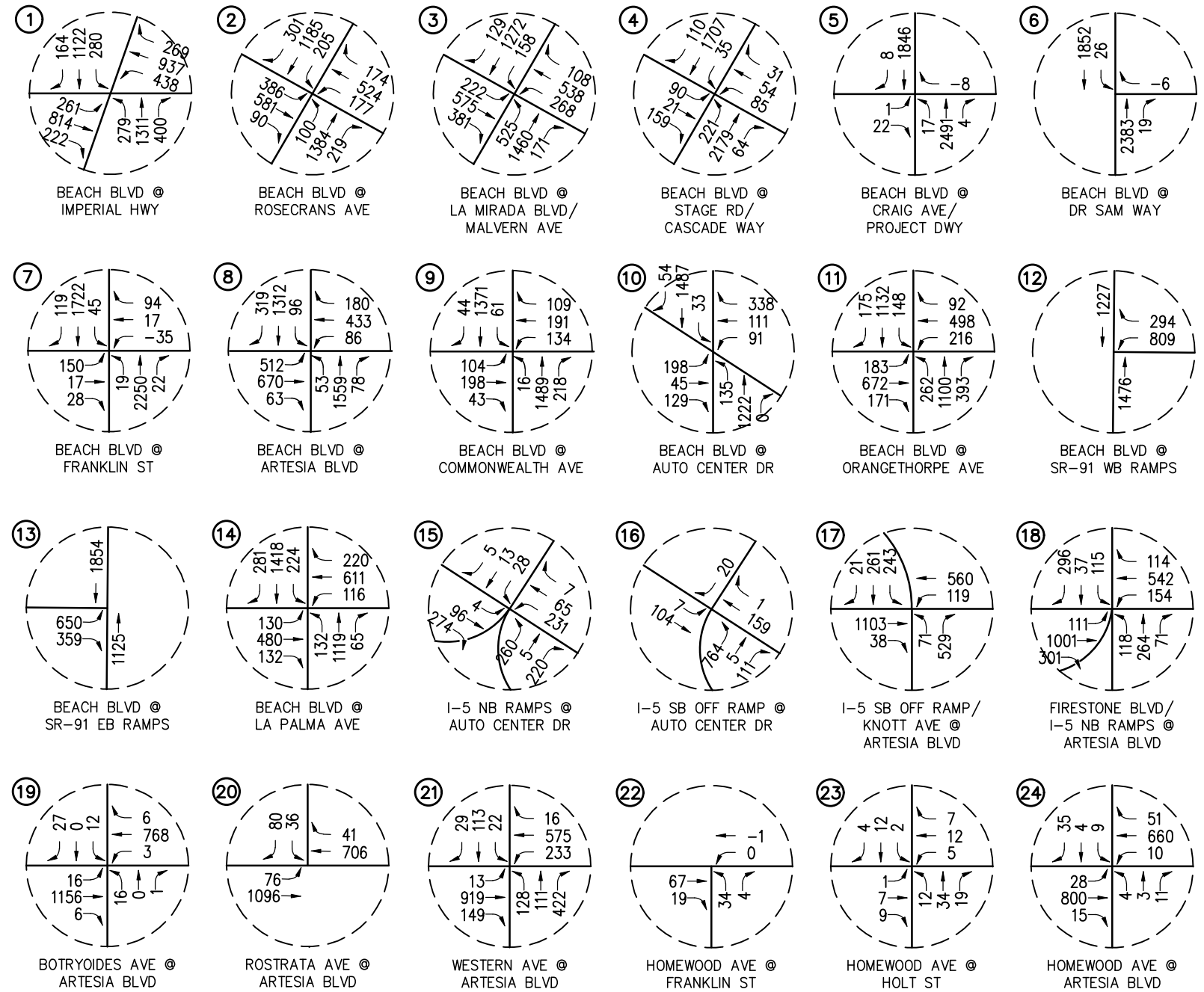
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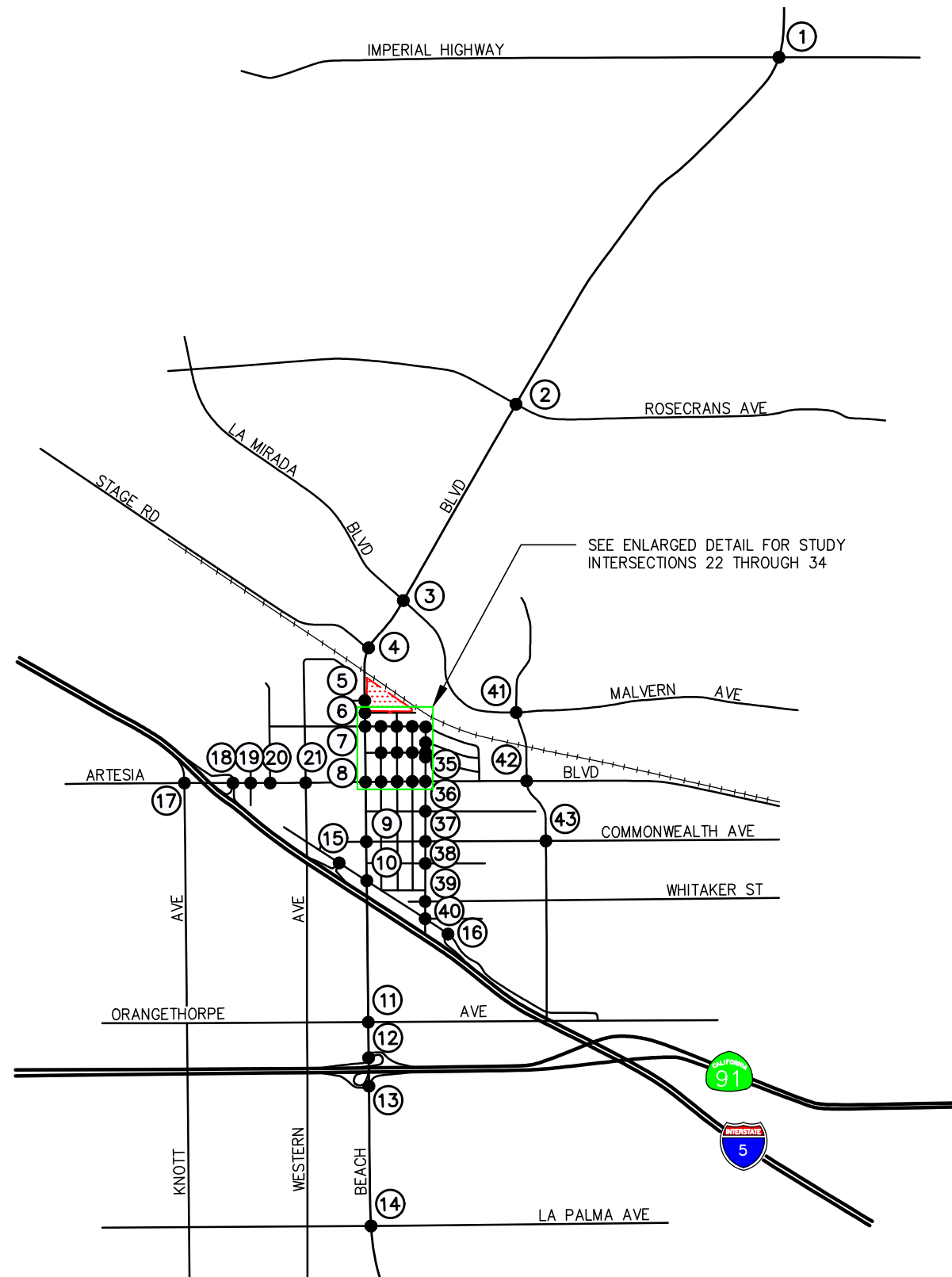
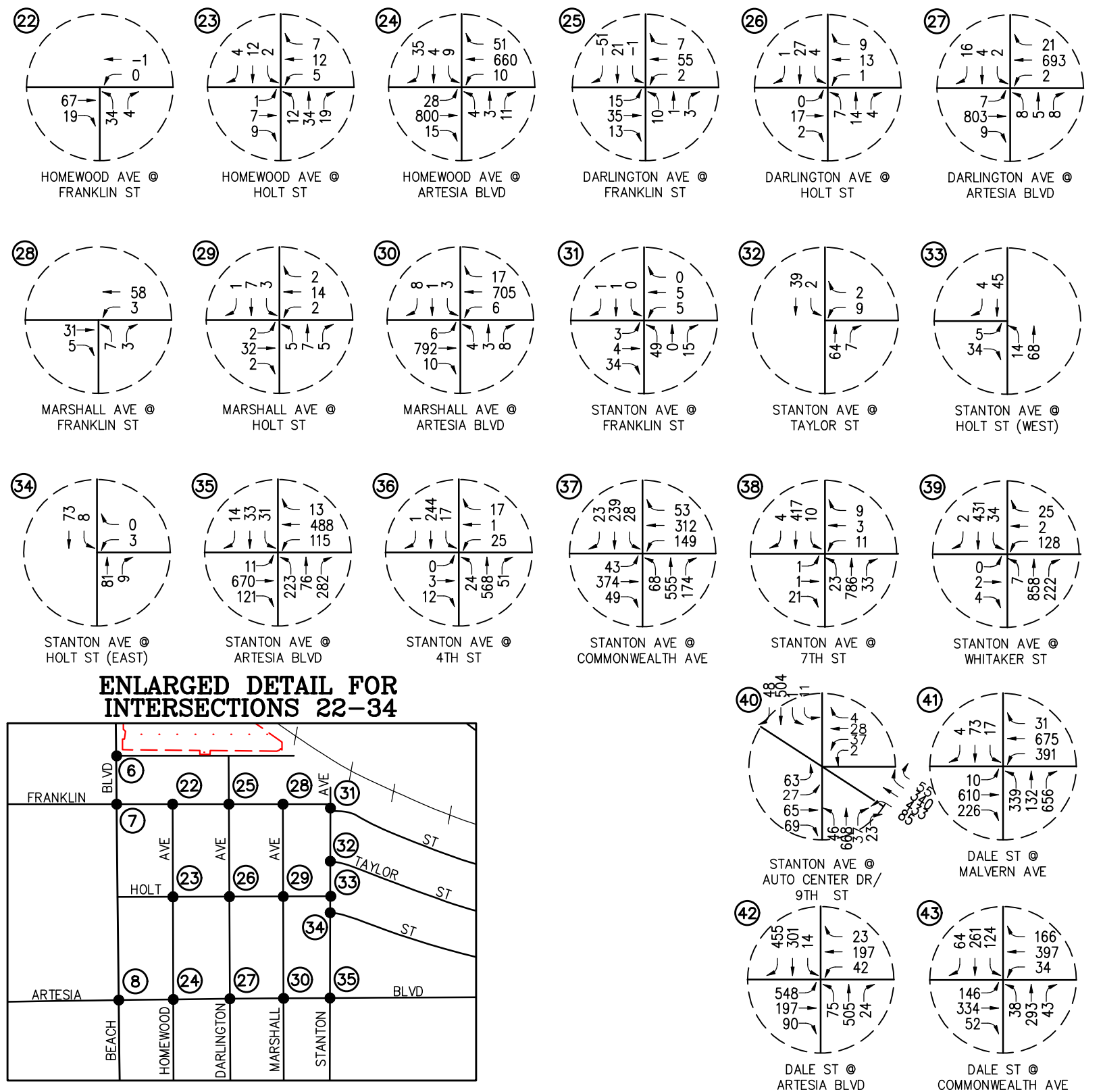


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TABLE 5
PROJECT TRIP GENERATION ESTIMATES

Description	Size	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>ITE Trip Generation Rates [a]:</u>								
Land Use 110: General Light Industrial (trips per 1,000 SF)		3.60	86%	14%	0.48	24%	76%	0.49
Land Use 215: Single-Family Attached Housing (trips per DU)		6.57	25%	75%	0.47	57%	43%	0.51
Land Use 220: Multifamily Housing Low Rise (trips per DU)		6.21	24%	76%	0.41	62%	38%	0.52
Land Use 223: Affordable Housing Income Limits (trips per DU)		4.81	29%	71%	0.36	59%	41%	0.46
<u>Existing Amway</u>								
Light Industrial	370,031 SF	1,332	153	25	178	43	138	181
Existing Amway Trips:		1,332	153	25	178	43	138	181
<u>Proposed Project</u>								
Affordable Housing	50 DU	241	5	13	18	14	9	23
Townhomes	114 DU	708	11	36	47	37	22	59
Duets	117 DU	769	14	41	55	34	26	60
Proposed Project Trips:		1,718	30	90	120	85	57	142
Proposed Project Minus Existing Amway (Net Trips):		386	(123)	65	(58)	42	(81)	(39)

Note:

[a] Source: *Trip Generation*, 12th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2025).

4.4.1 Ambient Growth

The ambient traffic growth factor is intended to include unknown and future related projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area. The Year 2029 background traffic volumes were estimated based on a 1% annual growth rate (based on other traffic studies completed in the City), corresponding to a total adjustment of 4% from 2025 conditions.

4.4.2 Cumulative Projects

The traffic expected to be generated by future development projects that are either under construction or proposed within the study area accounts for the second element of the Year 2029 Cumulative Base scenario. **Table 6** presents the list of 5 related projects, and **Table 7** presents the corresponding trip generation estimates. **Figure 15** shows the location of these related projects. The list of cumulative projects was developed in conjunction with City staff.

4.4.3 Planned Transportation System Improvements

No physical, capacity-enhancing improvements to intersection geometry or roadway segments have been assumed under Year 2029 Cumulative Base conditions because no transportation infrastructure projects within the study area are planned or programmed by Year 2029.

Caltrans has current plans to improve the existing Accessible Pedestrian Signals (APS) within the Project study area, on Beach Boulevard (State Route 39), between Pacific Coast Highway and Gregory Lane, by converting the existing APS to have touchless operation. APS is a device that provides information to pedestrian users about the “walk” and “don’t walk” intervals at signalized intersections. It communicates this to pedestrians, based on requirements in the MUTCD, in non-visual formats (i.e., audible tones and vibrotactile surfaces) to pedestrians who are blind or have low vision. APS generally helps reduce pedestrian delay and the number of crossings that begin during the “don’t walk” interval of the signal.

4.4.4 Year 2029 Cumulative Base Traffic Volumes

Figures 16 to 17 present the Year 2029 Cumulative Base traffic volumes at the 43 key intersections during the AM and PM peak hours, respectively.

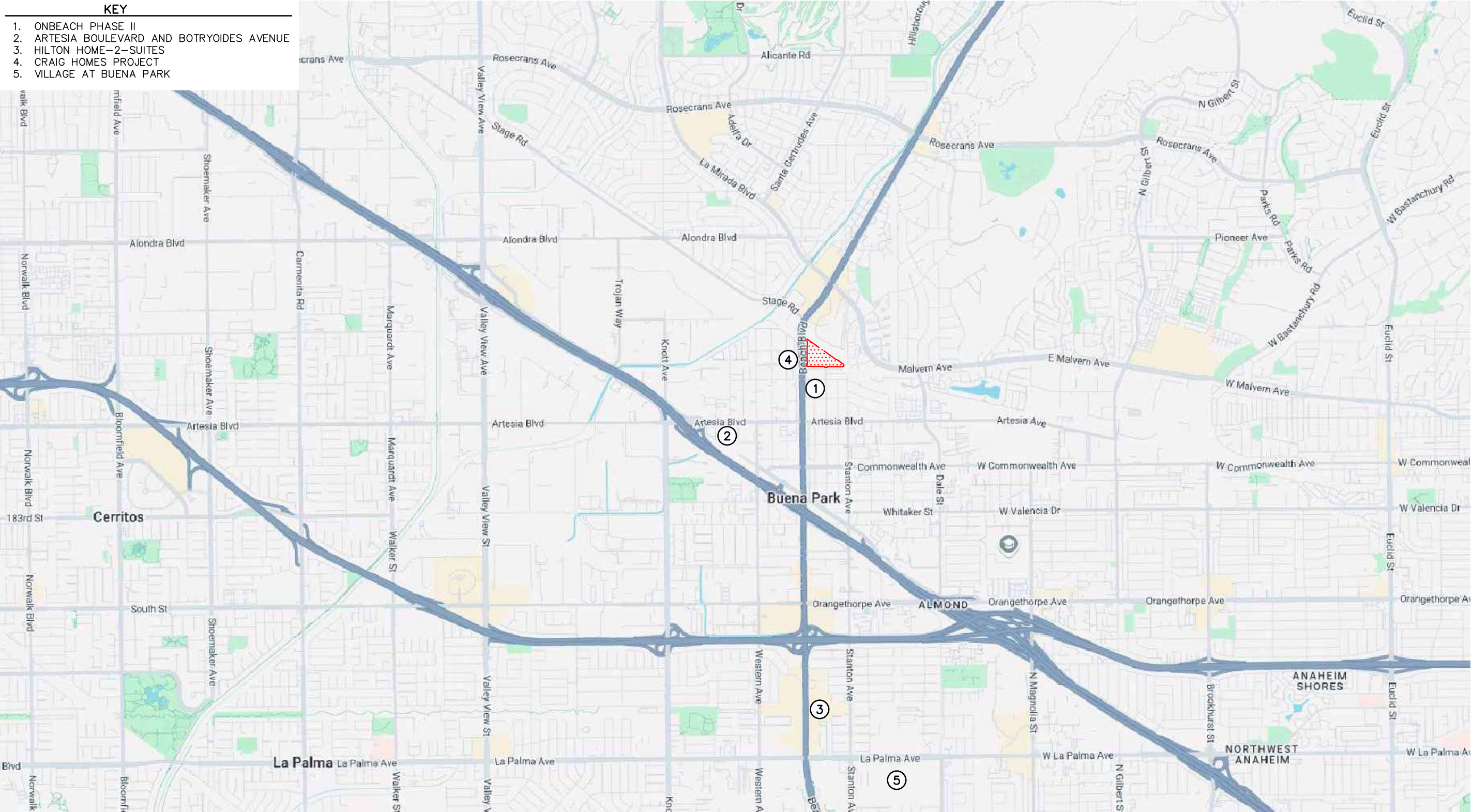
4.5 Year 2029 Cumulative Plus Project Traffic Volumes

Figures 18 to 19 illustrate the Year 2029 Cumulative Plus Project traffic volumes at the 43 key intersections during the AM and PM peak hours, respectively.

5.0 NON-CEQA TRAFFIC IMPACT ANALYSIS

The relative non-CEQA impact of the Project during the AM and PM peak hours was evaluated based on analysis of future operating conditions at the 43 intersections, without and then with the Project.

- KEY**
1. ONBEACH PHASE II
 2. ARTESIA BOULEVARD AND BOTRYOIDES AVENUE
 3. HILTON HOME-2-SUITES
 4. CRAIG HOMES PROJECT
 5. VILLAGE AT BUENA PARK



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SOURCE: GOOGLE MAPS

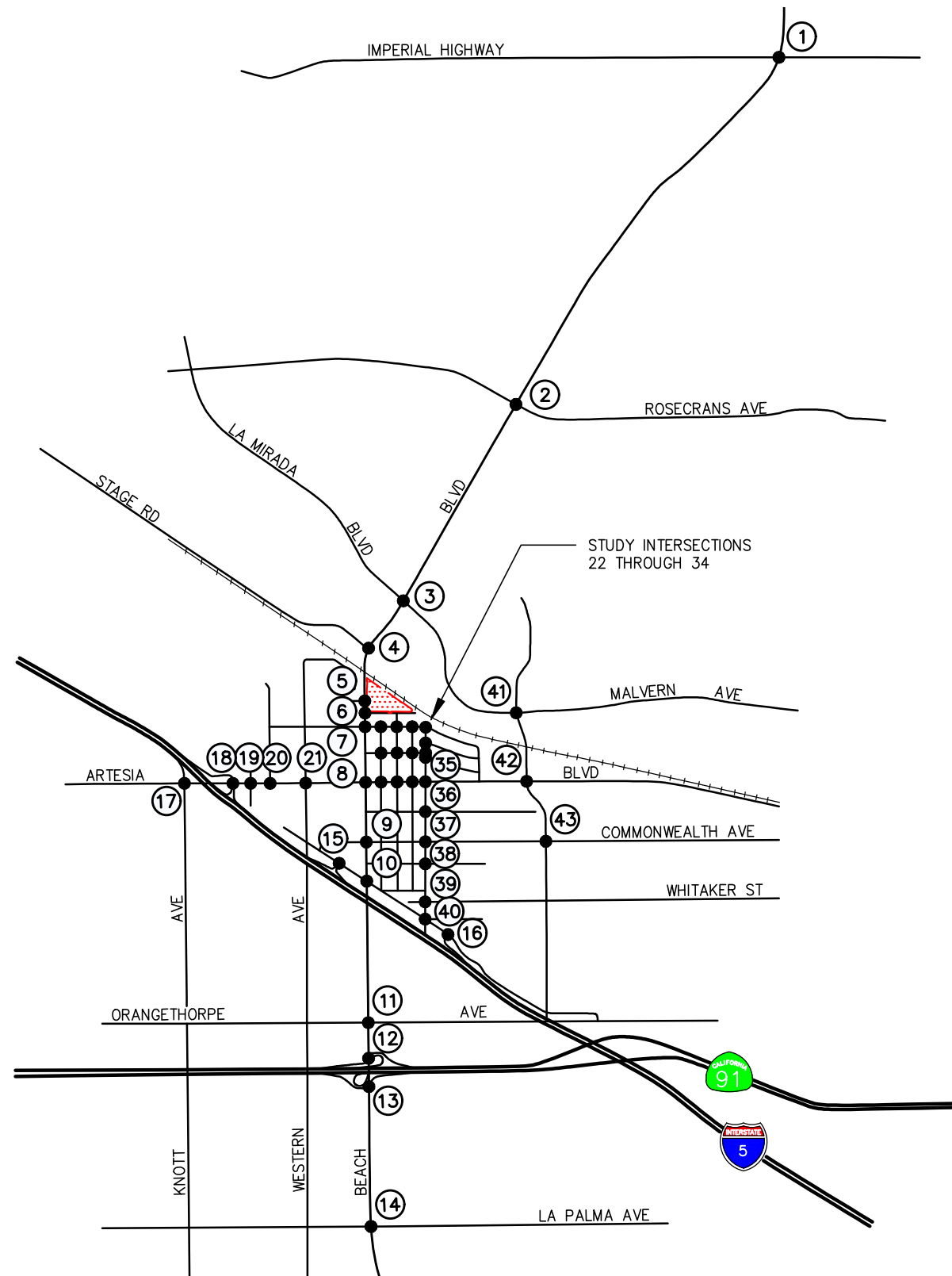
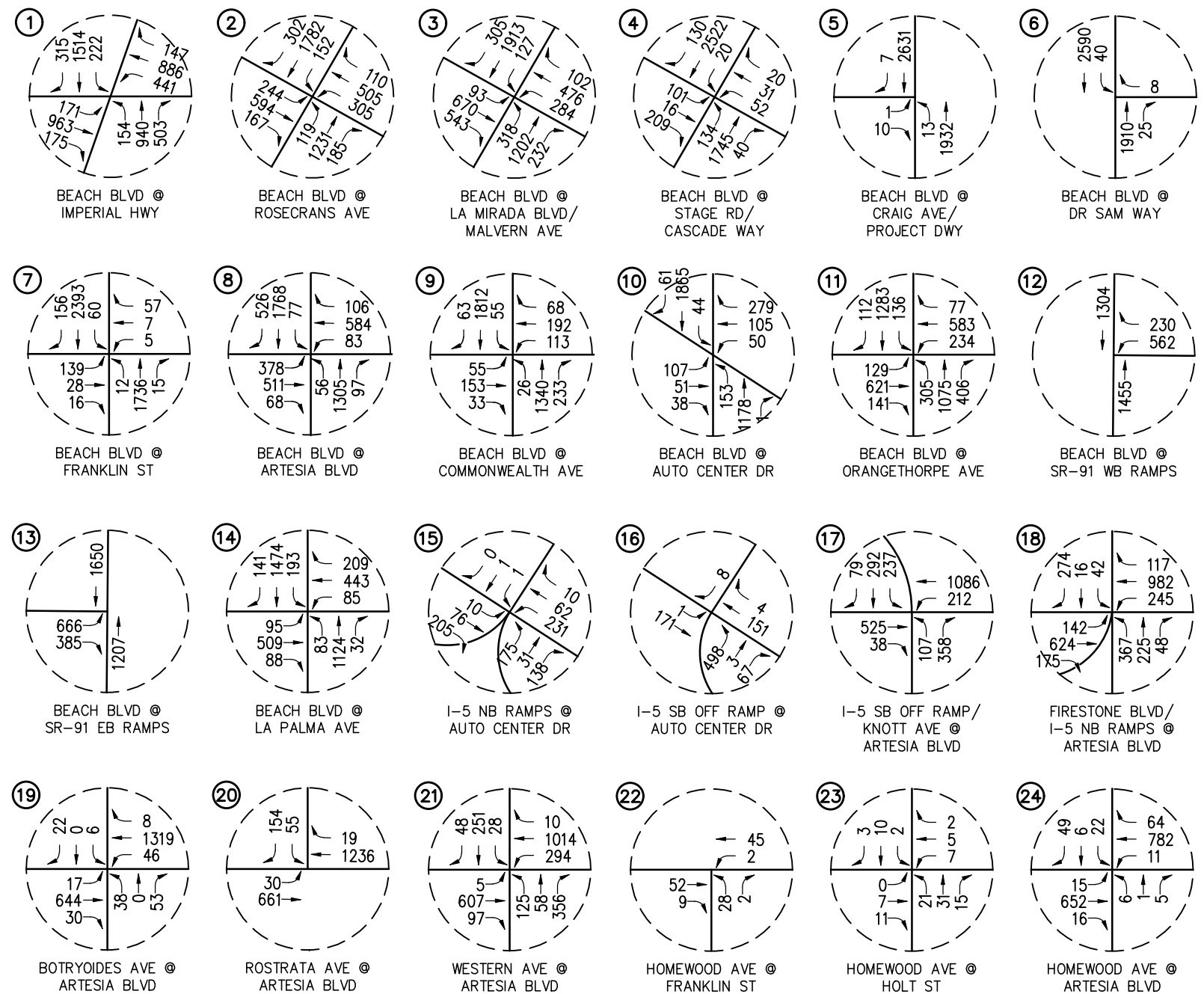
KEY

