



TRAFFIC IMPACT ANALYSIS
CALIFORNIA REPUBLIC LEADERSHIP ACADEMY
Orange, California
May 14, 2026
(Revision of the March 18, 2026 Report)

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LLG Ref. 2-25-4991-1



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TRAFFIC IMPACT ANALYSIS
CALIFORNIA REPUBLIC LEADERSHIP ACADEMY

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1.0 INTRODUCTION

This traffic impact analysis addresses the potential traffic impacts and circulation needs associated with the proposed California Republic Leadership Academy (hereinafter referred to as Project). The project site is located at 1937 and 2011 W. Chapman Avenue in the City of Orange, California. The project site is currently occupied by two existing office buildings totaling 53,913.2 square-foot (SF). Existing uses within the two existing buildings primarily consist of educational use tenants. The proposed Project will consist of tenant improvements to the two existing buildings to provide a new charter school (TK through 8th grade) for a maximum enrollment of 864 students.

This report documents the findings and recommendations of a traffic impact analysis conducted by Linscott, Law & Greenspan, Engineers (LLG) to determine the potential circulation effects associated with the proposed Project. The traffic analysis evaluates the existing operating conditions at twelve (12) key study intersections and five (5) key roadway segments within the project vicinity, estimates the trip generation potential of the Project, and forecasts future operating conditions without and with the proposed Project. Where necessary, intersection and/or roadway segment improvements are identified.

This traffic report satisfies the *City of Orange Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment, dated July 2025*, and the most current Caltrans requirements, where applicable, and is consistent with the requirements and procedures outlined in the most current *Congestion Management Program (CMP) for Orange County*. The Scope of Work for this traffic study, which is included in **Appendix A**, was developed in conjunction with City of Orange Traffic Engineering staff.

The project site has been visited and an inventory of adjacent area roadways and intersections was performed. Existing traffic information has been collected at twelve (12) key study intersections and five (5) key roadway segments on a “typical” weekday for use in the preparation of intersection and roadway segment level of service calculations. Information concerning cumulative projects (planned and/or approved) in the vicinity of the proposed Project has been researched at the City of Orange and the City of Anaheim. Based on our research, there are six (6) cumulative projects in the City of Orange and nine (9) cumulative projects in the City of Anaheim within the vicinity of the subject site. These fifteen (15) planned and/or approved cumulative projects were considered in the cumulative traffic analysis for this project.

This traffic report analyzes existing and future weekday daily, AM peak hour and PM peak hour traffic conditions for a near-term (Year 2027) traffic setting upon completion of the proposed

Project. Daily and peak hour traffic forecasts for the Year 2027 horizon year have been projected by increasing existing traffic volumes by an annual growth rate of one percent (1.0%) per year and adding traffic volumes generated by fifteen (15) cumulative projects. General Plan Buildout traffic volume forecasts for a “typical” weekday were obtained from the Orange County Transportation Analysis Model (OCTAM).

1.1 Study Area

The twelve (12) key study intersections, one (1) project driveway, and five (5) key roadway segments selected for evaluation were determined based on coordination with City of Orange Traffic Engineering staff and application of the “51 or more peak hour trip threshold” criteria outlined in the *City of Orange Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment, dated July 2025*. The intersections and roadway segments listed below provide local access to the study area and define the extent of the boundaries for this traffic impact investigation. The jurisdiction where each key study intersection/roadway segment is located is also identified with the following nomenclature utilized; (O) = City of Orange and (C) = Caltrans.

<u>Key Study Intersections</u>
1. The City Drive at Chapman Avenue (O)
2. I-5 SB Ramps at Chapman Avenue (O/C)
3. Rampart Street at Chapman Avenue (O)
4. Anita Drive/SR-57 SB Ramps at Chapman Avenue (O/C)
5. SR-57 NB Ramps at Chapman Avenue (O/C)
6. Flower Street at Chapman Avenue (O)
7. Eckhoff Street at Chapman Avenue (O)
8. Feldner Road at Chapman Avenue (O)
9. Main Street at Maple Avenue (O)
10. Main Street at Chapman Avenue (O)
11. Main Street at Almond Avenue (O)
12. Batavia Street at Chapman Avenue (O)
-- Project Driveway at Chapman Avenue (O)