- # = LOCATION OF CUMULATIVE PROJECT
- [Red Hatched Box] = PROJECT SITE

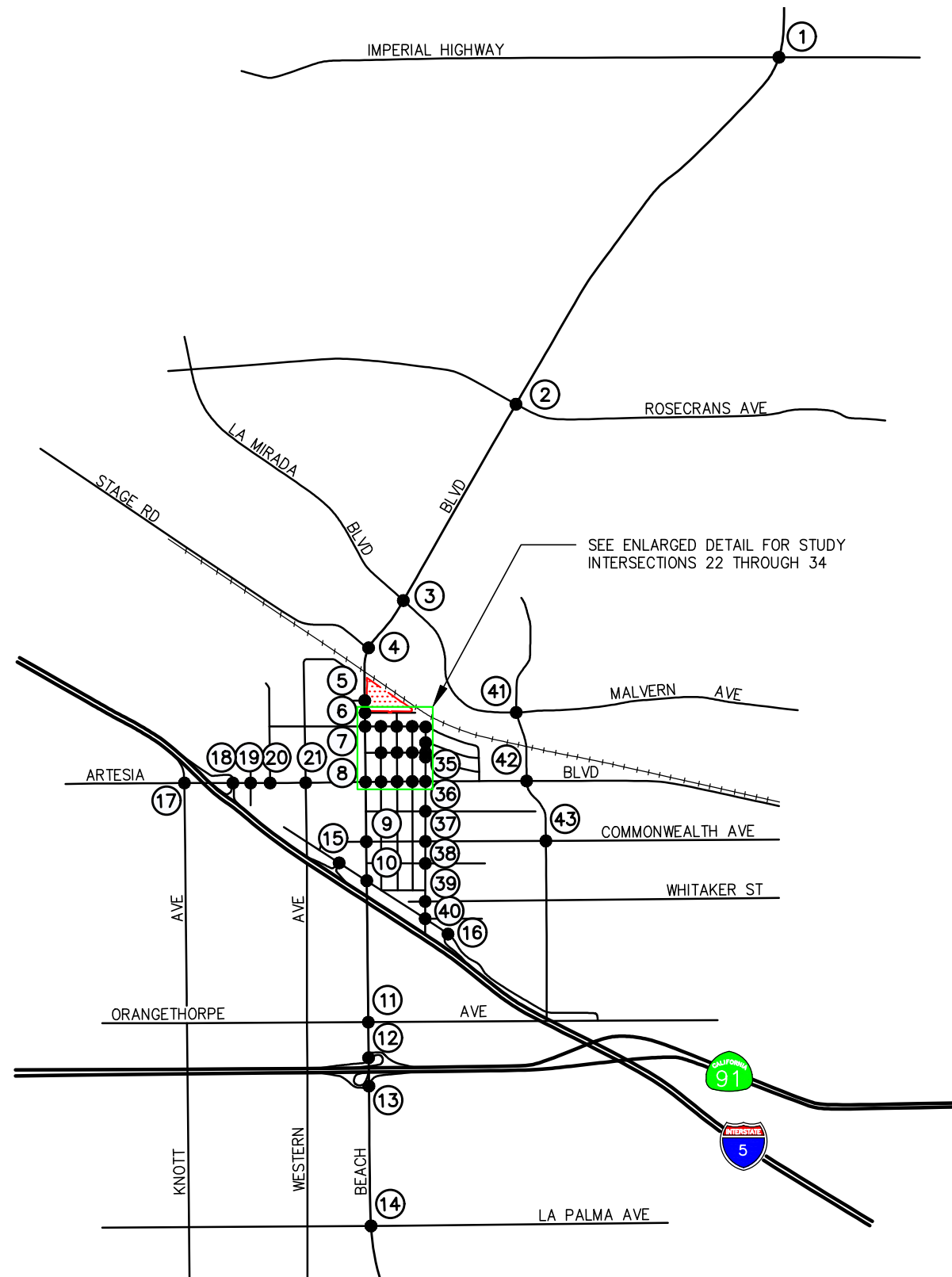
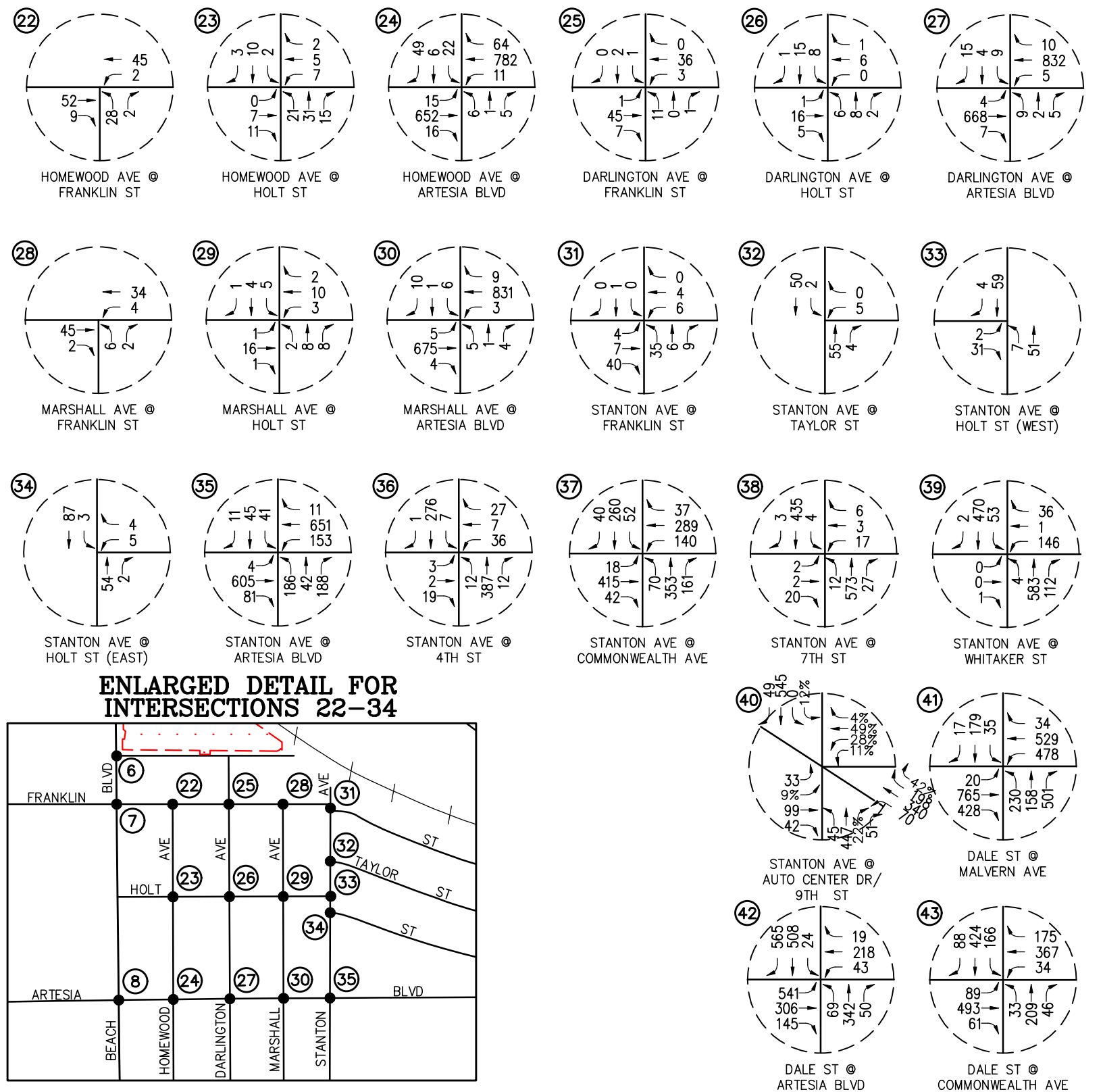


FIGURE 15

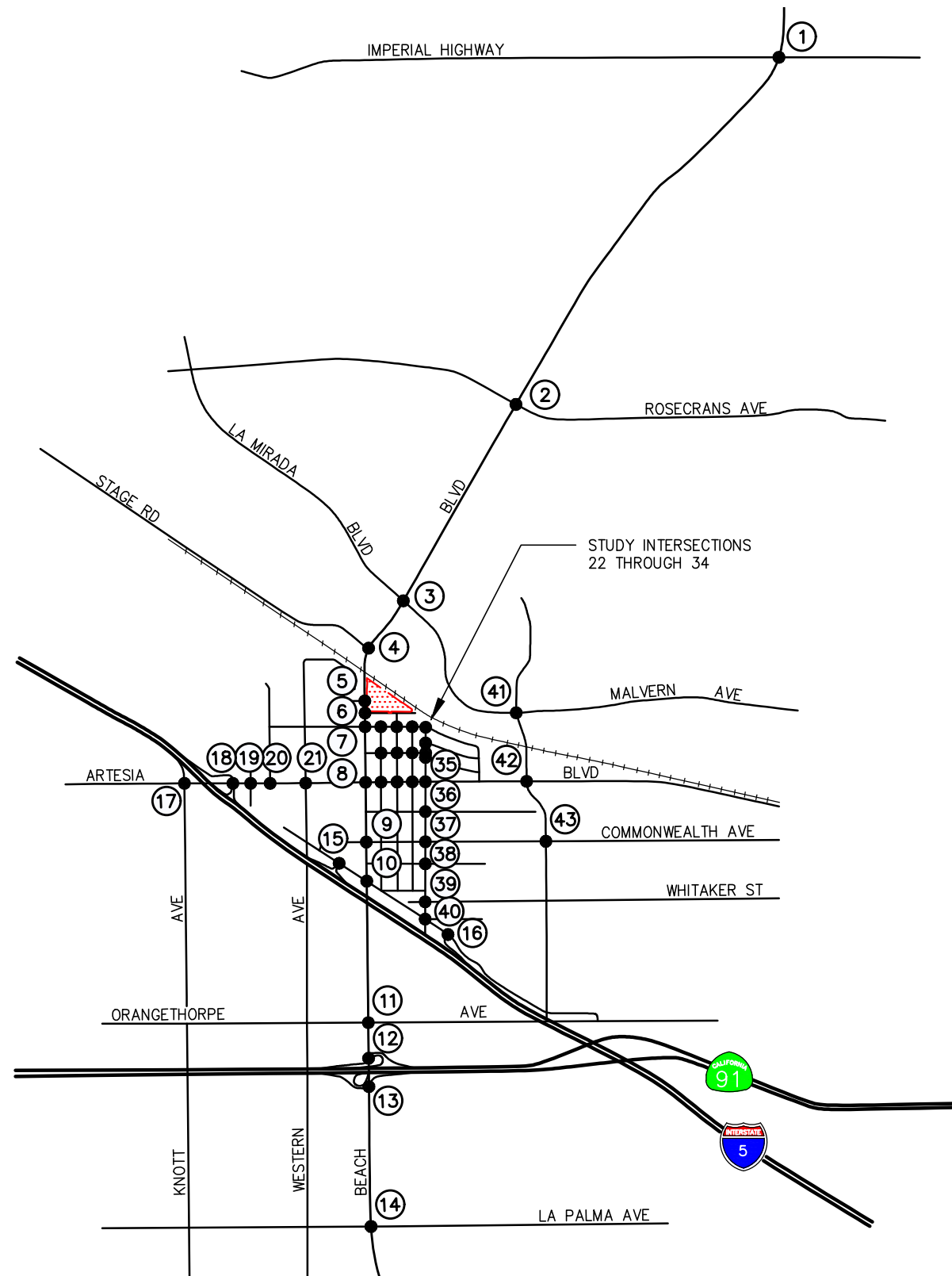
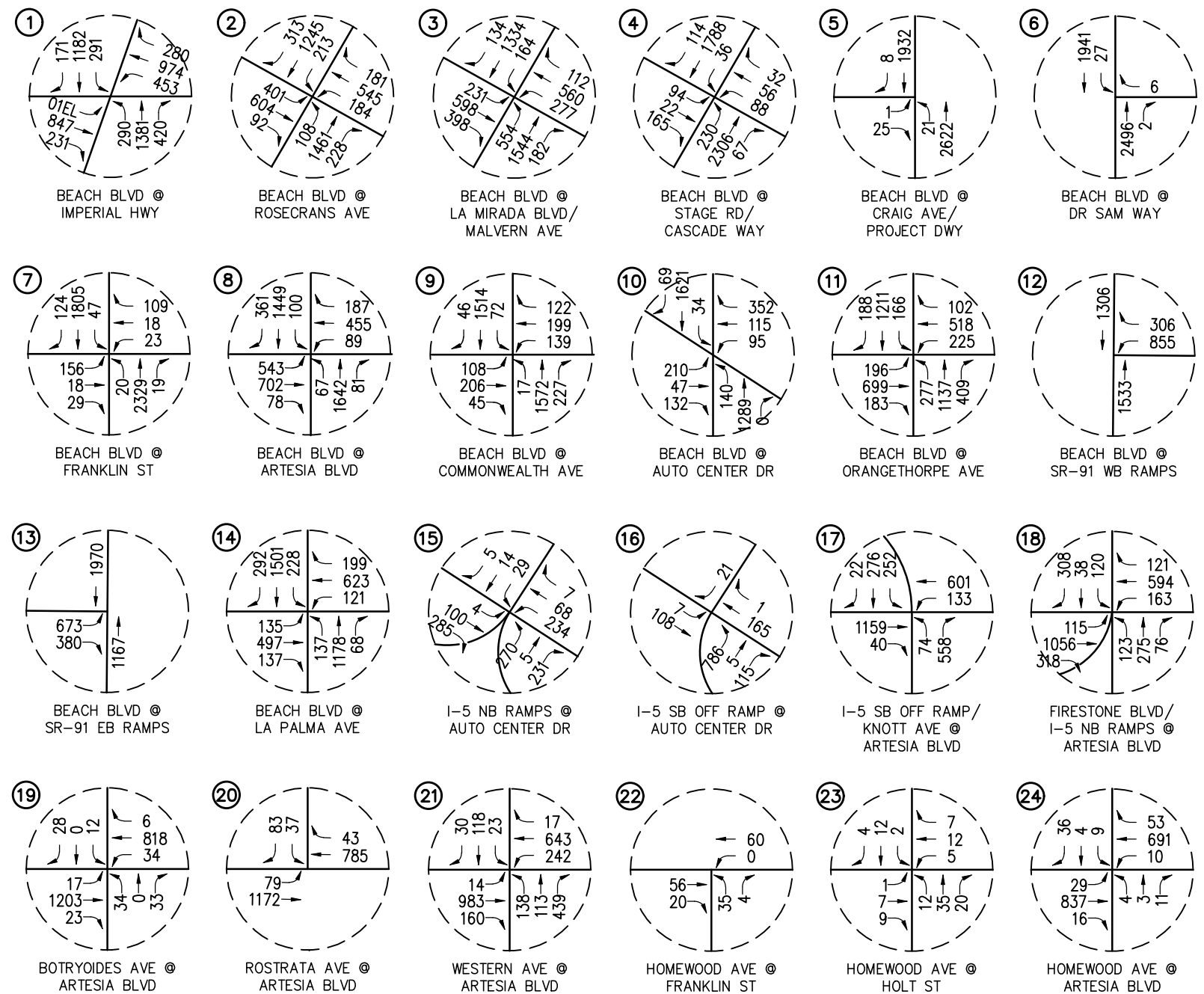
LOCATION OF CUMULATIVE PROJECTS
AMWAY, BUENA PARK



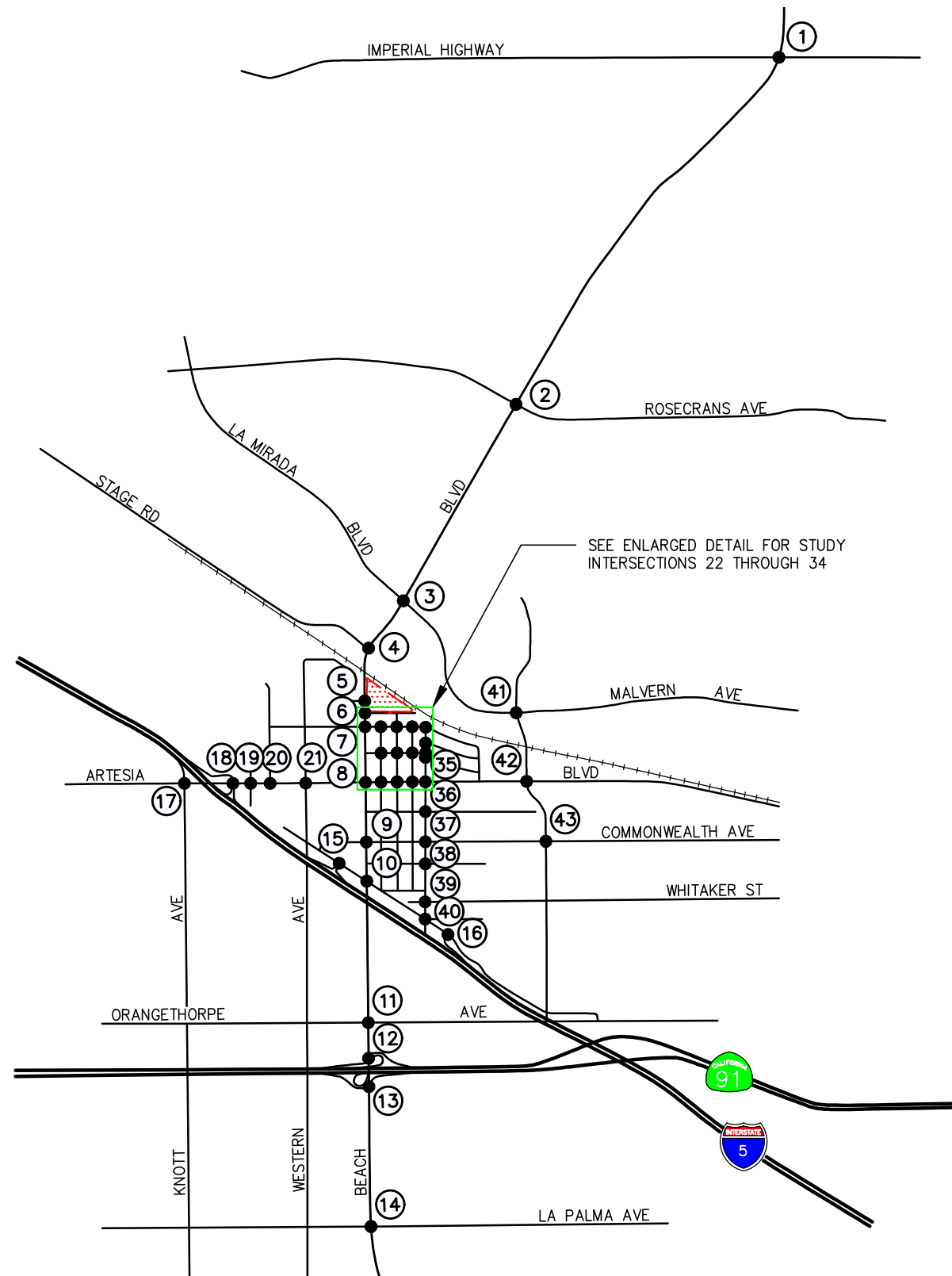
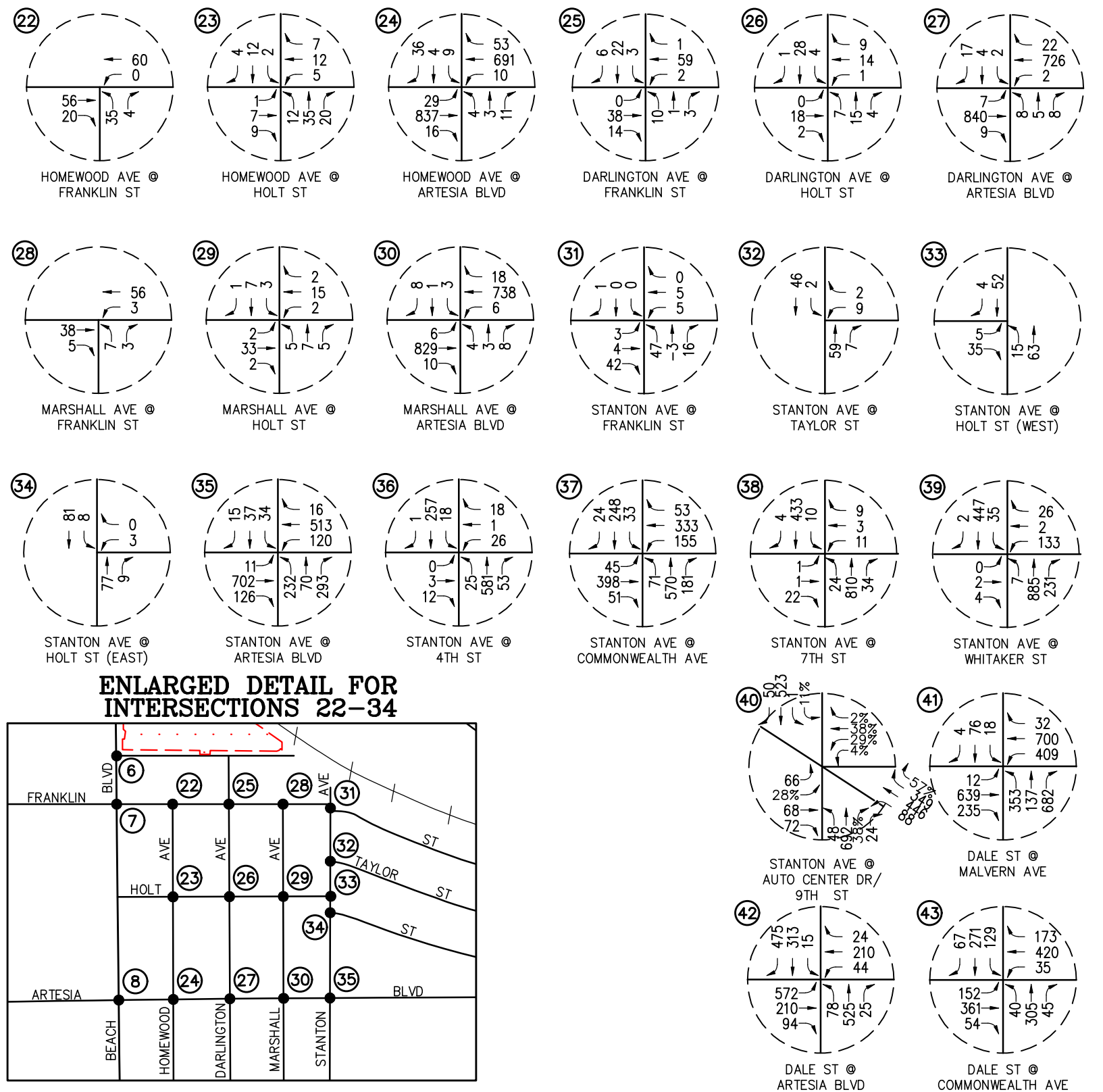
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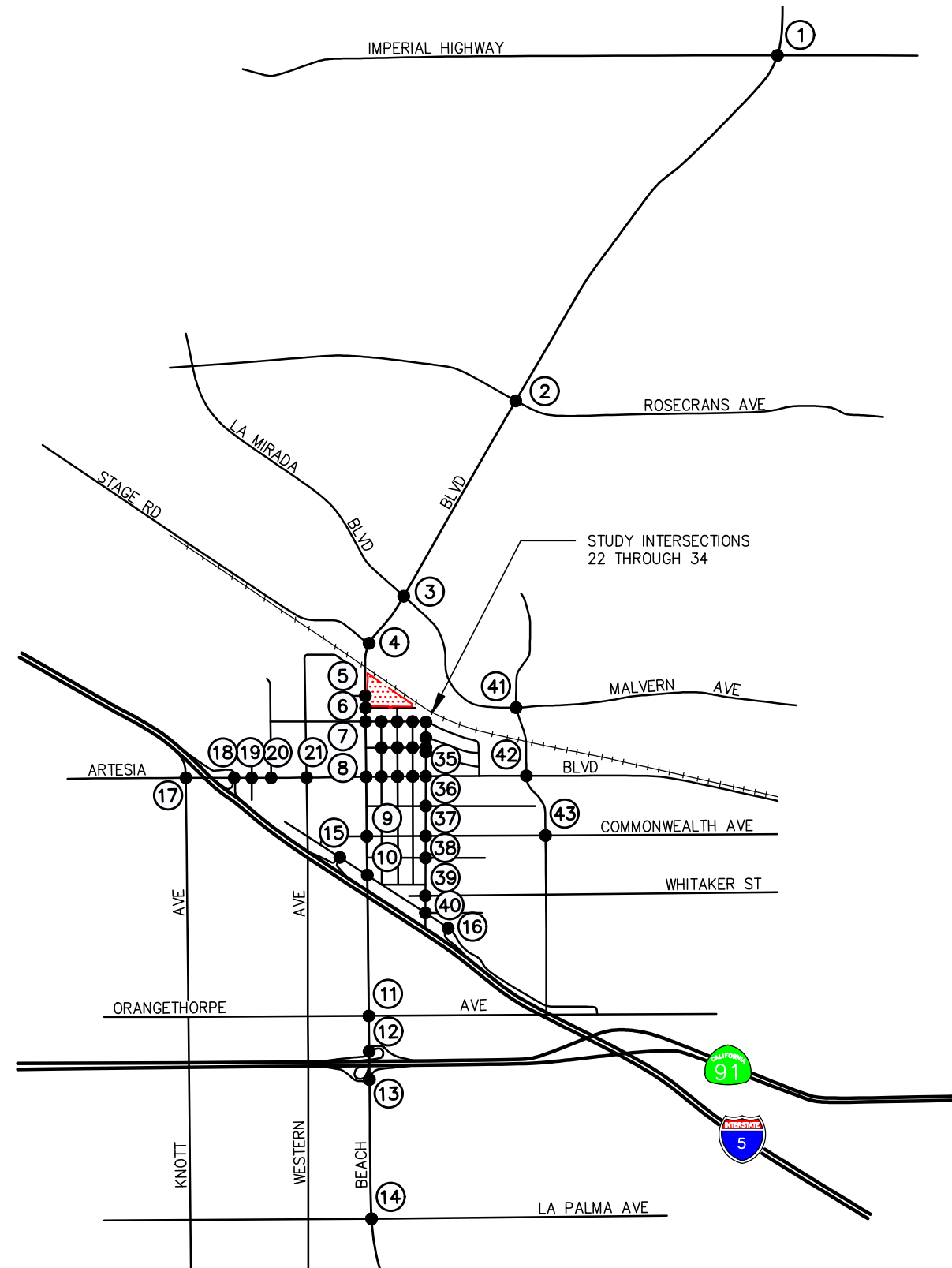
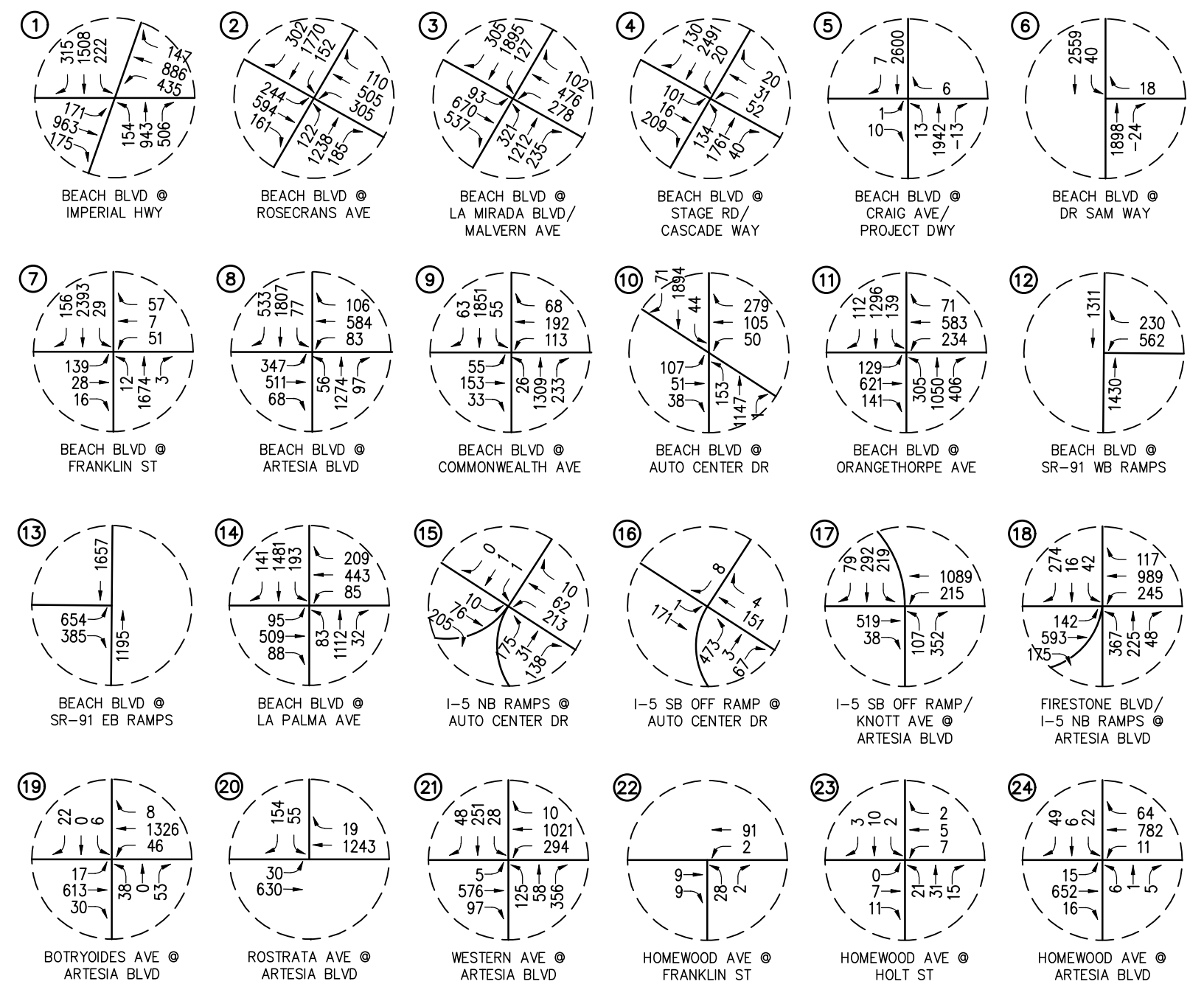


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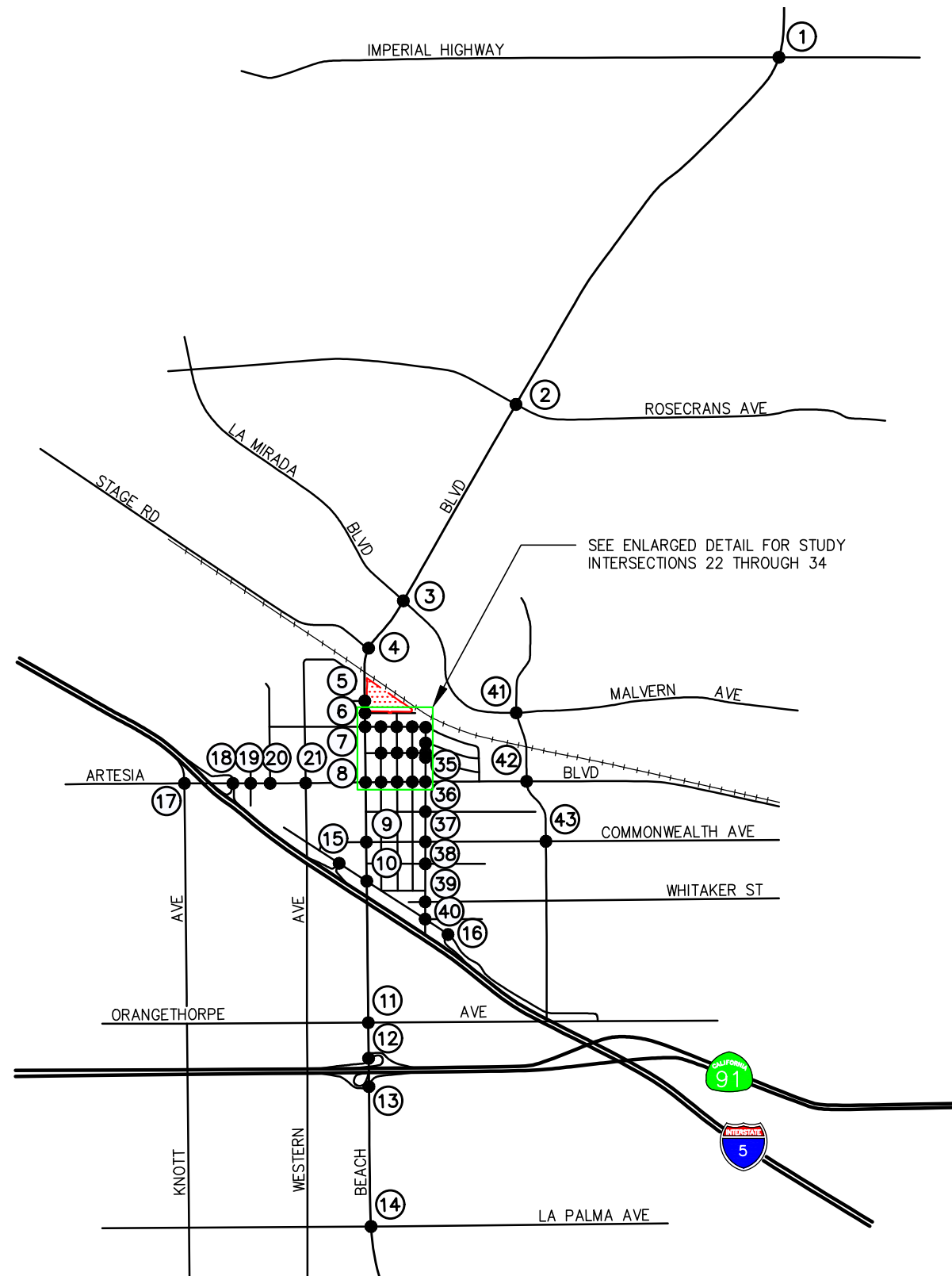
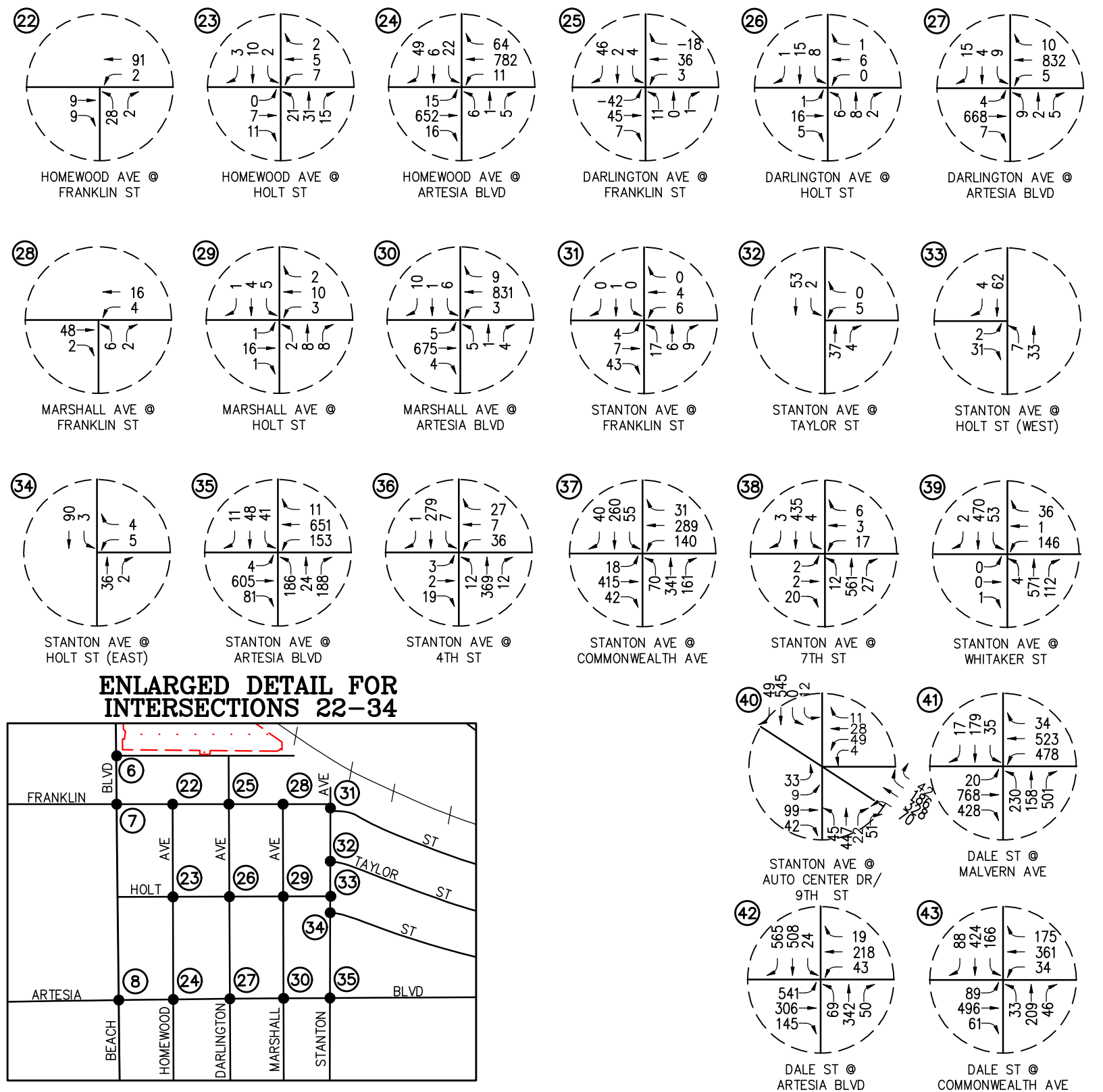


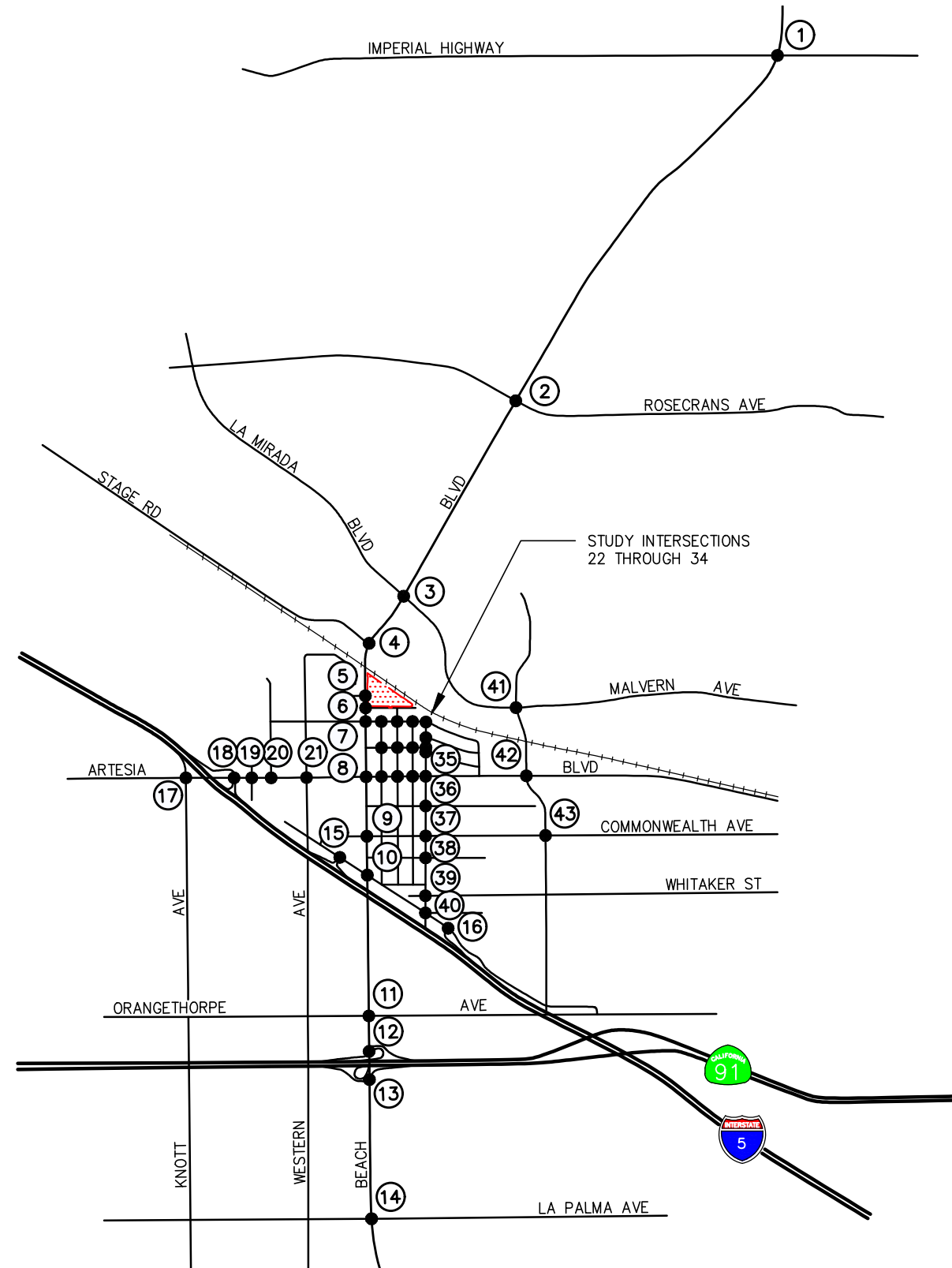
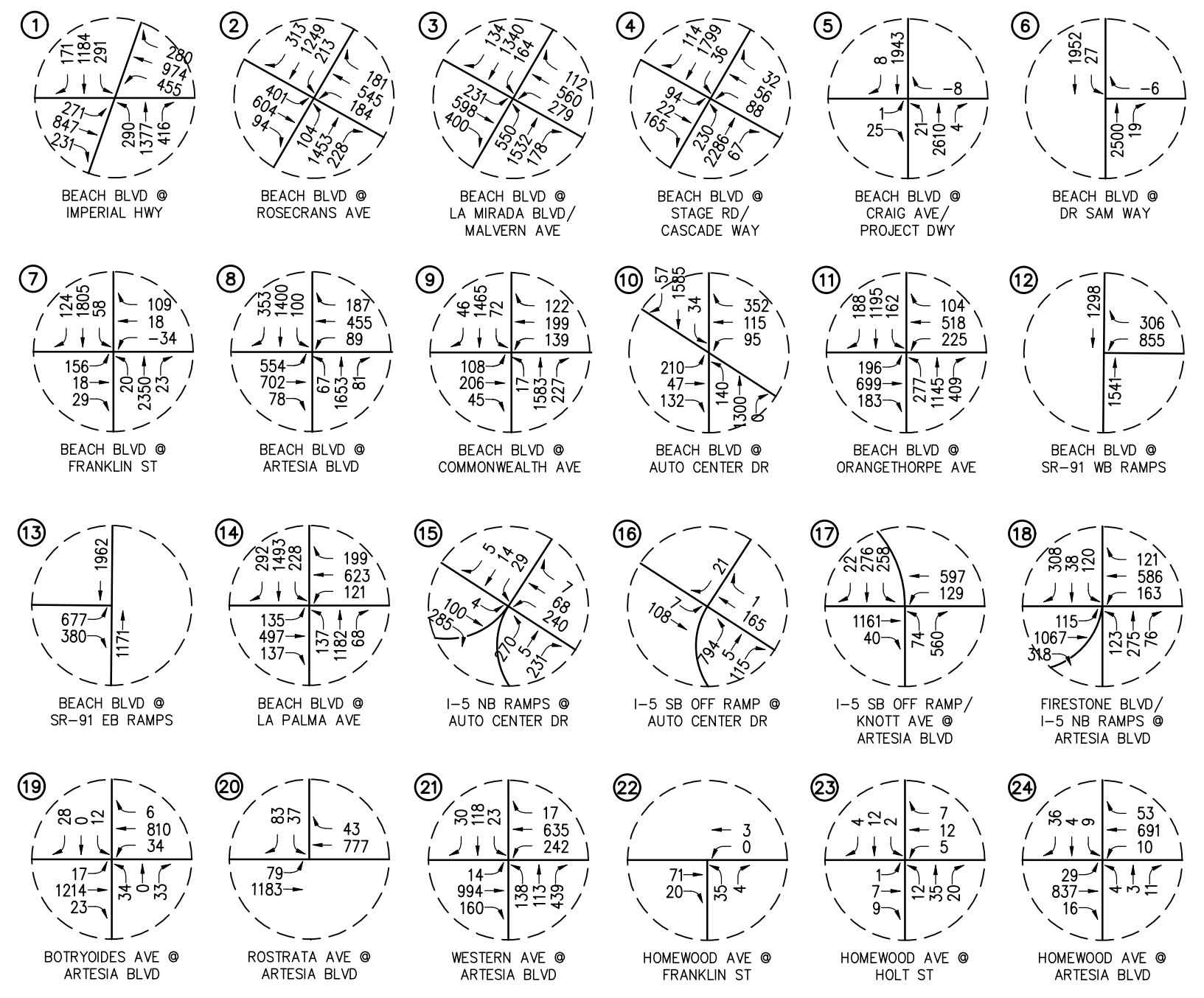
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FIGURE 18A

YEAR 2029 CUMULATIVE PLUS PROJECT AM PEAK HOUR TRAFFIC VOLUMES
AMWAY, BUENA PARK





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FIGURE 19A

YEAR 2029 CUMULATIVE PLUS PROJECT PM PEAK HOUR TRAFFIC VOLUMES
AMWAY, BUENA PARK

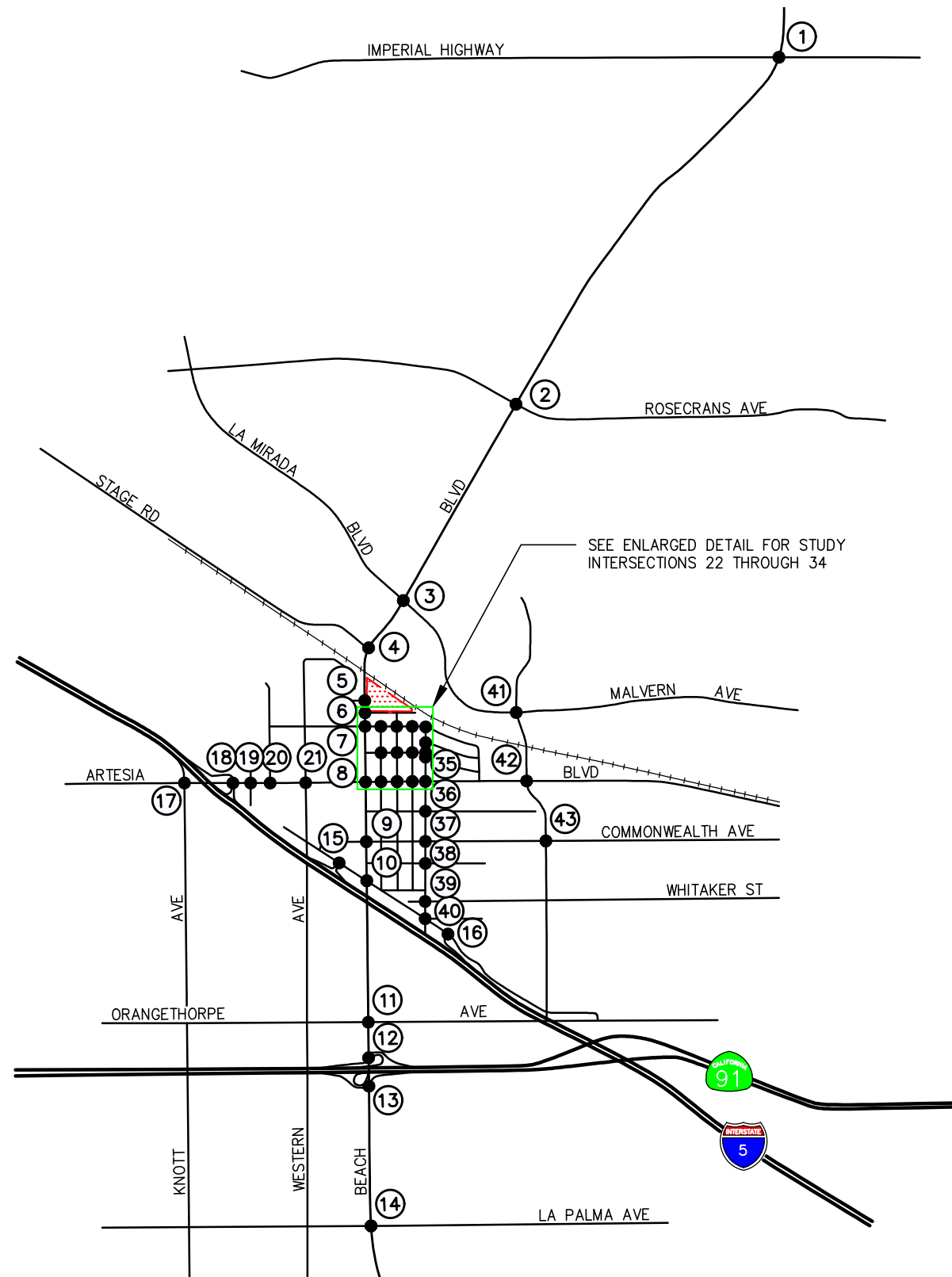
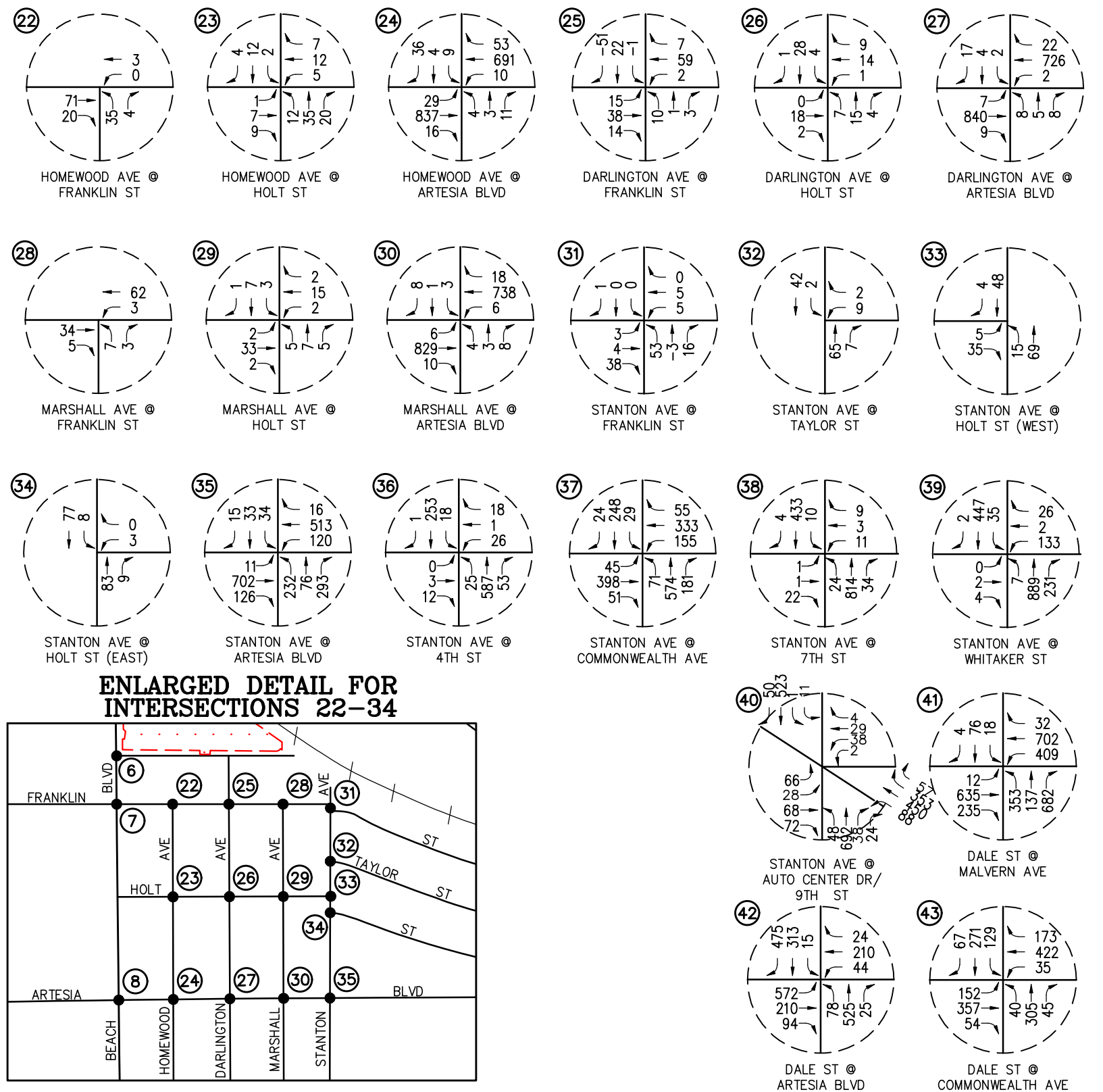


FIGURE 19B

5.1 Non-CEQA Significant Traffic Impact Criteria and Thresholds

The previously discussed capacity analysis procedures were utilized to evaluate the delay/volume-to-capacity relationships and service level characteristics at each study intersection. The significance of the potential non-CEQA impacts of the Project at each intersection was then evaluated using the traffic impact criteria described below.