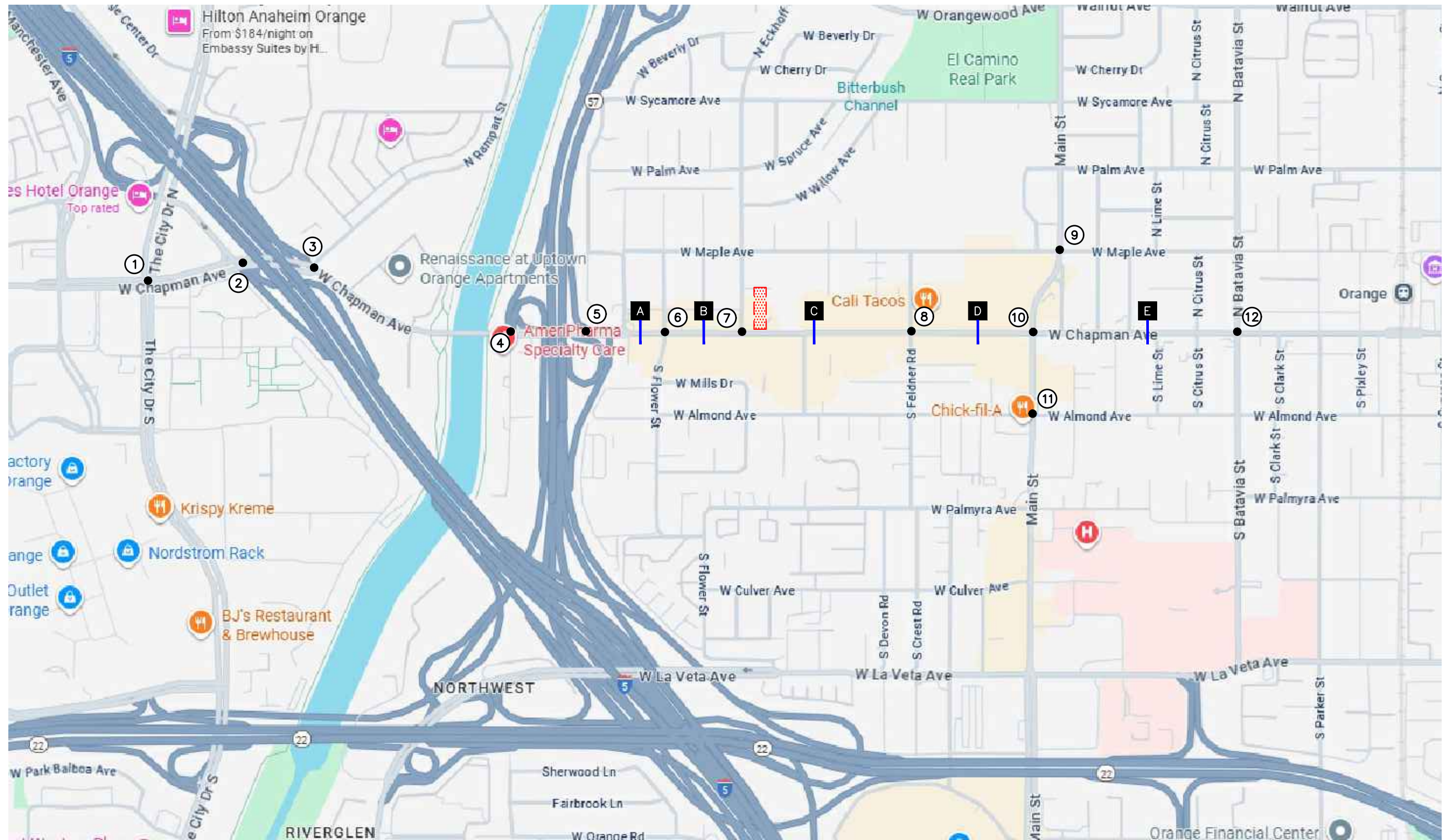
<u>Key Roadway Segments</u>
A. Chapman Avenue between SR-57 NB Ramps and Flower Street (O)
B. Chapman Avenue between Flower Street and Eckhoff Street (O)
C. Chapman Avenue between Eckhoff Street and Feldner Road (O)
D. Chapman Avenue between Feldner Road and Main Street (O)
E. Chapman Avenue between Main Street and Batavia Street (O)