5.1.1 City of Buena Park

For the ICU analysis, the need for potential project-related improvements will be assessed based on whether the following criteria are met:

- The project causes an intersection operating at LOS D or better to degrade to LOS E or F
- If an intersection is operating at LOS E or F without the project, and the project increases the ICU by 0.020 or greater

5.1.2 Caltrans

For Caltrans-controlled intersections, the need for potential project-related improvements will be assessed based on whether the following criteria are met:

- The project causes an intersection operating at LOS D or better to degrade to LOS E or F
- If an intersection is operating at LOS E or F without the project, and the project causes any delay increase

5.2 Existing Plus Project Traffic Conditions

Table 8 summarizes the Existing (2025) Plus Project levels of service at the 43 study intersections during the AM and PM peak hours. Based on the application of the performance criteria described previously, the Project is not expected to cause non-CEQA traffic impacts at any of the 43 intersections under Existing (2025) Plus Project conditions.

The intersections of Beach Boulevard at Imperial Highway (Intersection #1), Beach Boulevard at Craig Avenue/Project Driveway "Street B" (Intersection #5), Beach Boulevard at Franklin Street (Intersection #7), and Firestone Boulevard/I-5 NB Ramps at Artesia Boulevard (Intersection #18), which currently operate at a deficient LOS E/F during the AM and/or PM peak hours without the Project, are expected to operate better under conditions with the Project. This is because the Project would be generating fewer trips compared to existing Amway trips during the AM and PM peak hours.

At the intersection of Firestone Boulevard/I-5 NB Ramps with Artesia Boulevard (Intersection #18), although there is a nominal increase in delay reported (i.e., the weighted average of all intersection movements) during the AM peak hour, the Project reduces trips at specific movements not well represented in the weighted average; therefore, the Project is not considered to cause a significant traffic impact at this intersection.

TABLE 6
LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS⁴

No.	Cumulative Project	Location/Address	Description
1.	OnBeach Phase II	5742 Beach Boulevard	5-story mixed-use building with 81 DU market-rate senior apartment, 19,933 SF commercial (medical office), and 6,000 SF Retail
2.	Artesia Boulevard and Botryoides Avenue	7232, 7236, 7242 Artesia Boulevard, and 6011 Botryoides Avenue	1,263 SF fast-food restaurant, 5,200 SF commercial building, and 2,448 SF fast-food restaurant
3.	Hilton Home-2-Suites	7860 Beach Boulevard	Six-story, 140-room hotel
4.	Craig Homes Project	7862 Craig Avenue Project	12 DU multifamily
5.	Village at Buena Park	8150 La Palma Avenue	1,302 DU multifamily (1,176 apartments and 126 townhomes)

Notes:

- DU = Dwelling Unit
- SF = Square Feet

⁴ Source: *City of Buena Park Planning Department.*

TABLE 7
CUMULATIVE PROJECTS TRAFFIC GENERATION FORECAST⁵

Cumulative Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
1. OnBeach Phase II	1,408	67	52	119	57	55	112
2. Artesia Boulevard and Botryoides Avenue	1,636	71	79	150	48	49	97
3. Hilton Home-2-Suites	818	25	23	48	34	32	66
4. Craig Homes Project	57	1	3	4	3	2	5
5. Village at Buena Park ⁶	-2,045	-12	190	178	-19	-108	-127
Cumulative Projects Total Trip Generation Potential	1,874	152	347	499	123	30	153

⁵ Source: *Trip Generation*, 12th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2025).

⁶ Source: *Traffic Impact Analysis Report for The Village at Buena Park*, prepared by LLG Engineers, dated November 8, 2022.

TABLE 8
EXISTING (2025) + PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE

Study Intersections (Jurisdiction)	Peak Hour	Existing (2025)				Existing (2025) Plus Project					
		ICU	Delay (s/v)	LOS	Poor LOS?	ICU	Delay (s/v)	LOS	Poor LOS?	ICU or Delay Diff	Project Impact?
1) Beach Boulevard at Imperial Highway (Caltrans)	HCM: AM	--	303.9	F	Yes	--	301.2	F	Yes	(2.700)	No
	HCM: PM	--	385.0	F	Yes	--	379.9	F	Yes	(5.100)	No
2) Beach Boulevard at Rosecrans Avenue (Caltrans)	HCM: AM	--	38.3	D	No	--	38.2	D	No	(0.100)	No
	HCM: PM	--	40.0	D	No	--	39.8	D	No	(0.200)	No
3) Beach Boulevard at La Mirada Boulevard/Malvern Avenue (Caltrans)	HCM: AM	--	39.7	D	No	--	38.0	D	No	(1.700)	No
	HCM: PM	--	41.7	D	No	--	41.7	D	No	0.000	No
4) Beach Boulevard at Stage Road/Cascade Way (Caltrans)	HCM: AM	--	16.1	B	No	--	15.9	B	No	(0.200)	No
	HCM: PM	--	15.3	B	No	--	15.2	B	No	(0.100)	No
5) Beach Boulevard at Craig Avenue/Project Driveway "Street B" (Caltrans) [a]	HCM: AM	--	98.1	F	Yes	--	95.6	F	Yes	(2.500)	No
	HCM: PM	--	34.3	D	No	--	34.7	D	No	0.400	No
6) Beach Boulevard at Dr. Sam Way (Caltrans) [a]	HCM: AM	--	20.7	C	No	--	21.2	C	No	0.500	No
	HCM: PM	--	29.2	D	No	--	28.7	D	No	(0.500)	No
7) Beach Boulevard at Franklin Street (Caltrans)	HCM: AM	--	251.4	F	Yes	--	230.3	F	Yes	(21.100)	No
	HCM: PM	--	371.3	F	Yes	--	238.7	F	Yes	(132.600)	No
8) Beach Boulevard at Artesia Boulevard (Caltrans)	HCM: AM	--	31.9	C	No	--	31.5	C	No	(0.400)	No
	HCM: PM	--	34.8	C	No	--	34.9	C	No	0.100	No
9) Beach Boulevard at Commonwealth Avenue (Caltrans)	HCM: AM	--	16.6	B	No	--	16.7	B	No	0.100	No
	HCM: PM	--	20.0	B	No	--	20.0	C	No	0.000	No
10) Beach Boulevard at Auto Center Drive (Caltrans)	HCM: AM	--	19.8	B	No	--	20.0	C	No	0.200	No
	HCM: PM	--	26.4	C	No	--	27.3	C	No	0.900	No
11) Beach Boulevard at Orangethorpe Avenue (Buena Park)	AM	0.556	--	A	No	0.559	--	A	No	0.003	No
	PM	0.547	--	A	No	0.544	--	A	No	(0.003)	No
12) Beach Boulevard at SR-91 WB Ramps (Caltrans)	HCM: AM	--	12.0	B	No	--	12.0	B	No	0.000	No
	HCM: PM	--	14.9	B	No	--	14.9	B	No	0.000	No
13) Beach Boulevard at SR-91 EB Ramps (Caltrans)	HCM: AM	--	15.2	B	No	--	15.1	B	No	(0.100)	No
	HCM: PM	--	15.0	B	No	--	15.0	B	No	0.000	No

TABLE 8 (CONTINUED)
EXISTING (2025) + PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE

Study Intersections (Jurisdiction)	Peak Hour	Existing (2025)				Existing (2025) Plus Project					
		ICU	Delay (s/v)	LOS	Poor LOS?	ICU	Delay (s/v)	LOS	Poor LOS?	ICU or Delay Diff	Project Impact?
14) Beach Boulevard at La Palma Avenue (Buena Park)	AM PM	0.461 0.579	-- --	A A	No No	0.462 0.578	-- --	A A	No No	0.001 (0.001)	No No
15) I-5 NB Ramps at Auto Center Drive (Caltrans)	HCM: AM HCM: PM	-- --	31.2 33.7	C C	No No	-- --	30.9 33.4	C C	No No	(0.300) (0.300)	No No
16) I-5 SB Off Ramp at Auto Center Drive (Caltrans)	HCM: AM HCM: PM	-- --	17.1 16.2	B B	No No	-- --	17.4 16.2	B B	No No	0.300 0.000	No No
17) I-5 SB Off Ramp/Knott Avenue at Artesia Boulevard (Caltrans)	HCM: AM HCM: PM	-- --	30.8 33.7	C C	No No	-- --	29.5 33.8	C C	No No	(1.300) 0.100	No No
18) Firestone Boulevard/I-5 NB Ramps at Artesia Boulevard (Caltrans)	HCM: AM HCM: PM	-- --	56.2 54.0	E D	Yes No	-- --	56.5 54.0	E D	Yes No	[b] 0.000	No [b] No
19) Botryoides Avenue at Artesia Boulevard (Buena Park)	AM PM	0.269 0.310	-- --	A A	No No	0.270 0.313	-- --	A A	No No	0.001 0.003	No No
20) Rostrata Avenue at Artesia Boulevard (Buena Park)	AM PM	0.476 0.338	-- --	A A	No No	0.478 0.336	-- --	A A	No No	0.002 (0.002)	No No
21) Western Avenue at Artesia Boulevard (Buena Park)	AM PM	0.540 0.518	-- --	A A	No No	0.533 0.521	-- --	A A	No No	(0.007) 0.003	No No
22) Homewood Avenue at Franklin Street (Buena Park) [c]	HCM: AM HCM: PM	-- --	7.3 7.3	A A	No No	-- --	7.4 7.3	A A	No No	0.100 0.000	No No
23) Homewood Avenue at Holt Street (Buena Park) [c]	HCM: AM HCM: PM	-- --	7.1 7.1	A A	No No	-- --	7.1 7.1	A A	No No	0.000 0.000	No No
24) Homewood Avenue at Artesia Boulevard (Buena Park) [a]	HCM: AM HCM: PM	-- --	22.7 22.8	C C	No No	-- --	22.7 22.8	C C	No No	0.000 0.000	No No
25) Darlington Avenue at Franklin Street (Buena Park) [c]	HCM: AM HCM: PM	-- --	7.3 7.3	A A	No No	-- --	7.3 7.4	A A	No No	0.000 0.100	No No
26) Darlington Avenue at Holt Street (Buena Park) [c]	HCM: AM HCM: PM	-- --	7.3 7.3	A A	No No	-- --	7.3 7.3	A A	No No	0.000 0.000	No No

TABLE 8 (CONTINUED)
EXISTING (2025) + PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE

Study Intersections (Jurisdiction)	Peak Hour	Existing (2025)				Existing (2025) Plus Project					
		ICU	Delay (s/v)	LOS	Poor LOS?	ICU	Delay (s/v)	LOS	Poor LOS?	ICU or Delay Diff	Project Impact?
27) Darlington Avenue at Artesia Boulevard (Buena Park) [a]	HCM: AM HCM: PM	-- --	23.0 26.1	C D	No No	-- --	23.0 26.1	C D	No No	0.000 0.000	No No
28) Marshall Avenue at Franklin Street (Buena Park) [c]	HCM: AM HCM: PM	-- --	7.2 7.2	A A	No No	-- --	7.1 7.2	A A	No No	(0.100) 0.000	No No
29) Marshall Avenue at Holt Street (Buena Park) [c]	HCM: AM HCM: PM	-- --	7.0 7.1	A A	No No	-- --	7.0 7.1	A A	No No	0.000 0.000	No No
30) Marshall Avenue at Artesia Boulevard (Buena Park) [a]	HCM: AM HCM: PM	-- --	21.0 22.6	C C	No No	-- --	21.0 22.6	C C	No No	0.000 0.000	No No
31) Staton Avenue at Franklin Street (Buena Park) [c]	HCM: AM HCM: PM	-- --	7.0 7.1	A A	No No	-- --	6.9 7.1	A A	No No	(0.100) 0.000	No No
32) Staton Avenue at Taylor Street (Buena Park) [a]	HCM: AM HCM: PM	-- --	9.0 9.0	A A	No No	-- --	8.9 9.0	A A	No No	(0.100) 0.000	No No
33) Staton Avenue at Holt Street (West) (Buena Park) [c]	HCM: AM HCM: PM	-- --	7.2 7.3	A A	No No	-- --	7.1 7.3	A A	No No	(0.100) 0.000	No No
34) Staton Avenue at Holt Street (East) (Buena Park) [a]	HCM: AM HCM: PM	-- --	8.9 9.4	A A	No No	-- --	8.8 9.5	A A	No No	(0.100) 0.100	No No
35) Staton Avenue at Artesia Boulevard (Buena Park)	AM PM	0.456 0.534	-- --	A A	No No	0.456 0.534	-- --	A A	No No	0.000 0.000	No No
36) Staton Avenue at 4th Street (Buena Park) [a]	HCM: AM HCM: PM	-- --	13.4 16.8	B C	No No	-- --	13.2 16.9	B C	No No	(0.200) 0.100	No No
37) Staton Avenue at Commonwealth Avenue (Buena Park)	AM PM	0.417 0.480	-- --	A A	No No	0.415 0.479	-- --	A A	No No	(0.002) (0.001)	No No
38) Staton Avenue at 7th Street (Buena Park) [a]	HCM: AM HCM: PM	-- --	13.3 15.4	B C	No No	-- --	13.1 15.4	B C	No No	(0.200) 0.000	No No

TABLE 8 (CONTINUED)
EXISTING (2025) + PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE

Study Intersections (Jurisdiction)	Peak Hour	Existing (2025)				Existing (2025) Plus Project					
		ICU	Delay (s/v)	LOS	Poor LOS?	ICU	Delay (s/v)	LOS	Poor LOS?	ICU or Delay Diff	Project Impact?
39) Staton Avenue at Whitaker Avenue (Buena Park)	AM	0.358	--	A	No	0.354	--	A	No	(0.004)	No
	PM	0.465	--	A	No	0.466	--	A	No	0.001	No
40) Staton Avenue at Auto Center Drive/9th Street (Buena Park)	AM	0.374	--	A	No	0.367	--	A	No	(0.007)	No
	PM	0.488	--	A	No	0.490	--	A	No	0.002	No
41) Dale Street at Malvern Avenue (Buena Park)	AM	0.706	--	C	No	0.706	--	C	No	0.000	No
	PM	0.672	--	B	No	0.671	--	B	No	(0.001)	No
42) Dale Street at Artesia Boulevard (Buena Park)	AM	0.775	--	C	No	0.775	--	C	No	0.000	No
	PM	0.749	--	C	No	0.749	--	C	No	0.000	No
43) Dale Street at Commonwealth Avenue (Buena Park)	AM	0.416	--	A	No	0.415	--	A	No	(0.001)	No
	PM	0.473	--	A	No	0.473	--	A	No	0.000	No

Notes:

Italicized text corresponds to an unsignalized/stop-controlled intersection.

[a] Intersection operates with one-way or two-way stop control and the delay reported is for the worst approach at the intersection.

[b] Although there is a nominal increase in delay reported (weighted average of all intersection movements), the Project reduces trips at specific movements not well represented in the weighted average; therefore, the Project is not considered to cause a significant traffic impact at this intersection during the peak hour noted.

[c] Intersection operates with all-way stop control and the delay reported is the average of the entire intersection.

s/v = seconds per vehicle

5.3 Year 2029 Cumulative Plus Project Traffic Conditions

Table 9 summarizes the Year 2029 Cumulative Plus Project levels of service at the 43 key intersections during the AM and PM peak hours. Based on the application of the significance criteria described previously, the Project is not expected to cause non-CEQA traffic impacts at any of the 43 study intersections under Year 2029 Cumulative Plus Project conditions.

Table 9 indicates that, under typical weekday conditions, Beach Boulevard at Imperial Highway (Intersection #1), Beach Boulevard at Craig Avenue/Project Driveway "Street B" (Intersection #5), Beach Boulevard at Franklin Street (Intersection #7), and Firestone Boulevard/I-5 NB Ramps at Artesia Boulevard (Intersection #18) would operate at deficient LOS E/F during the AM and/or PM peak hour without the Project. These key intersections, however, are expected to operate better under conditions with the Project because the Project would be generating fewer trips compared to existing Amway trips during the AM and PM peak hours.

At the intersection of Beach Boulevard with Craig Avenue/Project Driveway "Street B" (Intersection #5), and at the intersection of Firestone Boulevard/I-5 NB Ramps with Artesia Boulevard (Intersection #18), although there is a nominal increase in delay reported (i.e., the weighted average of all intersection movements) during the peak hour noted, the Project reduces trips at specific movements not well represented in the weighted average; therefore, the Project is not considered to cause a significant traffic impact at each of these two intersections.

TABLE 9
YEAR 2029 CUMULATIVE + PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE

		Peak Hour	Year 2029 Cumulative Base				Year 2029 Cumulative Plus Project					
			ICU	Delay (s/v)	LOS	Poor LOS?	ICU	Delay (s/v)	LOS	Poor LOS?	ICU or Delay Diff	Project Impact?
Study Intersections (Jurisdiction)												
1) Beach Boulevard at Imperial Highway (Caltrans)	HCM: AM	AM	--	336.5	F	Yes	--	333.8	F	Yes	(2.700)	No
	HCM: PM	PM	--	418.3	F	Yes	--	413.3	F	Yes	(5.000)	No
2) Beach Boulevard at Rosecrans Avenue (Caltrans)	HCM: AM	AM	--	41.7	D	No	--	39.7	D	No	(2.000)	No
	HCM: PM	PM	--	43.8	D	No	--	43.6	D	No	(0.200)	No
3) Beach Boulevard at La Mirada Boulevard/Malvern Avenue (Caltrans)	HCM: AM	AM	--	43.4	D	No	--	42.7	D	No	(0.700)	No
	HCM: PM	PM	--	45.0	D	No	--	44.9	D	No	(0.100)	No
4) Beach Boulevard at Stage Road/Cascade Way (Caltrans)	HCM: AM	AM	--	17.6	B	No	--	17.3	B	No	(0.300)	No
	HCM: PM	PM	--	16.1	B	No	--	16.1	B	No	0.000	No
5) Beach Boulevard at Craig Avenue/Project Driveway "Street B" (Caltrans) [a]	HCM: AM	AM	--	111.3	F	Yes	--	108.2	F	Yes	(3.100)	No
	HCM: PM	PM	--	39.4	E	Yes	--	39.8	E	Yes	[b]	No [b]
6) Beach Boulevard at Dr. Sam Way (Caltrans) [a]	HCM: AM	AM	--	22.1	C	No	--	22.5	C	No	0.400	No
	HCM: PM	PM	--	31.6	D	No	--	30.9	D	No	(0.700)	No
7) Beach Boulevard at Franklin Street (Caltrans)	HCM: AM	AM	--	377.9	F	Yes	--	351.5	F	Yes	(26.400)	No
	HCM: PM	PM	--	423.5	F	Yes	--	273.8	F	Yes	(149.700)	No
8) Beach Boulevard at Artesia Boulevard (Caltrans)	HCM: AM	AM	--	37.1	D	No	--	36.3	D	No	(0.800)	No
	HCM: PM	PM	--	37.2	D	No	--	37.2	D	No	0.000	No
9) Beach Boulevard at Commonwealth Avenue (Caltrans)	HCM: AM	AM	--	17.4	B	No	--	17.4	B	No	0.000	No
	HCM: PM	PM	--	21.1	C	No	--	21.2	C	No	0.100	No
10) Beach Boulevard at Auto Center Drive (Caltrans)	HCM: AM	AM	--	20.2	C	No	--	20.3	C	No	0.100	No
	HCM: PM	PM	--	25.1	C	No	--	25.5	C	No	0.400	No
11) Beach Boulevard at Orangethorpe Avenue (Buena Park)	AM	AM	0.582	--	A	No	0.584	--	A	No	0.002	No
	PM	PM	0.572	--	A	No	0.569	--	A	No	(0.003)	No
12) Beach Boulevard at SR-91 WB Ramps (Caltrans)	HCM: AM	AM	--	12.1	B	No	--	12.1	B	No	0.000	No
	HCM: PM	PM	--	15.2	B	No	--	15.2	B	No	0.000	No
13) Beach Boulevard at SR-91 EB Ramps (Caltrans)	HCM: AM	AM	--	15.4	B	No	--	15.3	B	No	(0.100)	No
	HCM: PM	PM	--	15.5	B	No	--	15.5	B	No	0.000	No

TABLE 9 (CONTINUED)
YEAR 2029 CUMULATIVE + PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE

Study Intersections (Jurisdiction)	Peak Hour	Year 2029 Cumulative Base				Year 2029 Cumulative Plus Project					
		ICU	Delay (s/v)	LOS	Poor LOS?	ICU	Delay (s/v)	LOS	Poor LOS?	ICU or Delay Diff	Project Impact?
14) Beach Boulevard at La Palma Avenue (Buena Park)	AM	0.496	--	A	No	0.497	--	A	No	0.001	No
	PM	0.595	--	A	No	0.593	--	A	No	(0.002)	No
15) I-5 NB Ramps at Auto Center Drive (Caltrans)	HCM: AM	--	31.3	C	No	--	31.2	C	No	(0.100)	No
	HCM: PM	--	33.5	C	No	--	33.6	C	No	0.100	No
16) I-5 SB Off Ramp at Auto Center Drive (Caltrans)	HCM: AM	--	17.2	B	No	--	17.5	B	No	0.300	No
	HCM: PM	--	16.5	B	No	--	16.5	B	No	0.000	No
17) I-5 SB Off Ramp/Knott Avenue at Artesia Boulevard (Caltrans)	HCM: AM	--	31.3	C	No	--	31.2	C	No	(0.100)	No
	HCM: PM	--	34.8	C	No	--	34.4	C	No	(0.400)	No
18) Firestone Boulevard/I-5 NB Ramps at Artesia Boulevard (Caltrans)	HCM: AM	--	59.5	E	Yes	--	59.8	E	Yes	[b]	No [b]
	HCM: PM	--	57.1	E	Yes	--	57.1	E	Yes	0.000	No
19) Botryoides Avenue at Artesia Boulevard (Buena Park)	AM	0.325	--	A	No	0.326	--	A	No	0.001	No
	PM	0.373	--	A	No	0.375	--	A	No	0.002	No
20) Rostrata Avenue at Artesia Boulevard (Buena Park)	AM	0.510	--	A	No	0.512	--	A	No	0.002	No
	PM	0.362	--	A	No	0.359	--	A	No	(0.003)	No
21) Western Avenue at Artesia Boulevard (Buena Park)	AM	0.574	--	A	No	0.569	--	A	No	(0.005)	No
	PM	0.546	--	A	No	0.548	--	A	No	0.002	No
22) Homewood Avenue at Franklin Street (Buena Park) [c]	HCM: AM	--	7.3	A	No	--	7.4	A	No	0.100	No
	HCM: PM	--	7.4	A	No	--	7.4	A	No	0.000	No
23) Homewood Avenue at Holt Street (Buena Park) [c]	HCM: AM	--	7.2	A	No	--	7.2	A	No	0.000	No
	HCM: PM	--	7.1	A	No	--	7.1	A	No	0.000	No
24) Homewood Avenue at Artesia Boulevard (Buena Park) [a]	HCM: AM	--	24.9	C	No	--	24.9	C	No	0.000	No
	HCM: PM	--	24.6	C	No	--	24.6	C	No	0.000	No
25) Darlington Avenue at Franklin Street (Buena Park) [c]	HCM: AM	--	7.3	A	No	--	7.2	A	No	(0.100)	No
	HCM: PM	--	7.3	A	No	--	7.4	A	No	0.100	No
26) Darlington Avenue at Holt Street (Buena Park) [c]	HCM: AM	--	7.3	A	No	--	7.3	A	No	0.000	No
	HCM: PM	--	7.3	A	No	--	7.3	A	No	0.000	No

TABLE 9 (CONTINUED)
YEAR 2029 CUMULATIVE + PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE

			Year 2029 Cumulative Base				Year 2029 Cumulative Plus Project						
Study Intersections (Jurisdiction)		Peak Hour	ICU	Delay (s/v)	LOS	Poor LOS?	ICU	Delay (s/v)	LOS	Poor LOS?	ICU or Delay Diff	Project Impact?	
27)	Darlington Avenue at Artesia Boulevard (Buena Park) [a]	HCM: HCM:	AM PM	-- 28.3	C D	No No	-- --	24.8 28.3	C D	No No	0.000 0.000	No No	
28)	Marshall Avenue at Franklin Street (Buena Park) [c]	HCM: HCM:	AM PM	-- 7.2	A A	No No	-- --	7.2 7.2	A A	No No	0.000 0.000	No No	
29)	Marshall Avenue at Holt Street (Buena Park) [c]	HCM: HCM:	AM PM	-- 7.0	A A	No No	-- --	7.0 7.1	A A	No No	0.000 0.000	No No	
30)	Marshall Avenue at Artesia Boulevard (Buena Park) [a]	HCM: HCM:	AM PM	-- 22.5	C C	No No	-- --	22.5 24.2	C C	No No	0.000 0.000	No No	
31)	Staton Avenue at Franklin Street (Buena Park) [c]	HCM: HCM:	AM PM	-- 7.1	A A	No No	-- --	6.9 7.2	A A	No No	(0.200) 0.100	No No	
32)	Staton Avenue at Taylor Street (Buena Park) [a]	HCM: HCM:	AM PM	-- 9.1	A A	No No	-- --	9.0 9.1	A A	No No	(0.100) 0.100	No No	
33)	Staton Avenue at Holt Street (West) (Buena Park) [c]	HCM: HCM:	AM PM	-- 7.2	A A	No No	-- --	7.2 7.3	A A	No No	0.000 0.000	No No	
34)	Staton Avenue at Holt Street (East) (Buena Park) [a]	HCM: HCM:	AM PM	-- 9.0	A A	No No	-- --	8.9 9.5	A A	No No	(0.100) 0.000	No No	
35)	Staton Avenue at Artesia Boulevard (Buena Park)		AM PM	0.476 0.556	-- --	A A	No No	0.476 0.556	-- --	A A	No No	0.000 0.000	No No
36)	Staton Avenue at 4th Street (Buena Park) [a]	HCM: HCM:	AM PM	-- 13.8	B C	No No	-- --	13.6 17.6	B C	No No	(0.200) 0.100	No No	
37)	Staton Avenue at Commonwealth Avenue (Buena Park)		AM PM	0.436 0.499	-- --	A A	No No	0.434 0.497	-- --	A A	No No	(0.002) (0.002)	No No
38)	Staton Avenue at 7th Street (Buena Park) [a]	HCM: HCM:	AM PM	-- 13.6	B C	No No	-- --	13.5 15.9	B C	No No	(0.100) 0.100	No No	

TABLE 9 (CONTINUED)
YEAR 2029 CUMULATIVE + PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE

		Year 2029 Cumulative Base				Year 2029 Cumulative Plus Project					
		ICU	Delay (s/v)	LOS	Poor LOS?	ICU	Delay (s/v)	LOS	Poor LOS?	ICU or Delay Diff	Project Impact?
Study Intersections (Jurisdiction)		Peak Hour									
39) Staton Avenue at Whitaker Avenue (Buena Park)	AM	0.372	--	A	No	0.369	--	A	No	(0.003)	No
	PM	0.481	--	A	No	0.482	--	A	No	0.001	No
40) Staton Avenue at Auto Center Drive/9th Street (Buena Park)	AM	0.387	--	A	No	0.380	--	A	No	(0.007)	No
	PM	0.505	--	A	No	0.507	--	A	No	0.002	No
41) Dale Street at Malvern Avenue (Buena Park)	AM	0.732	--	C	No	0.732	--	C	No	0.000	No
	PM	0.697	--	B	No	0.696	--	B	No	(0.001)	No
42) Dale Street at Artesia Boulevard (Buena Park)	AM	0.811	--	D	No	0.811	--	D	No	0.000	No
	PM	0.781	--	C	No	0.781	--	C	No	0.000	No
43) Dale Street at Commonwealth Avenue (Buena Park)	AM	0.434	--	A	No	0.433	--	A	No	(0.001)	No
	PM	0.493	--	A	No	0.493	--	A	No	0.000	No

Notes:

Italicized text corresponds to an unsignalized/stop-controlled intersection.

[a] = Intersection operates with one-way or two-way stop control and the delay reported is for the worst approach at the intersection.

[b] Although there is a nominal increase in delay reported (weighted average of all intersection movements), the Project reduces trips at specific movements not well represented in the weighted average; therefore, the Project is not considered to cause a significant traffic impact at this intersection during the peak hour noted.

[c] = Intersection operates with all-way stop control and the delay reported is the average of the entire intersection.

s/v = seconds per vehicle

6.0 TRAFFIC QUEUING ANALYSIS

Excessive left-turn or right-turn vehicle queuing which extends into and/or blocks adjacent through travel lanes may have detrimental effects on intersection operations and the public roadway network as a whole. Detailed traffic operational queuing analysis at all Caltrans-controlled intersections along Beach Boulevard and at freeway ramp intersections, and at key signalized access points for the Project, was therefore conducted. **Tables 10** and **11** present the queuing analysis results under Existing (2025) Plus Project, and Year 2029 Cumulative Plus Project, conditions during the weekday AM and PM peak hours, respectively.

The queuing analysis was prepared utilizing the HCM methodology, which considers traffic volume data, lane configurations, and traffic control/stop signs in order to calculate the 95th percentile queues for the respective traffic movements. The 95th percentile queue represents the maximum back of vehicle queue with 95th percentile traffic volumes (i.e., actual traffic volumes will exceed the 95th percentile volumes 5 percent of the time), which is a very conservative standard (the 85th percentile queue lengths are more commonly used and applied for design purposes). A minimum vehicle length of 25 feet is assumed for purposes of this analysis. The HCM worksheets used for purposes of determining the 95th percentile vehicle queues are contained in *Appendix C*.

The results of the queuing analysis conducted at key intersections indicate that there would be adequate storage for movements evaluated. In other words, the 95th percentile queues are adequately accommodated by the existing storage lengths and/or driveway “throat” lengths. Where there is a deficiency under conditions without the Project, the 95th percentile queue lengths remain the same or are shorter under conditions with the Project. Based on this, it can be concluded that the Project would have adequate site access, and Project-related improvements to address any queuing issues would not be necessary.

TABLE 10
EXISTING (2025) + PROJECT QUEUING ANALYSIS

Study Intersections (Jurisdiction)	Estimated Storage Provided (feet)	Existing (2025)				Existing (2025) Plus Project					
		AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
		Queue (feet) [a]	Adequate Storage (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Project Impact (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Project Impact (Yes/No)
1) Beach Boulevard at Imperial Highway (Caltrans)											
Northbound Left-Turn	250	247	Yes	533	No	247	Yes	No	533	No	No
Northbound Right-Turn	320	219	Yes	191	Yes	221	Yes	No	185	Yes	No
Southbound Left-Turn	145	401	No	561	No	401	No	No	561	No	No
Southbound Right-Turn	145	303	No	177	No	303	No	No	177	No	No
Westbound Left-Turn	385	805	No	887	No	788	No	No	867	No	No
Westbound Right-Turn	270	118	Yes	249	Yes	118	Yes	No	249	Yes	No
2) Beach Boulevard at Rosecrans Avenue (Caltrans)											
Northbound Left-Turn	185	169	Yes	144	Yes	176	Yes	No	137	Yes	No
Southbound Left-Turn	145	210	No	250	No	210	No	No	250	No	No
Southbound Right-Turn	190	235	No	238	No	234	No	No	238	No	No
3) Beach Boulevard at La Mirada Boulevard/Malvern Avenue (Caltrans)											
Northbound Left-Turn	235	214	Yes	390	No	218	Yes	No	382	No	No
Northbound Right-Turn	180	147	Yes	99	Yes	143	Yes	No	96	Yes	No
Southbound Left-Turn	185	194	No	227	No	190	No	No	227	No	No
Southbound Right-Turn	170	236	No	78	Yes	220	No	No	78	Yes	No
4) Beach Boulevard at Stage Road/Cascade Way (Caltrans)											
Northbound Left-Turn	155	70	Yes	118	Yes	70	Yes	No	118	Yes	No
Southbound Left-Turn	180	25	Yes	40	Yes	25	Yes	No	40	Yes	No
5) Beach Boulevard at Craig Avenue/Project Driveway "Street B" (Caltrans)											
Northbound Left-Turn	45	25	Yes	25	Yes	25	Yes	No	25	Yes	No
6) Beach Boulevard at Dr. Sam Way (Caltrans)											
Southbound Left-Turn	85	25	Yes	31	Yes	25	Yes	No	32	Yes	No

TABLE 10 (CONTINUED)
EXISTING (2025) + PROJECT QUEUING ANALYSIS

Study Intersections (Jurisdiction)	Estimated Storage Provided (feet)	Existing (2025)				Existing (2025) Plus Project						
		AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour			
		Queue (feet) [a]	Adequate Storage (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Project Impact (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Project Impact (Yes/No)	
7) Beach Boulevard at Franklin Street (Caltrans)												
	Northbound Left-Turn	100	25	Yes	25	Yes	25	Yes	No	25	Yes	No
	Southbound Left-Turn	85	50	Yes	40	Yes	25	Yes	No	56	Yes	No
8) Beach Boulevard at Artesia Boulevard (Caltrans)												
	Northbound Left-Turn	190	25	Yes	38	Yes	25	Yes	No	38	Yes	No
	Southbound Left-Turn	190	47	Yes	71	Yes	47	Yes	No	71	Yes	No
9) Beach Boulevard at Commonwealth Avenue (Caltrans)												
	Northbound Left-Turn	120	30	Yes	25	Yes	30	Yes	No	25	Yes	No
	Southbound Left-Turn	135	51	Yes	78	Yes	51	Yes	No	78	Yes	No
10) Beach Boulevard at Auto Center Drive (Caltrans)												
	Northbound Left-Turn	280	203	Yes	207	Yes	219	Yes	No	207	Yes	No
	Northbound Right-Turn	130	196	No	268	No	184	No	No	264	No	No
	Southbound Left-Turn	100	51	Yes	44	Yes	52	Yes	No	45	Yes	No
	Southbound Right-Turn	120	251	No	251	No	249	No	No	246	No	No
12) Beach Boulevard at SR-91 WB Ramps (Caltrans)												
	Westbound Left-Turn	410	192	Yes	245	Yes	192	Yes	No	245	Yes	No
	Westbound Shared Left/Right-Turn	375	200	Yes	255	Yes	200	Yes	No	255	Yes	No
	Westbound Right-Turn	305	194	Yes	264	Yes	194	Yes	No	264	Yes	No

TABLE 10 (CONTINUED)
EXISTING (2025) + PROJECT QUEUING ANALYSIS

Study Intersections (Jurisdiction)	Estimated Storage Provided (feet)	Existing (2025)				Existing (2025) Plus Project					
		AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
		Queue (feet) [a]	Adequate Storage (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Project Impact (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Project Impact (Yes/No)
13) Beach Boulevard at SR-91 EB Ramps (Caltrans)											
<i>Eastbound Left-Turn</i>	1170	289	Yes	286	Yes	286	Yes	No	287	Yes	No
<i>Eastbound Shared Left/Right-Turn</i>	1170	290	Yes	287	Yes	288	Yes	No	287	Yes	No
<i>Eastbound Right-Turn</i>	410	303	Yes	300	Yes	300	Yes	No	301	Yes	No
15) I-5 NB Ramps at Auto Center Drive (Caltrans)											
<i>Northbound Shared Left-Turn/Through</i>	1520	223	Yes	278	Yes	223	Yes	No	278	Yes	No
<i>Northbound Right-Turn</i>	295	143	Yes	235	Yes	143	Yes	No	235	Yes	No
16) I-5 SB Off Ramp at Auto Center Drive (Caltrans)											
<i>Northbound Left-Turn</i>	820	86	Yes	217	Yes	81	Yes	No	219	Yes	No
<i>Northbound Shared Left/Through/Right-Turn</i>	820	84	Yes	220	Yes	79	Yes	No	223	Yes	No
17) I-5 SB Off Ramp/Knott Avenue at Artesia Boulevard (Caltrans)											
<i>Southbound Left-Turn</i>	175	136	Yes	164	Yes	118	Yes	No	169	Yes	No
<i>Southbound Through</i>	165	233	No	203	No	224	No	No	203	No	No
<i>Southbound Shared Through/Right-Turn</i>	160	223	No	200	No	215	No	No	200	No	No
18) Firestone Boulevard/I-5 NB Ramps at Artesia Boulevard (Caltrans)											
<i>Northbound Left-Turn</i>	980	370	Yes	155	Yes	370	Yes	No	155	Yes	No
<i>Northbound Shared Left-Turn/Through</i>	980	377	Yes	346	Yes	377	Yes	No	346	Yes	No
<i>Northbound Right-Turn</i>	560	51	Yes	92	Yes	51	Yes	No	92	Yes	No
25) Darlington Avenue at Franklin Street (Buena Park)											
<i>Northbound Through/Right-Turn</i>	495	25	Yes	25	Yes	25	Yes	No	25	Yes	No
<i>Southbound Shared Left-Turn/Through/Right-Turn</i>	230	25	Yes	25	Yes	25	Yes	No	25	Yes	No
<i>Eastbound Shared Left-Turn/Through/Right-Turn</i>	270	25	Yes	25	Yes	25	Yes	No	25	Yes	No
<i>Westbound Shared Left-Turn/Through/Right-Turn</i>	275	25	Yes	25	Yes	25	Yes	No	25	Yes	No

Notes:

[a] Queue is based on HCM 95th Percentile Methodology and is reported in total queue length (feet) per lane.

TABLE 11
YEAR 2029 CUMULATIVE + PROJECT QUEUING ANALYSIS

Study Intersections (Jurisdiction)	Estimated Storage Provided (feet)	Year 2029 Cumulative Base				Year 2029 Cumulative Plus Project					
		AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
		Queue (feet) [a]	Adequate Storage (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Project Impact (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Project Impact (Yes/No)
1) Beach Boulevard at Imperial Highway (Caltrans)											
<i>Northbound Left-Turn</i>	250	264	No	562	No	264	No	No	562	No	No
<i>Northbound Right-Turn</i>	320	228	Yes	199	Yes	230	Yes	No	194	Yes	No
<i>Southbound Left-Turn</i>	145	425	No	590	No	425	No	No	590	No	No
<i>Southbound Right-Turn</i>	145	316	No	185	No	316	No	No	185	No	No
<i>Westbound Left-Turn</i>	385	849	No	930	No	835	No	No	914	No	No
<i>Westbound Right-Turn</i>	270	123	Yes	259	Yes	123	Yes	No	259	Yes	No
2) Beach Boulevard at Rosecrans Avenue (Caltrans)											
<i>Northbound Left-Turn</i>	185	179	Yes	163	Yes	172	Yes	No	155	Yes	No
<i>Southbound Left-Turn</i>	145	221	No	308	No	206	No	No	270	No	No
<i>Southbound Right-Turn</i>	190	259	No	263	No	244	No	No	256	No	No
3) Beach Boulevard at La Mirada Boulevard/Malvern Avenue (Caltrans)											
<i>Northbound Left-Turn</i>	235	237	No	443	No	230	No	No	434	No	No
<i>Northbound Right-Turn</i>	180	160	Yes	106	Yes	162	Yes	No	104	Yes	No
<i>Southbound Left-Turn</i>	185	200	No	235	No	200	No	No	235	No	No
<i>Southbound Right-Turn</i>	170	246	No	82	Yes	246	No	No	82	Yes	No
4) Beach Boulevard at Stage Road/Cascade Way (Caltrans)											
<i>Northbound Left-Turn</i>	155	78	Yes	123	Yes	78	Yes	No	123	Yes	No
<i>Southbound Left-Turn</i>	180	26	Yes	42	Yes	26	Yes	No	42	Yes	No
5) Beach Boulevard at Craig Avenue/Project Driveway "Street B" (Caltrans)											
<i>Northbound Left-Turn</i>	45	25	Yes	25	Yes	25	Yes	No	25	Yes	No
6) Beach Boulevard at Dr. Sam Way (Caltrans)											
<i>Southbound Left-Turn</i>	85	29	Yes	37	Yes	27	Yes	No	38	Yes	No

TABLE 11 (CONTINUED)
YEAR 2029 CUMULATIVE + PROJECT QUEUING ANALYSIS

Study Intersections (Jurisdiction)	Estimated Storage Provided (feet)	Year 2029 Cumulative Base				Year 2029 Cumulative Plus Project					
		AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
		Queue (feet) [a]	Adequate Storage (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Project Impact (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Project Impact (Yes/No)
7) Beach Boulevard at Franklin Street (Caltrans)											
<i>Northbound Left-Turn</i>	100	25	Yes	25	Yes	25	Yes	No	25	Yes	No
<i>Southbound Left-Turn</i>	85	67	Yes	55	Yes	33	Yes	No	73	Yes	No
8) Beach Boulevard at Artesia Boulevard (Caltrans)											
<i>Northbound Left-Turn</i>	190	40	Yes	49	Yes	40	Yes	No	49	Yes	No
<i>Southbound Left-Turn</i>	190	54	Yes	74	Yes	54	Yes	No	74	Yes	No
9) Beach Boulevard at Commonwealth Avenue (Caltrans)											
<i>Northbound Left-Turn</i>	120	31	Yes	25	Yes	31	Yes	No	25	Yes	No
<i>Southbound Left-Turn</i>	135	66	Yes	94	Yes	66	Yes	No	94	Yes	No
10) Beach Boulevard at Auto Center Drive (Caltrans)											
<i>Northbound Left-Turn</i>	280	207	Yes	195	Yes	215	Yes	No	195	Yes	No
<i>Northbound Right-Turn</i>	130	215	No	260	No	204	No	No	258	No	No
<i>Southbound Left-Turn</i>	100	54	Yes	40	Yes	55	Yes	No	40	Yes	No
<i>Southbound Right-Turn</i>	120	275	No	247	No	276	No	No	242	No	No
12) Beach Boulevard at SR-91 WB Ramps (Caltrans)											
<i>Westbound Left-Turn</i>	410	199	Yes	253	Yes	199	Yes	No	253	Yes	No
<i>Westbound Shared Left/Right-Turn</i>	375	207	Yes	264	Yes	207	Yes	No	264	Yes	No
<i>Westbound Right-Turn</i>	305	204	Yes	274	Yes	204	Yes	No	274	Yes	No

TABLE 11 (CONTINUED)
YEAR 2029 CUMULATIVE + PROJECT QUEUING ANALYSIS

Study Intersections (Jurisdiction)	Estimated Storage Provided (feet)	Year 2029 Cumulative Base				Year 2029 Cumulative Plus Project					
		AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
		Queue (feet) [a]	Adequate Storage (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Project Impact (Yes/No)	Queue (feet) [a]	Adequate Storage (Yes/No)	Project Impact (Yes/No)
13) Beach Boulevard at SR-91 EB Ramps (Caltrans)											
<i>Eastbound Left-Turn</i>	1170	298	Yes	295	Yes	296	Yes	No	296	Yes	No
<i>Eastbound Shared Left/Right-Turn</i>	1170	299	Yes	296	Yes	297	Yes	No	297	Yes	No
<i>Eastbound Right-Turn</i>	410	313	Yes	310	Yes	310	Yes	No	311	Yes	No
15) I-5 NB Ramps at Auto Center Drive (Caltrans)											
<i>Northbound Shared Left-Turn/Through</i>	1520	230	Yes	286	Yes	230	Yes	No	286	Yes	No
<i>Northbound Right-Turn</i>	295	152	Yes	245	Yes	152	Yes	No	245	Yes	No
16) I-5 SB Off Ramp at Auto Center Drive (Caltrans)											
<i>Northbound Left-Turn</i>	820	90	Yes	228	Yes	85	Yes	No	230	Yes	No
<i>Northbound Shared Left/Through/Right-Turn</i>	820	88	Yes	231	Yes	83	Yes	No	234	Yes	No
17) I-5 SB Off Ramp/Knott Avenue at Artesia Boulevard (Caltrans)											
<i>Southbound Left-Turn</i>	175	147	Yes	174	Yes	135	Yes	No	170	Yes	No
<i>Southbound Through</i>	165	243	No	211	No	243	No	No	203	No	No
<i>Southbound Shared Through/Right-Turn</i>	160	232	No	208	No	232	No	No	200	No	No
18) Firestone Boulevard/I-5 NB Ramps at Artesia Boulevard (Caltrans)											
<i>Northbound Left-Turn</i>	980	385	Yes	162	Yes	385	Yes	No	162	Yes	No
<i>Northbound Shared Left-Turn/Through</i>	980	391	Yes	359	Yes	391	Yes	No	359	Yes	No
<i>Northbound Right-Turn</i>	560	58	Yes	97	Yes	58	Yes	No	97	Yes	No
25) Darlington Avenue at Franklin Street (Buena Park)											
<i>Northbound Through/Right-Turn</i>	495	25	Yes	25	Yes	25	Yes	No	25	Yes	No
<i>Southbound Shared Left-Turn/Through/Right-Turn</i>	230	25	Yes	25	Yes	25	Yes	No	25	Yes	No
<i>Eastbound Shared Left-Turn/Through/Right-Turn</i>	270	25	Yes	25	Yes	25	Yes	No	25	Yes	No
<i>Westbound Shared Left-Turn/Through/Right-Turn</i>	275	25	Yes	25	Yes	25	Yes	No	25	Yes	No

Notes:

[a] Queue is based on HCM 95th Percentile Methodology and is reported in total queue length (feet) per lane.

7.0 TRAFFIC SIGNAL WARRANT ANALYSIS

A traffic signal warrant analysis was conducted at 17 unsignalized key study intersections. This assessment is made on the basis of signal warrant criteria adopted by Caltrans. For this study, the need for signalization is assessed on the basis of a peak hour traffic signal warrant. Warrant #3 is described in the *California Manual on Uniform Traffic Control Devices (MUTCD)*, and has two parts: 1) Part A evaluates peak hour vehicle delay for traffic on the minor street approach with the highest delay and 2) Part B evaluates peak hour traffic volumes on the major and minor streets. This method provides an indication of whether peak hour traffic conditions or peak hour traffic volume levels are, or would be, sufficient to justify installation of a traffic signal. Other traffic signal warrants are available; however, they cannot be checked under future conditions (without and with Project) because they rely on data for which forecasts are not available (such as accidents and four- or eight-hour vehicle volumes).

The decision to install a traffic signal should not be based purely on the warrants alone. Instead, the installation of a signal should be considered, but with further analysis and study performed (i.e., progression analysis, minimum distances between intersections, safety/stopping sight distance/line of sight assessment, corridor operations, etc.) when one or more of the warrants are satisfied. Additionally, engineering judgment is exercised on a case-by-case basis to evaluate what effect a traffic signal will have on certain types of accidents and traffic conditions at the subject intersection, as well as at adjacent intersections. **Appendix E** contains the traffic signal warrant worksheets.

The results of the peak hour traffic signal warrant analysis are summarized in **Tables 12** and **13** for Existing (2025) Plus Project and Year 2029 Cumulative Plus Project conditions. The results indicate that traffic signal warrants were not met at any of the unsignalized key study intersections; therefore, the installation of a traffic signal at any of these existing stop-controlled intersections is not warranted or recommended.

TABLE 12
EXISTING (2025) + PROJECT SIGNAL WARRANT ANALYSIS

#	Key Intersection	Time Period	Existing (2025) Traffic Conditions		Existing (2025) Plus Project Traffic Conditions	
			Part A of Warrant 3 Satisfied?	Part B of Warrant 3 Satisfied?	Part A of Warrant 3 Satisfied?	Part B of Warrant 3 Satisfied?
5	Beach Boulevard at Craig Avenue	AM PM	No No	No No	No No	No No
6	Beach Boulevard at Dr. Sam Way	AM PM	No No	No No	No No	No No
22	Homewood Avenue at Franklin Street	AM PM	No No	No No	No No	No No
23	Homewood Avenue at Holt Street	AM PM	No No	No No	No No	No No
24	Homewood Avenue at Artesia Boulevard	AM PM	No No	No No	No No	No No
25	Darlington Avenue at Franklin Street	AM PM	No No	No No	No No	No No
26	Darlington Avenue at Holt Street	AM PM	No No	No No	No No	No No
27	Darlington Avenue at Artesia Boulevard	AM PM	No No	No No	No No	No No
28	Marshall Avenue at Franklin Street	AM PM	No No	No No	No No	No No
29	Marshall Avenue at Holt Street	AM PM	No No	No No	No No	No No
30	Marshall Avenue at Artesia Boulevard	AM PM	No No	No No	No No	No No
31	Staton Avenue at Franklin Street	AM PM	No No	No No	No No	No No
32	Staton Avenue at Taylor Street	AM PM	No No	No No	No No	No No
33	Staton Avenue at Holt Street (West)	AM PM	No No	No No	No No	No No
34	Staton Avenue at Holt Street (East)	AM PM	No No	No No	No No	No No
36	Staton Avenue at 4th Street	AM PM	No No	No No	No No	No No
38	Staton Avenue at 7th Street	AM PM	No No	No No	No No	No No

TABLE 13
YEAR 2029 CUMULATIVE + PROJECT SIGNAL WARRANT ANALYSIS

#	Key Intersection	Time Period	Year 2029 Cumulative Traffic Conditions		Year 2029 Cumulative Plus Project Traffic Conditions	
			Part A of Warrant 3 Satisfied?	Part B of Warrant 3 Satisfied?	Part A of Warrant 3 Satisfied?	Part B of Warrant 3 Satisfied?
5	Beach Boulevard at Craig Avenue	AM PM	No No	No No	No No	No No
6	Beach Boulevard at Dr. Sam Way	AM PM	No No	No No	No No	No No
22	Homewood Avenue at Franklin Street	AM PM	No No	No No	No No	No No
23	Homewood Avenue at Holt Street	AM PM	No No	No No	No No	No No
24	Homewood Avenue at Artesia Boulevard	AM PM	No No	No No	No No	No No
25	Darlington Avenue at Franklin Street	AM PM	No No	No No	No No	No No
26	Darlington Avenue at Holt Street	AM PM	No No	No No	No No	No No
27	Darlington Avenue at Artesia Boulevard	AM PM	No No	No No	No No	No No
28	Marshall Avenue at Franklin Street	AM PM	No No	No No	No No	No No
29	Marshall Avenue at Holt Street	AM PM	No No	No No	No No	No No
30	Marshall Avenue at Artesia Boulevard	AM PM	No No	No No	No No	No No
31	Staton Avenue at Franklin Street	AM PM	No No	No No	No No	No No
32	Staton Avenue at Taylor Street	AM PM	No No	No No	No No	No No
33	Staton Avenue at Holt Street (West)	AM PM	No No	No No	No No	No No
34	Staton Avenue at Holt Street (East)	AM PM	No No	No No	No No	No No
36	Staton Avenue at 4th Street	AM PM	No No	No No	No No	No No
38	Staton Avenue at 7th Street	AM PM	No No	No No	No No	No No

8.0 INTERNAL AND MULTIMODAL CIRCULATION

Figures 20 and 21 present the Project site access and circulation plan, and proposed multimodal facilities (including roadway configuration, crosswalks, pedestrian connections), respectively.

On-site circulation aspects of the Project (i.e., driveway and internal roadway orientation, residential building layout, parking configuration, parking accessibility, pedestrian and bicycle connections on site and with surrounding uses, bus stop locations and accessibility to public transit, passenger loading/unloading locations, delivery/service operations and expected drop-off/pick-up travel routes) were reviewed and concluded to be adequate.

Access to the Project site will be provided via two right-turn in/out, stop-controlled driveways (i.e., Dr. Sam Way, and Street B) that intersect Beach Boulevard, and a full-access, stop-controlled driveway at Darlington Avenue. The proposed intersection control and lane geometry at each of the Project site access points are consistent with existing intersections (i.e., Beach Boulevard/Dr. Sam Way, Darlington Avenue/Franklin Street), and maintain the existing curb cut on Beach Boulevard at Street B.

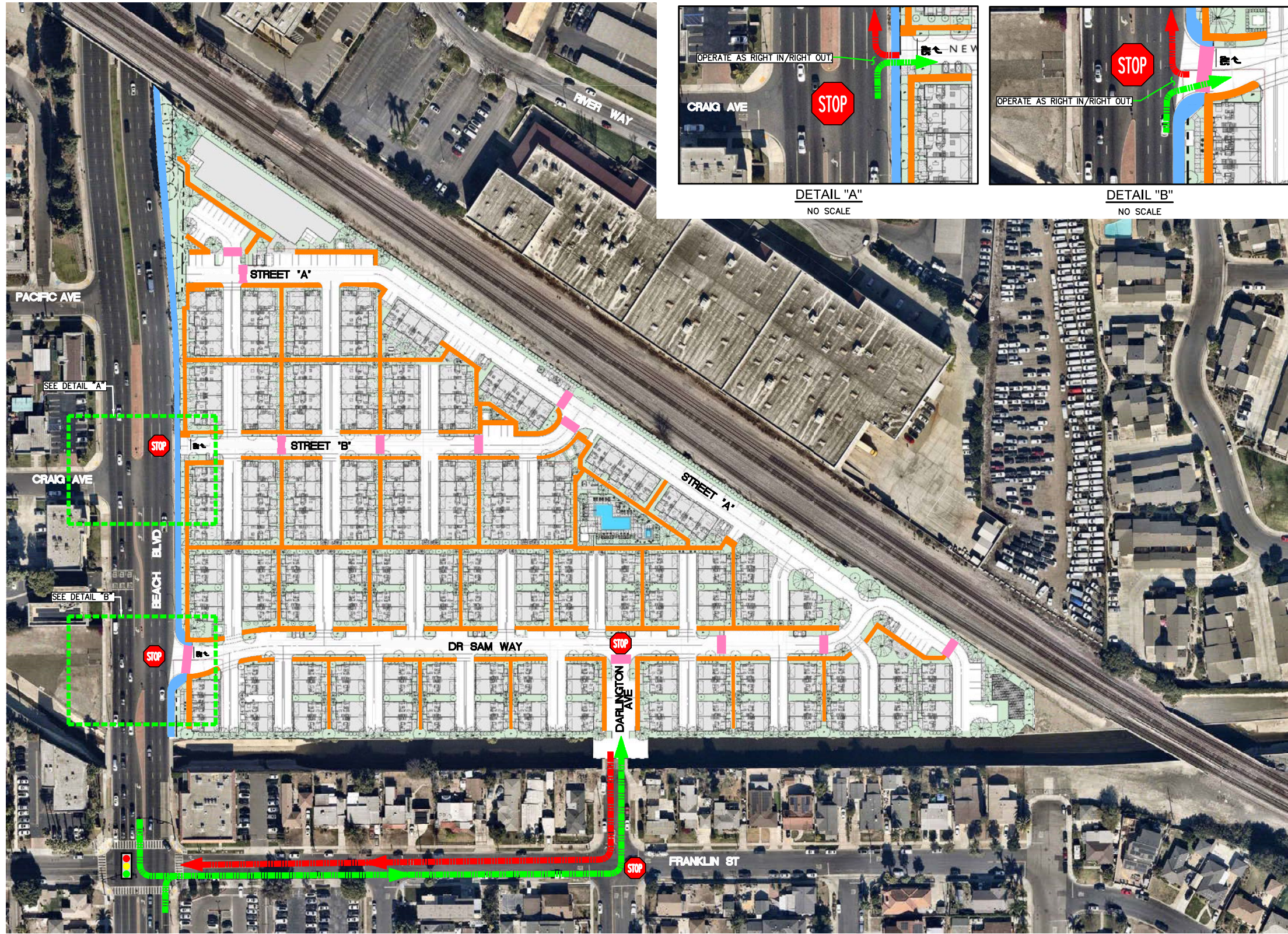
Within the study area, Beach Boulevard is controlled by Caltrans, and is designated as a “major highway” and truck route in the City’s Mobility Element. The Project site plan adopts the objectives and standards of the City’s Mobility Element, Complete Streets, and Active Transportation.

The Project proposes crosswalks and pedestrian connections on site, and maintains those along Beach Boulevard.

The Project site is located 0.43 miles (1.1-mile driving distance) from the Buena Park Metrolink Station, and is located within a Transit Priority Area (TPA) and Major Transit Stop, as defined by SCAG within the City Limits. Although the Project site is not located along a High Quality Transit Corridor (HQTC), it is only 1.3 miles from the HQTC’s northern boundary along Beach Boulevard at Orangethorpe Avenue.

Figure 7 illustrates the existing multimodal infrastructure in the Project vicinity. *Figure 8* illustrates public transit services, Transit Priority Areas (TPAs), major transit stops, and High-Quality Transportation Corridors (HQTCs) within the study area. *Figure 9* illustrates the TPAs for the North Orange County Cities based on the *NOCC+ (North Orange County Collaborative) VMT Traffic Study Screening Tool*.

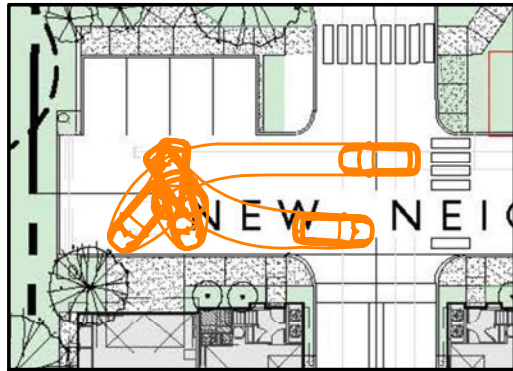
Based on *Figures 7* through *9* that demonstrate the availability of alternate forms of transportation near the Project site, the Project would meet the criteria set forth in California Assembly Bill (AB) 2097, which prohibits public agencies from requiring minimum parking for residential, commercial, or other development projects within a 0.5 miles of a "major transit stop" or "high-quality transit corridor". This Statewide law, effective since January 1, 2023, aims to lower housing costs, increase housing affordability, and reduce greenhouse gas emissions by removing expensive and unnecessary parking mandates near transit.



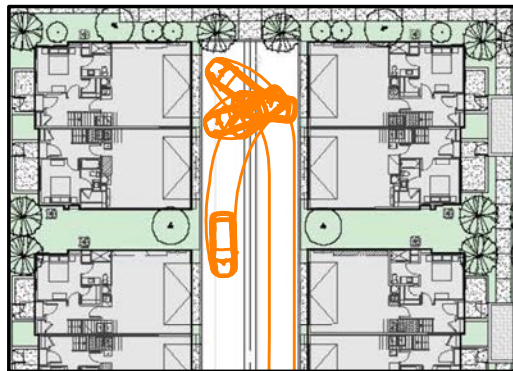
VEHICLE TRIP COMPARISON			
			PROJECT
TIME PERIOD	RESIDENTIAL PROJECT	EXISTING AMWAY	MINUS AMWAY
DAILY	1,718	1,332	386
AM PEAK	120	178	(58)
PM PEAK	142	181	(39)

- RESIDENTIAL PROJECT HAS NOMINAL INCREASE IN DAILY TRIPS, AND REDUCES AM AND PM PEAK HOUR TRIPS COMPARED TO THE EXISTING AMWAY
- RESIDENTIAL PROJECT REPLACES TRUCK TRIPS GENERATED BY AMWAY WITH PASSENGER CARS
- RESIDENTIAL PROJECT MAINTAINS EXISTING CONFIGURATION AT SITE ACCESS POINTS ALONG BEACH BOULEVARD AND DARLINGTON AVENUE
- RESIDENTIAL PROJECT ADOPTS STANDARDS IN THE CITY'S MOBILITY ELEMENT AND COMPLETE STREETS/ACTIVE TRANSPORTATION
- DETAILED TRAFFIC STUDIES WILL BE CONDUCTED THROUGH CLOSE COORDINATION WITH THE CITY AND CALTRANS

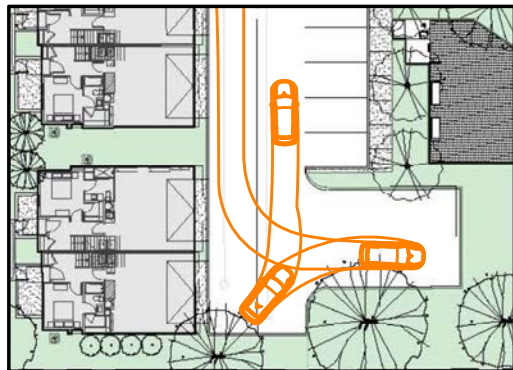
BEACH BOULEVARD IS CONTROLLED BY CALTRANS AND DESIGNATED AS A TRUCK ROUTE AND A "MAJOR HIGHWAY" IN THE CITY'S MOBILITY ELEMENT, AND EVALUATED IN THE 2020 BEACH BOULEVARD CORRIDOR STUDY PREPARED BY OCTA AND CALTRANS.



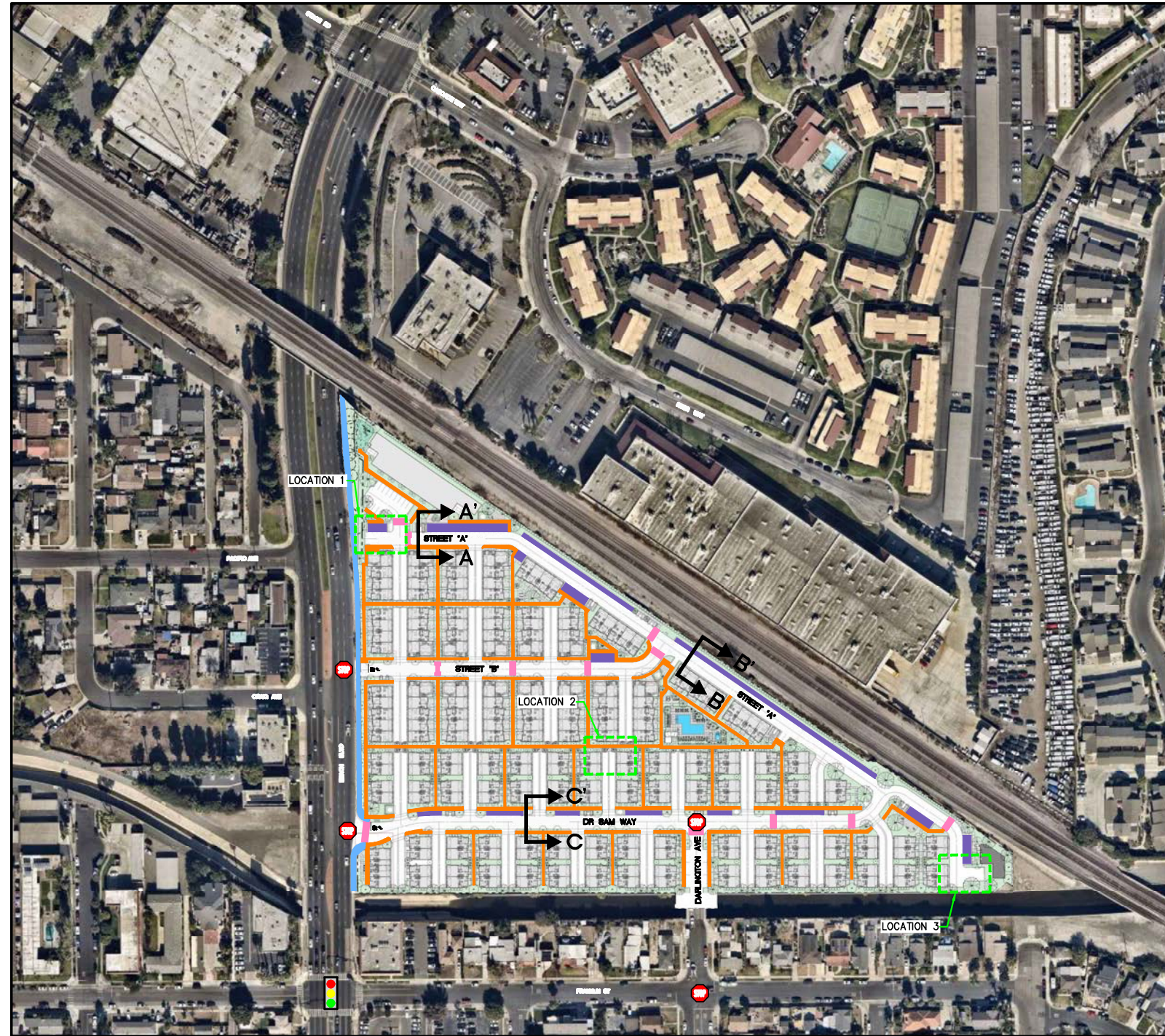
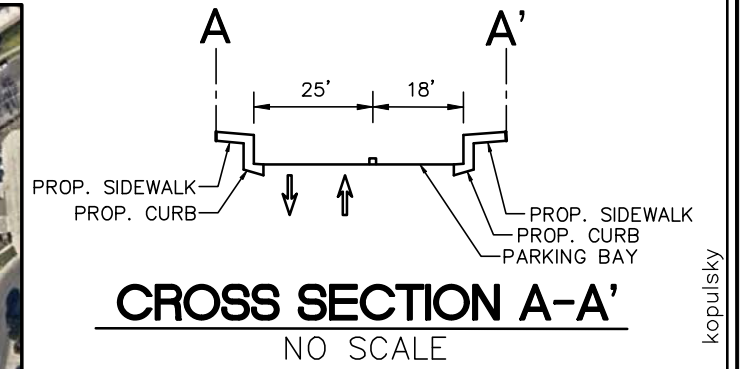
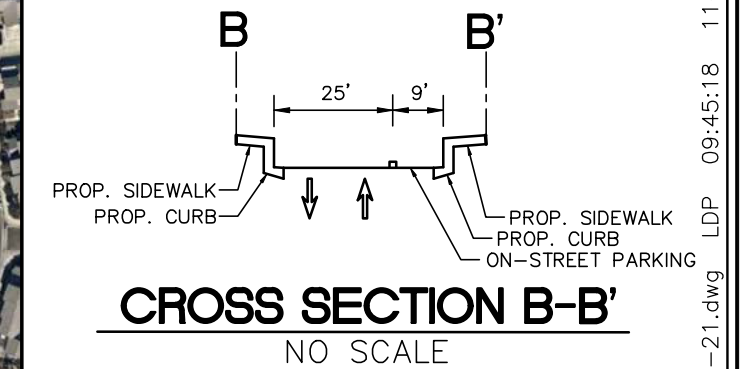
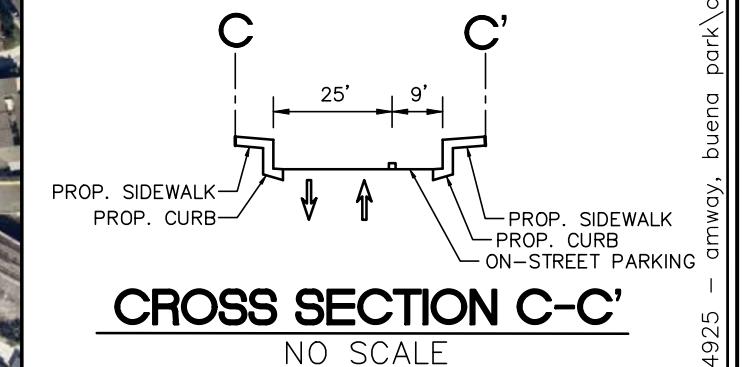
TURNING MOVEMENT
LOCATION "1"
NO SCALE



TURNING MOVEMENT
LOCATION "2"
NO SCALE



TURNING MOVEMENT
LOCATION "3"
NO SCALE



SOURCE: NEAR MAPS

LEGEND

- = PROPOSED CROSSWALK ON-SITE
- = PROPOSED INTERNAL PEDESTRIAN CONNECTIONS
- = PROPOSED PEDESTRIAN CONNECTIONS ALONG BEACH BOULEVARD
- = ON-STREET PARKING



FIGURE 21

PROPOSED ROADWAY CONFIGURATION
AMWAY, BUENA PARK

9.0 CEQA ASSESSMENT OF VMT, ACTIVE TRANSPORTATION, & PUBLIC TRANSIT

9.1 Vehicle Miles Traveled (VMT) Screening Analysis

The purpose of this Vehicle Miles Traveled (VMT) analysis is to evaluate the Project based on Senate Bill 743 (SB 743) requirements, as required in CEQA section 15064.3.

The City of Buena Park has adopted criteria for evaluating VMT impacts under CEQA, and they are presented in the *City of Buena Park Traffic Impact Analysis Guidelines – 2020 for Vehicle Miles Traveled and Level of Service Assessment* (June 2020).

There are three types of screening methods to effectively screen projects from project-level assessment: (1) Transit Priority Area (TPA) Screening; (2) Low VMT Area Screening; (3) Project Type Screening.

Projects located within a TPA may be presumed to have a less-than-significant impact on VMT absent substantial evidence to the contrary. A TPA is defined as a half-mile area around an existing “major transit stop” (i.e., a site containing an existing rail transit station, ferry terminal served by bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods), or an existing stop along a “high-quality transit corridor” (i.e., a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours). To identify if a project is in a TPA, the “NOCC+” spreadsheet tool developed for the use of North County Cities must be used.

Residential and office projects located within a low VMT-generating area may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. In addition, other employment-related and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident, per worker, or per service population that is similar to the existing land uses in the low VMT area. As with the City’s other screening methods, the NOCC+ spreadsheet must be used to identify if a project is in a Low VMT Area.

Some project types have been identified as having the presumption of a less-than-significant impact absent substantial evidence to the contrary because their uses are local serving in nature, including local-serving retail uses with less than 50,000 SF, and projects generating less than 836 daily VMT. The NOCC+ spreadsheet must be used to identify if a project is a local-serving use, similar to the application of the City’s other screening methods.

Based on the application of the City’s screening criteria described above, and using the NOCC+ spreadsheet (contained in *Appendix F*), it was determined that the Project is located in a TPA and low VMT generating zone, and includes affordable housing units; and is therefore screened out from further VMT project-level assessment because it can be presumed to have less-than-significant impact on VMT.

9.2 Active Transportation and Public Transit Screening Analysis

As detailed in the City's traffic impact analysis guidelines, potential impacts to active transportation (pedestrian and bicycle) and public transit facilities and circulation can be evaluated by determining whether a project conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decreases the performance or safety of such facilities.

Based on *Section 8.0: Internal and Multimodal Circulation* of this report, the proposed Project would not have an impact on the existing multimodal network; specifically, it would not: (1) conflict with a plan, ordinance, or policy related to bicycle, pedestrian, and public transit; (2) substantially increase hazards due to a geometric design feature; or (3) result in inadequate emergency access. The proposed site plan for the Project will maintain existing sidewalks and access to public transit, construct new pedestrian connections on site and with adjoining uses, and meet City design standards regarding site access, multimodal connectivity within the internal site circulation system, emergency access, and on-site parking.

10.0 TRAFFIC SAFETY ASSESSMENT

Traffic safety assessment related to collision history at all 43 study intersections, truck trips within the study area, and sight distance at Project driveway intersections, was conducted as part of this study.

10.1 Collision Data History and Truck Volumes

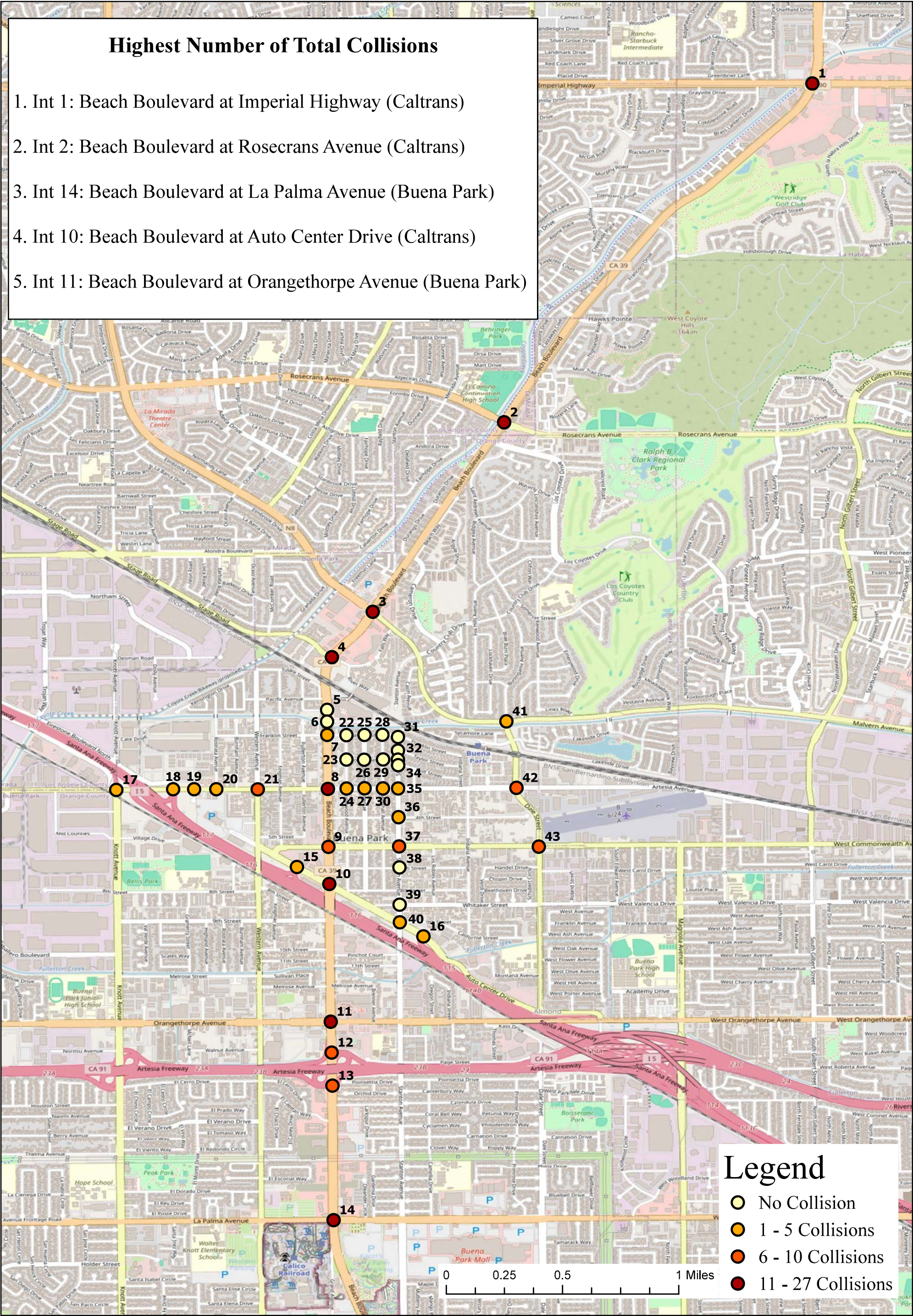
Five years of collision data were collected from the Transportation Injury Mapping System (TIMS) and Statewide Integrated Traffic Records System (SWITRS) between July 1, 2020 and June 30, 2025. As prescribed in Caltrans safety analysis guidelines, the SWITRS database is the most current, comprehensive, reliable, and readily available source for collision history that is recognized and relied upon by all California local agencies, and is therefore the best source for safety metrics for this study. The collision data collected at each of the 43 key intersections can be found in *Appendix G*.

The collision database contained in TIMS/SWITRS is a compilation of itemized collision report information that includes, but are not limited to, the following crash details:

- Date/Time/Location
- Severity
- Collision Type
- Roadway Condition
- Weather
- Violation Category
- Party Information
- Victim Information

Several geographic information system (GIS) maps were used to help organize and present the abundance of data in a more concise and easily visualized manner. The exhibits developed in association with the GIS software and in conjunction with the collision data provided in the TIMS/SWITRS database include *Figures 22* through *26*, which present the number of total collisions, vehicle-versus-vehicle collisions, bicycle-versus-vehicle collisions, pedestrian-versus-vehicle collisions, and passenger car/bicycle/pedestrian- versus-truck collisions, respectively.

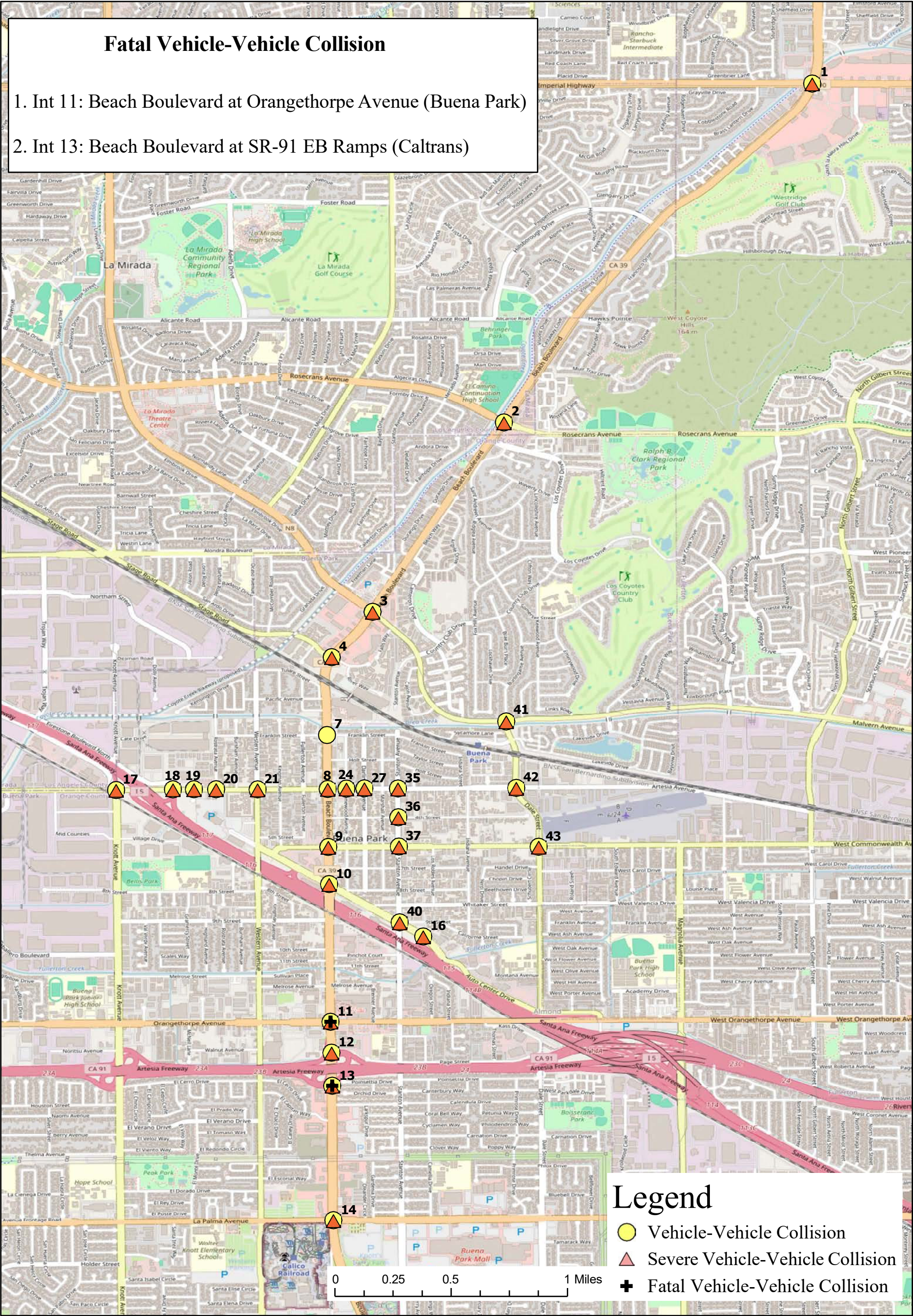
Figure 22 shows that the greatest number of total collisions occurred along Beach Boulevard; specifically, at Intersections #1 and #2 in the northern portion of the study area, and at Intersections #14, #10, and #11 in the southern portion of the study area. Of these five “hot spot” intersections, Intersection #10 (Beach Boulevard at Auto Center Drive) ranked 4th and is the closest to the Project site. It should be noted, however, that at Intersection #10 the Project would result in nominal net added trips or reduce the overall trips at the intersection (as previously shown on *Figures 11A* and *12A*).

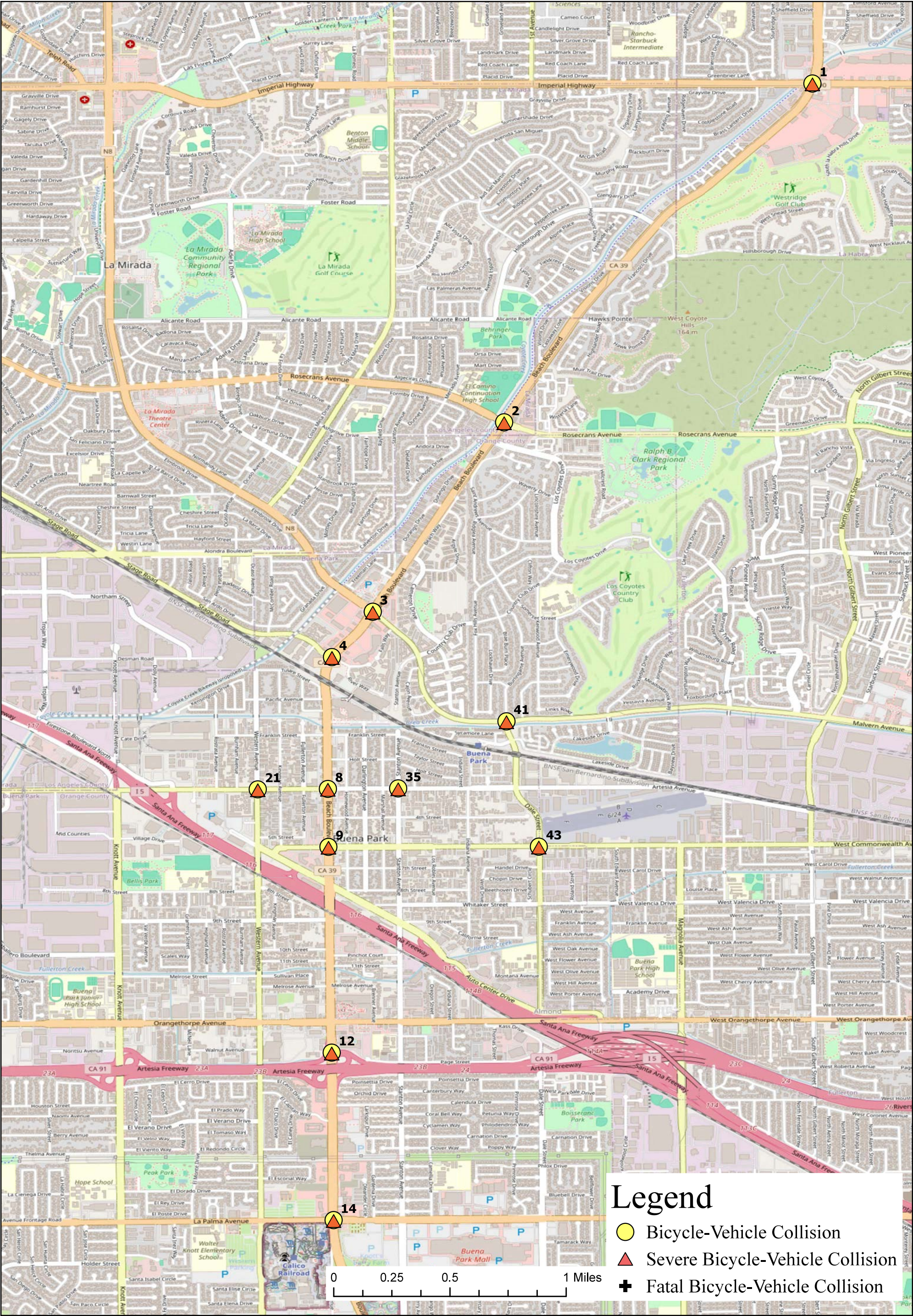


Source: TIMS (July 1, 2020 - June 30, 2025)

FIGURE 22
TOTAL COLLISIONS (5 - YEAR PERIOD)
AMWAY, BUENA PARK







Source: TIMS (July 1, 2020 - June 30, 2025)

FIGURE 24

BICYCLE - VEHICLE COLLISIONS
AMWAY, BUENA PARK



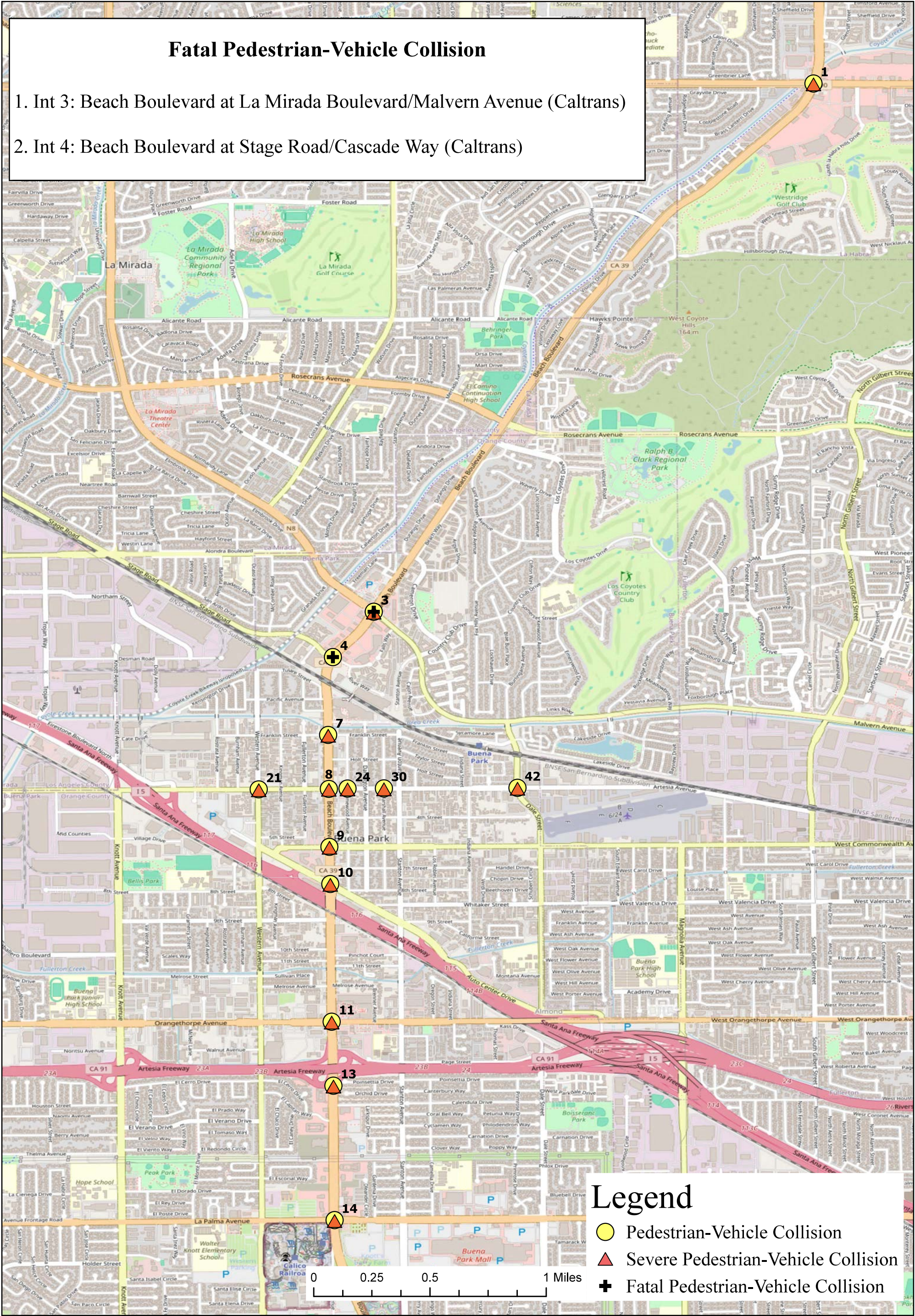
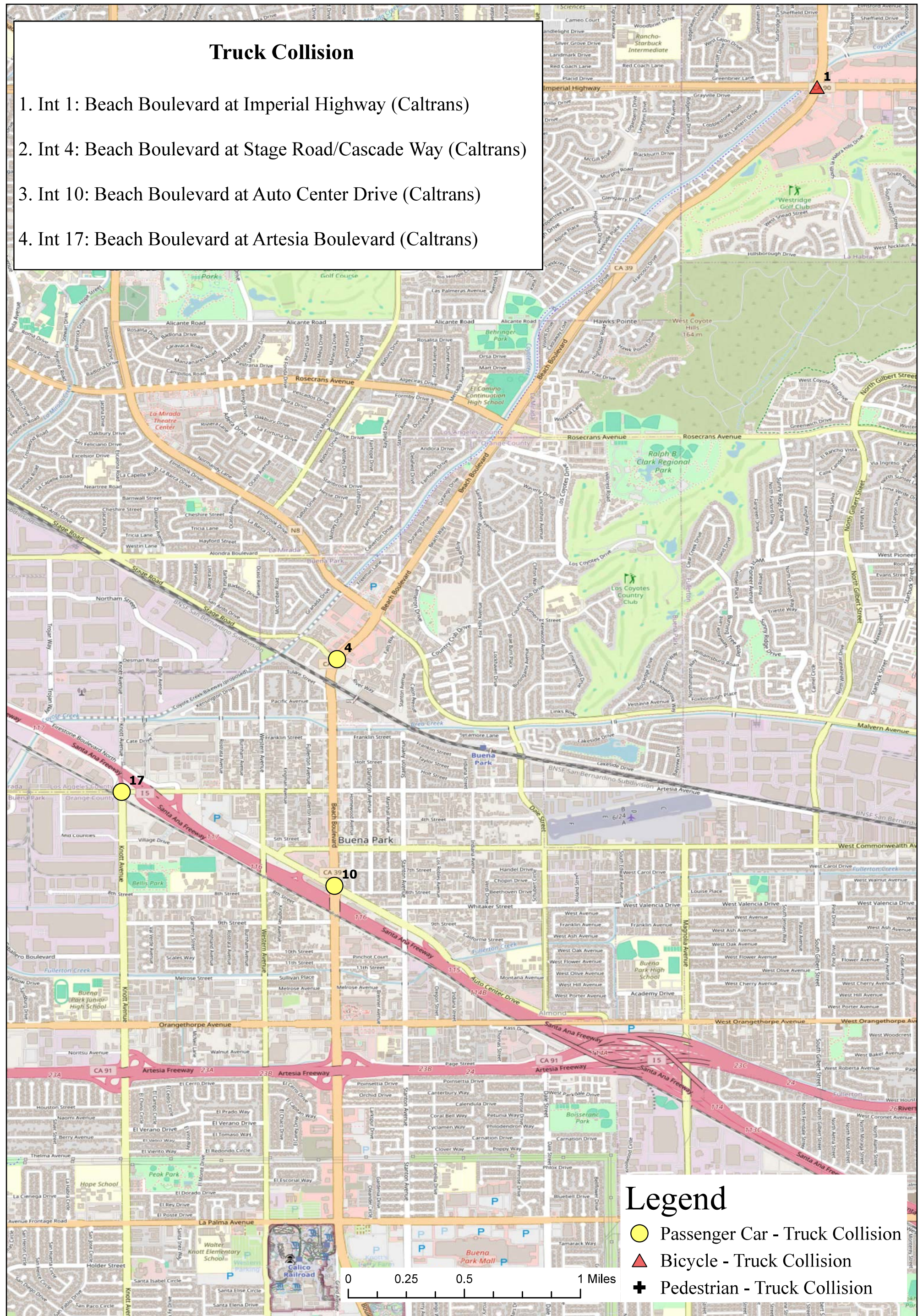


FIGURE 25

PEDESTRIAN - VEHICLE COLLISIONS

AMWAY, BUENA PARK



Source: TIMS (July 1, 2020 - June 30, 2025)

FIGURE 26

PASSENGER CAR/BICYCLE/PEDESTRIAN - TRUCK COLLISIONS
AMWAY, BUENA PARK



It is also evident from *Figure 22* that, with the one exception of Intersection #7 (Beach Boulevard at Franklin Street), no traffic collisions occurred at key access points for the Project, and within the neighborhood located south of Franklin Street.

There were five collisions that occurred at or near Intersection #7 (Beach Boulevard at Franklin Street) within the last five years (i.e., two collisions in 2021, 1 collision in 2023, 1 collision in 2024, and 1 collision in 2025). Four collisions were vehicle-versus-vehicle without severe or fatal injury, of which three were rear-end collisions due to unsafe driving speeds along Beach Boulevard, and one was a broadside collision due to improper turning at the intersection. The one that occurred in 2021 was a pedestrian-versus-vehicle collision with a suspected severe injury due to a pedestrian jaywalking across Beach Boulevard 100 feet north of Franklin Street, and colliding with a vehicle travelling northbound on Beach Boulevard.

Figure 23 indicates that within the study area, fatal vehicle-versus-vehicle collisions occurred at Intersections #11 and #13 along Beach Boulevard at Orangethorpe Avenue, and at the SR-91 EB Ramps. These are located far from the Project site, in the southern portion of the study area.

As illustrated on *Figure 24*, there are no fatal bicycle-versus-vehicle collisions that occurred within the study area. Furthermore, no bicycle-versus-vehicle collisions occurred at key access points for the Project, and within the neighborhood located south of Franklin Street.

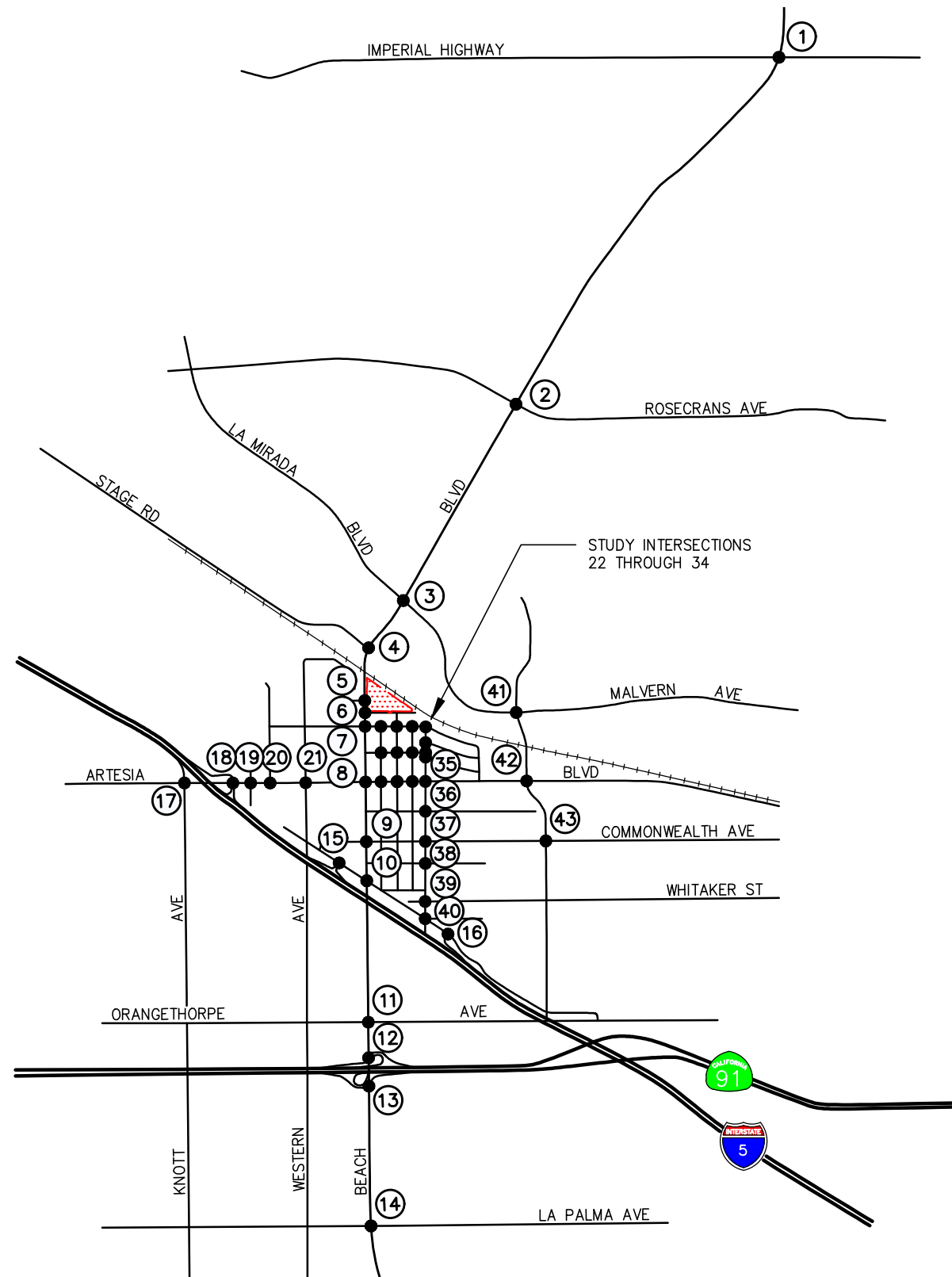
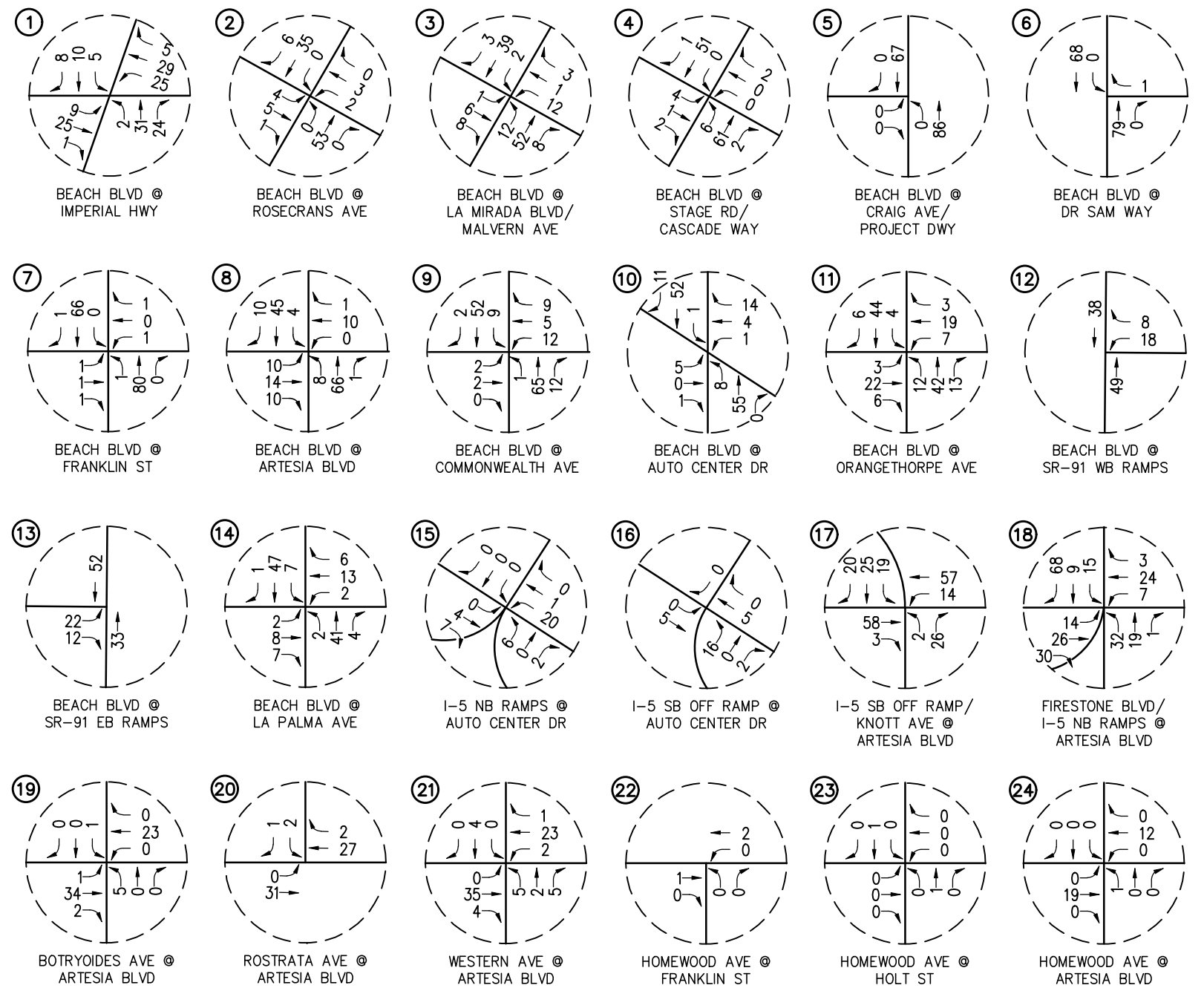
Figure 25 depicts that within the study area, fatal pedestrian-versus-vehicle collisions occurred at Intersections #3 and #4 along Beach Boulevard at La Mirada Boulevard/Malvern Avenue, and at Stage Road/Cascade Way. *Figure 25* also shows the one severe pedestrian-versus-vehicle collision that occurred in 2021 at Intersection #7 (Beach Boulevard at Franklin Street) previously described.

As presented on *Figure 26*, within the study area, there were three passenger car-versus-truck collisions (at Intersections #4, #10, and #17), one bicycle-versus-truck collision that occurred at Intersection #1, and no pedestrian-versus-truck collisions.

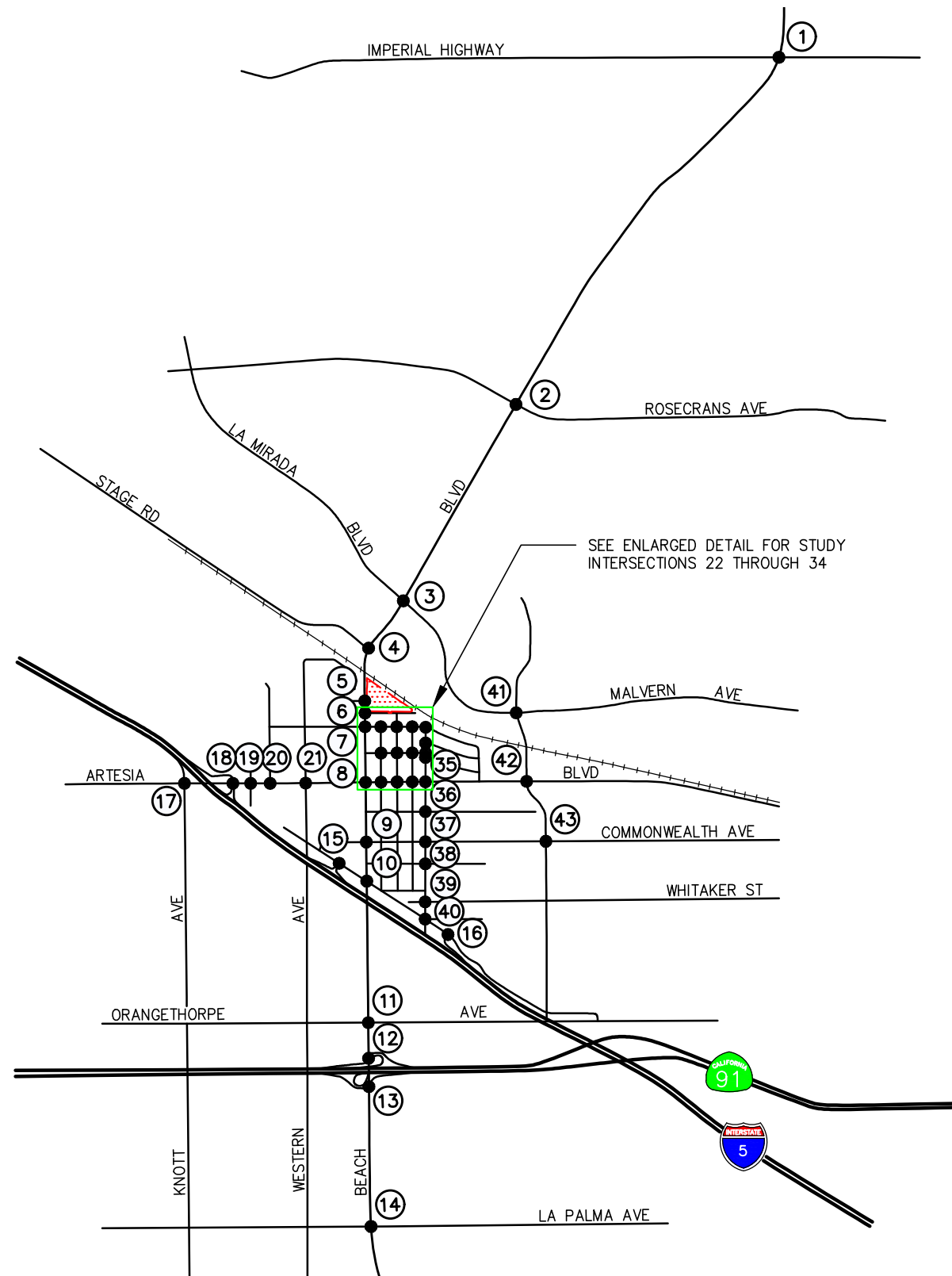
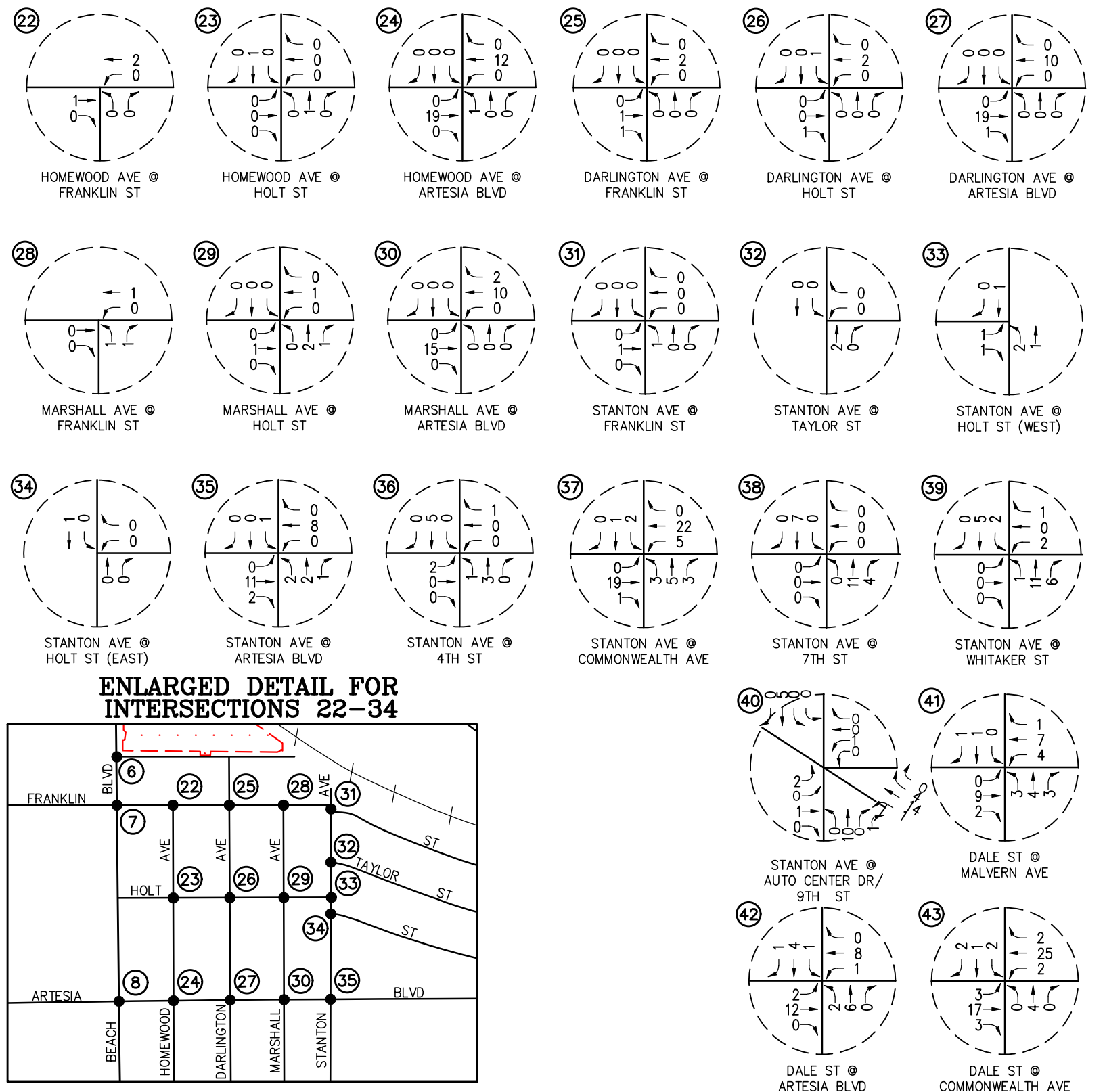
To supplement the truck-related crash data provided on *Figure 26*, **Figures 27A** through **28B** were developed to show the existing truck trips at each of the 43 key intersections during the AM and PM peak hours. Because development of the residential Project would replace the existing truck trips generated by Amway with mostly passenger cars, the Project would help minimize truck-related conflicts at study intersections and enhance traffic safety within the study area. **Appendix H** contains the truck classification counts.

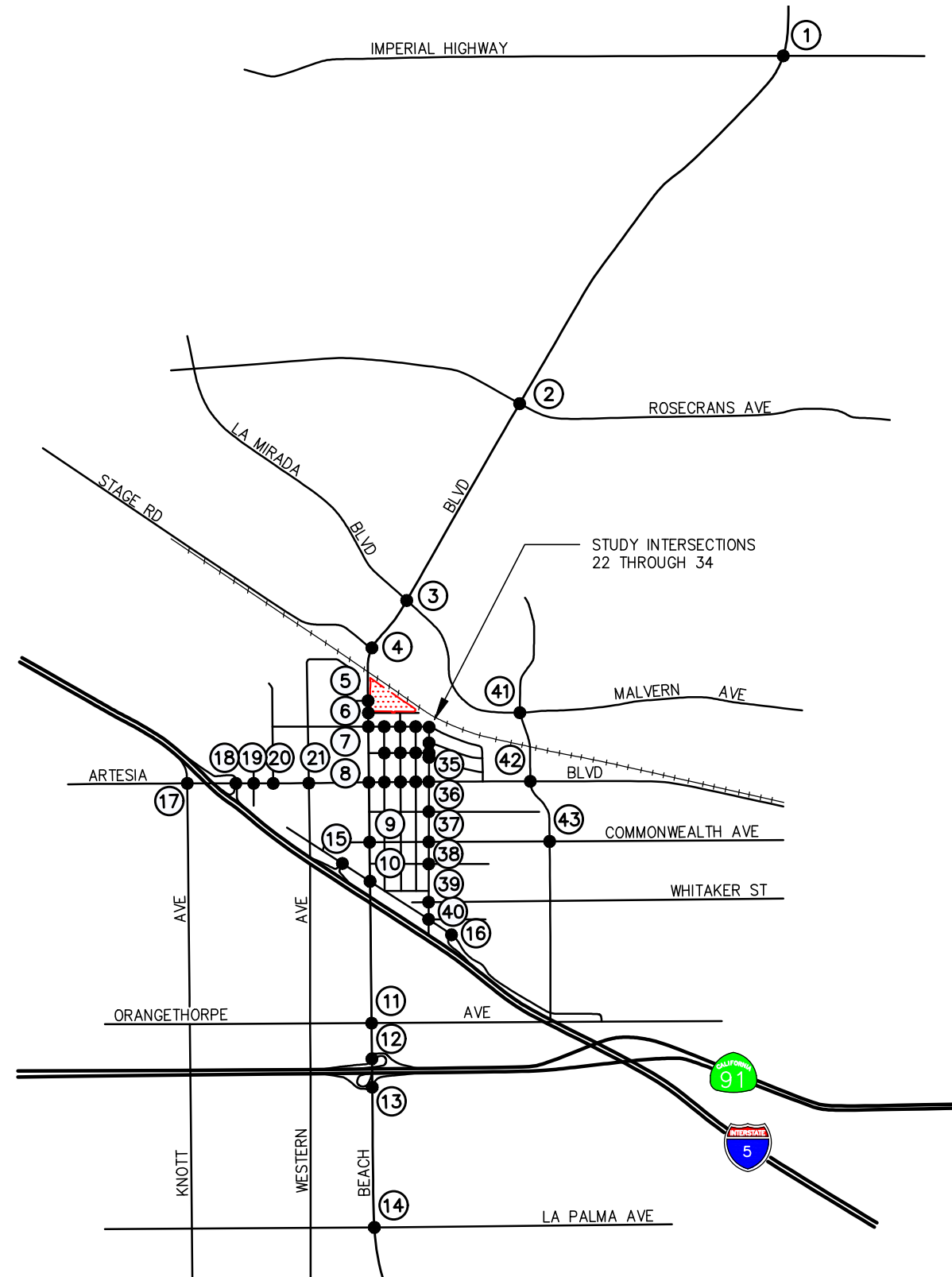
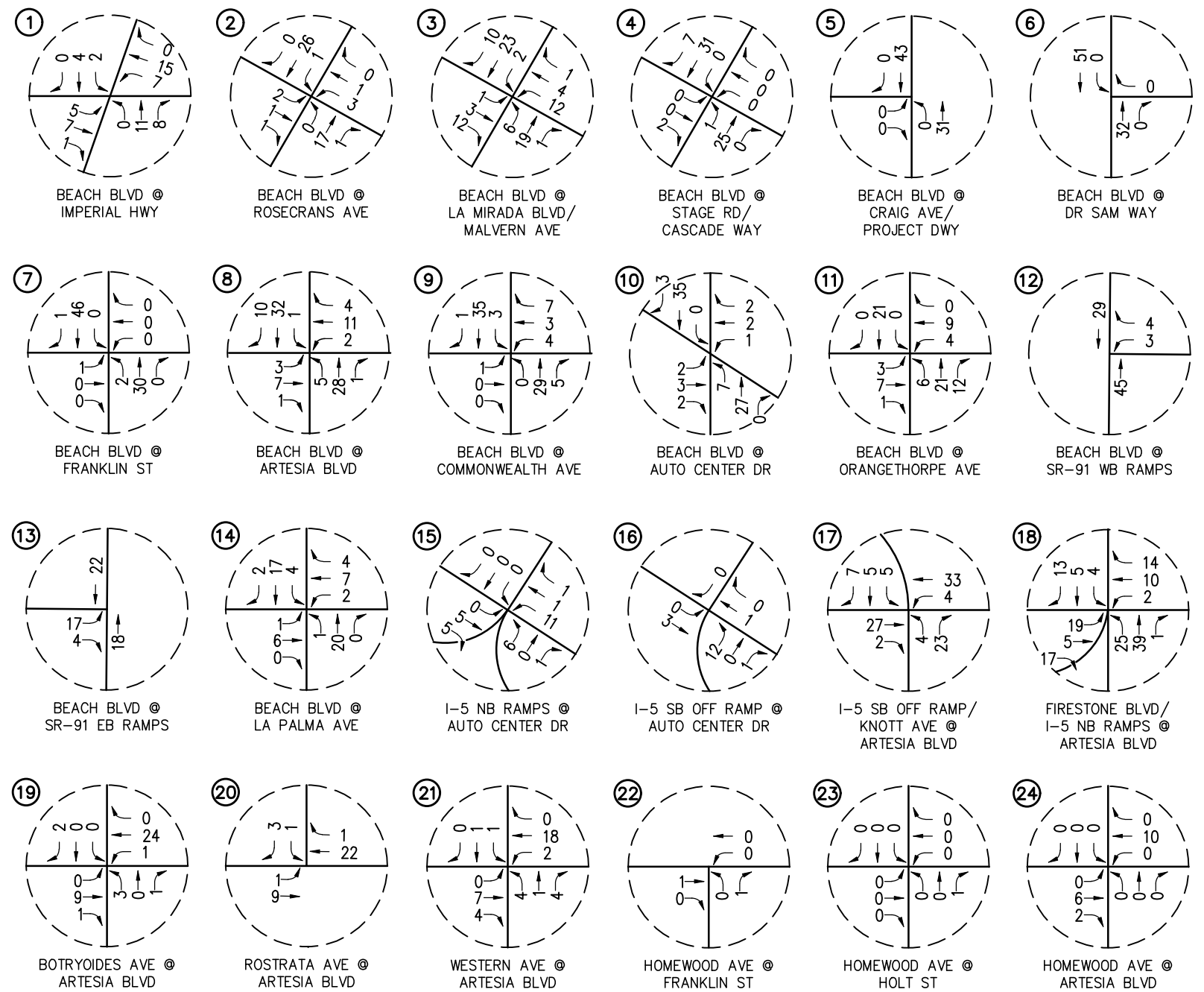
10.2 Sight Distance Analysis and Recommended Improvements to Enhance Safety

At intersections and/or project driveways, a substantially clear line of sight should be maintained between the driver of a vehicle waiting at the crossroad and the driver of an approaching vehicle. Adequate time must be provided for the waiting vehicle to either cross all lanes of through traffic, cross the near lanes and turn left, or turn right, without requiring through traffic to radically alter

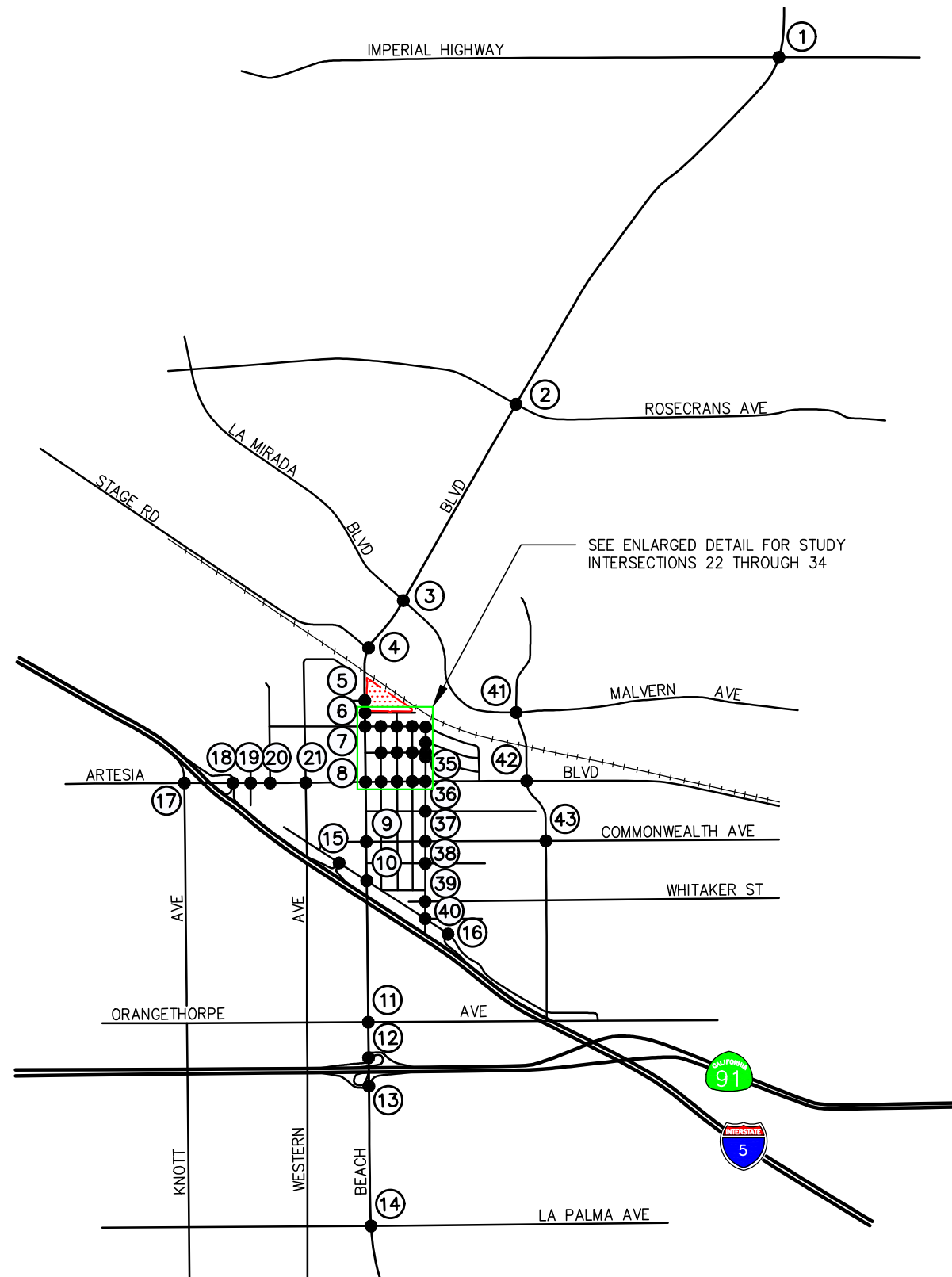
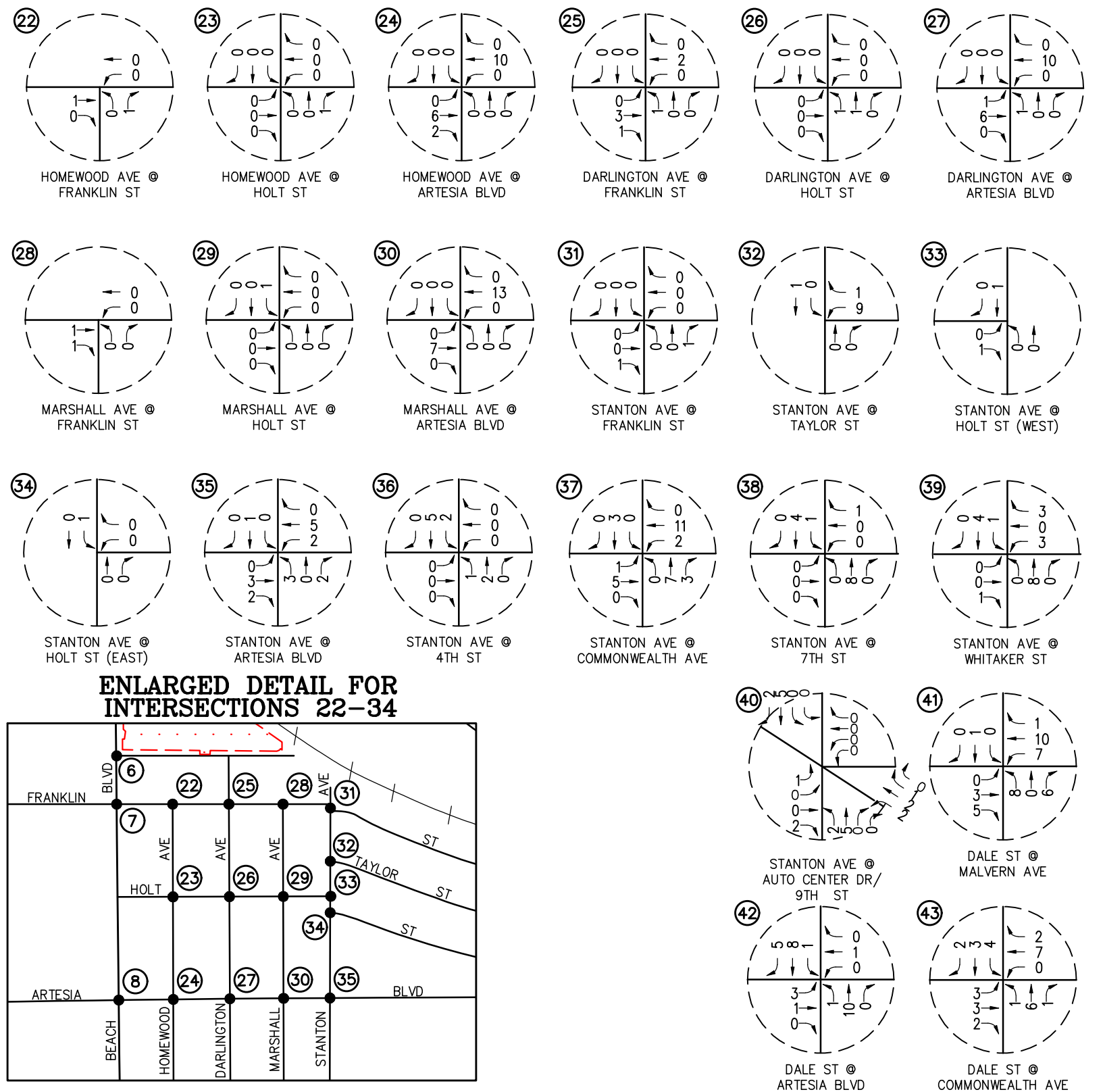


n:\4900\2254925 - amway, buena park\dwg\4925 f-27a.dwg LDP 09:30:52 11-07-2025 kopulsky





n:\4900\2254925 - amway, buena park\dwg\4925 f-28a.dwg LDP 09:42:07 11-07-2025 kopulsky



their speed. As a conservative step in this traffic safety assessment, sight distance evaluation was conducted for Beach Boulevard at Dr. Sam Way (Intersection #6).

The Sight Distance Evaluation is based on the criteria and procedures set forth in the *Highway Design Manual (HDM)*. Corner sight distance was utilized for the evaluation. Corner sight distance is defined in the Caltrans HDM to be the distance required by the driver of a vehicle, traveling at a given speed, to maneuver their vehicle and avoid an object without radically altering their speed. Line of sight for corner sight distance is to be determined from a 3½ foot height at the location of the driver of a vehicle on a minor road to a 4¼ foot object height in the center of the approaching lane of the major road. It should be noted that although corner sight is typically desired, stopping sight is more appropriate to use when designing a private driveway and slower speed arterials.

Based on the criteria set forth in the Caltrans HDM and a posted speed limit of 40 mph on Beach Boulevard, the corner sight distance required at Dr. Sam Way for a left-turning vehicle is 500 feet for vehicles approaching from the left and 559 feet for vehicles approaching from the right.

Figure 29 presents the results of the sight distance evaluation for Dr. Sam Way based on the application of the corner sight distance criteria. The figure illustrates the limited use areas. As shown, the sight lines at the Dr. Sam Way is expected to be adequate as long as obstructions within the sight triangles are minimized.

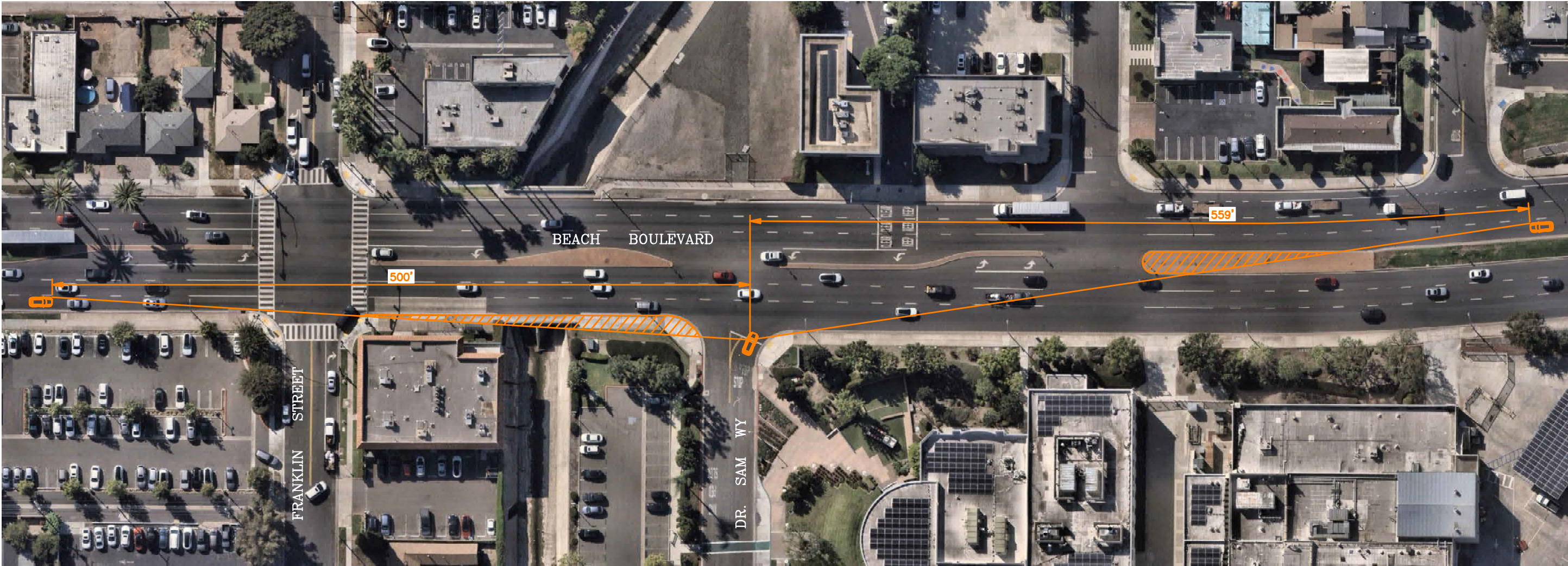
Additionally, **Figure 30** presents recommended signage to enhance safety at the Beach Boulevard and Dr. Sam Way intersection (the same signage is recommended at the Project Driveway/Street B's intersection with Beach Boulevard), and at the intersection of Beach Boulevard with Franklin Street. These signs include: "No Right-Turn on Red"; "Use Crosswalk"; and "Cross Traffic Does Not Stop".

SIGHT DISTANCE

DESIGN SPEED LIMIT:	40 MPH
REQUIRED CORNER SIGHT DISTANCE LOOKING LEFT:	500 FEET
REQUIRED CORNER SIGHT DISTANCE LOOKING RIGHT:	559 FEET

LEGEND

 PUBLIC RIGHT-OF-WAY LIMITED USE AREA: TO ENSURE ADEQUATE SIGHT DISTANCE, HARDSCAPE AND/OR LANDSCAPE SHALL NOT BE HIGHER THAN 30 INCHES ABOVE THE CURB/SIDEWALK. NO FENCES OR WALLS IN LIMITED USE AREA.



SOURCE: NEAR MAPS

FIGURE 29

SIGHT DISTANCE EVALUATION
AMWAY, BUENA PARK



n:\4900\2254925 - amway, buena park\dwg\4925 f-30.dwg LDP 09:44:32 11-07-2025 kopulsky

SOURCE: KTGy

FIGURE 30

PROPOSED SIGNAGE ALONG BEACH BOULEVARD
AMWAY, BUENA PARK

11.0 SUMMARY OF FINDINGS AND CONCLUSIONS

Project Description – The Project development consists of 281 residential units that is made up of 50 units of affordable housing, 114 units of townhomes, and 117 units of duet housing. Additionally, the Project will be replacing 370,031 SF of light industrial (the existing Amway). The Project is expected to be completed and fully occupied by Year 2029.

Study Area – A total of 43 key intersections were selected for detailed peak hour traffic impact/level of service analysis during the AM and PM peak hours under each of the four traffic scenarios (Existing, Existing Plus Project, Year 2029 Cumulative Base, and Year 2029 Cumulative Plus Project).

Project Trip Generation – The gross Project trips are estimated to be 1,676 daily trips on a weekday, 113 AM peak hour trips, and 143 PM peak hour trips. Compared to the existing Amway currently occupying the Project site, the proposed residential Project would result in 344 additional daily trips, 65 fewer AM peak hour trips, and 38 fewer PM peak hour trips. Furthermore, the Project would be replacing truck trips generated by Amway with mostly passenger cars.

Project Non-CEQA Traffic Impacts – Based on the application of the City’s impact criteria for LOS analysis described previously, the Project is not expected to cause non-CEQA traffic impacts at any of the 43 key intersections under Existing (2025) and Year 2029 conditions.

Queuing Analysis – The results of the queuing analysis conducted at key intersections indicate that there would be adequate storage for movements evaluated. In other words, the 95th percentile queues are adequately accommodated by the existing storage lengths and/or driveway “throat” lengths. Where there is a deficiency under conditions without the Project, the 95th percentile queue lengths remain the same or are shorter under conditions with the Project. Based on this, it can be concluded that the Project would have adequate site access, and Project-related improvements to address any queuing issues would not be necessary.

Traffic Signal Warrants – The results indicate that none of the unsignalized intersections will exceed the thresholds of Warrant #3, Part A and/or Part B under conditions without or with the Project under existing and Year 2029 conditions. Therefore, the installation of a traffic signal at these locations is not warranted or recommended.

Internal and Multimodal Circulation – On-site circulation aspects of the Project (i.e., driveway and internal roadway orientation, residential building layout, parking configuration, parking accessibility, pedestrian and bicycle connections on site and with surrounding uses, bus stop locations and accessibility to public transit, passenger loading/unloading locations, delivery/service operations and expected drop-off/pick-up travel routes) were reviewed and concluded to be adequate.

The Project site is located 0.43 miles (1.1-mile driving distance) from the Buena Park Metrolink Station, and is located within a Transit Priority Area (TPA) and Major Transit Stop, as defined by SCAG within the City Limits. Although the Project site is not located along a High Quality Transit

Corridor (HQTC), it is only 1.3 miles from the HQTC's northern boundary along Beach Boulevard at Orangethorpe Avenue. Based on this, the Project would meet the criteria set forth in California Assembly Bill (AB) 2097.

CEQA VMT Assessment – Based on the application of the City's screening criteria described above, and using the NOCC+ spreadsheet, it was determined that the Project is located in a TPA and low VMT generating zone, and includes affordable housing units; and is therefore screened out from further VMT project-level assessment because it can be presumed to have less-than-significant impact on VMT. Furthermore, the proposed Project would not have an impact on the existing multimodal network.

Traffic Safety Assessment – Based on the traffic safety assessment that was conducted related to collision history at all 43 study intersections, truck trips within the study area, and sight distance at Project driveway intersections, the installation of signs, including “No Right-Turn on Red”; “Use Crosswalk”; and “Cross Traffic Does Not Stop” is recommended at the Beach Boulevard and Dr. Sam Way intersection, the Project Driveway/Street B's intersection with Beach Boulevard, and at the intersection of Beach Boulevard with Franklin Street.