Figure 1-1 presents a Vicinity Map, which illustrates the general location of the proposed Project and depicts the study locations and surrounding street system. The Level of Service (LOS) investigations at these key locations were used to evaluate the potential traffic-related circulation effects associated with area growth, cumulative projects and the proposed Project. When necessary,

this report recommends intersection and/or roadway segment improvements that may be required to accommodate future traffic volumes and restore/maintain an acceptable Level of Service and/or address deficiencies of the Project.

Included in this Traffic Impact Analysis are:

- Existing traffic counts,
- Estimated project traffic generation/distribution/assignment,
- Estimated cumulative project traffic generation/distribution/assignment,
- Daily, AM and PM peak hour capacity analyses for existing conditions,
- Daily, AM and PM peak hour capacity analyses for future (Year 2027) conditions without and with project traffic,
- Daily, AM and PM peak hour capacity analyses for General Plan Buildout conditions without and with project traffic,
- Caltrans Queuing Evaluation,
- Site Access and Internal Circulation Evaluation,
- Recommended Improvements,
- Project Fair Share Analysis,
- Multimodal Circulation and,
- Congestion Management Program (CMP) Analysis.



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SOURCE: OPEN STREETS

KEY

- = STUDY INTERSECTION
- = STUDY ROADWAY SEGMENT
- = PROJECT SITE



FIGURE 1-1

VICINITY MAP

CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

2.0 PROJECT DESCRIPTION

The project site is located at 1937 and 2011 W. Chapman Avenue in the City of Orange, California. The project site is currently occupied by two existing office buildings totaling 53,913.2 square-foot (SF). Existing uses within the two existing buildings primarily consist of educational use tenants. *Figure 2-1* presents an aerial image of the existing site for the proposed Project.

The proposed Project will consist of tenant improvements to the two existing buildings to provide a new charter school (TK through 8th grade) for a maximum enrollment of 864 students. A total of 45 classrooms will be provided between the two buildings. The proposed Project will have 45 staff members on site that will consist of 35 total teachers across all grades and 10 non-teaching/administrative staff. To accommodate the new play areas, the Applicant proposes to remove 111 parking spaces from the surface parking lot, leaving 100 parking spaces available. The drop-off/pick-up area will have an on-site queuing capacity of approximately 58 vehicles. The proposed Project is expected to be completed by the Year 2027 for the 2027-2028 school year. *Figure 2-2* presents the proposed site plan for the proposed Project, prepared by Lionakis.

The proposed Project will also implement the following to help reduce its effect on local area traffic during the AM peak hour.

- **Staggered Start and End Times:** The start and end times for the proposed Project will be staggered, with three primary morning start times (i.e. 8:00 AM, 8:30 AM and 9:00 AM) and three primary afternoon end times (i.e. 2:30 PM, 3:00 PM and 3:30 PM). The table below shows the start and end times by grade level and the approximate number of students.

Grade Levels	Start Time	End Time	Number of Students
TK – AM	8:30 AM	12:00 PM	40
TK – PM	11:30 AM	3:00 PM	20
K, 1 st , 2 nd	8:00 AM	2:30 PM	252
3 rd , 4 th , 5 th	8:30 AM	3:00 PM	276
6 th , 7 th , 8 th	9:00 AM	3:30 PM	276

- **Traffic Control Coordinators and Valet Assistant Staff:** The school will have three (3) traffic control coordinators located within the parking lot and six (6) valet assistant staff located within the drop-off and pick-up areas to ensure the drop-off and pick-up procedures will function efficiently. All personnel will utilize two-way walkie talkies to communicate with one another.

2.1 Site Access

As shown in *Figure 2-2*, access to the project site will be provided via an existing full access unsignalized driveway located along W. Chapman Avenue.



MAPLE AVE

ECKHOFF AVE

CHAPMAN AVE

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SOURCE: NEAR MAPS

KEY


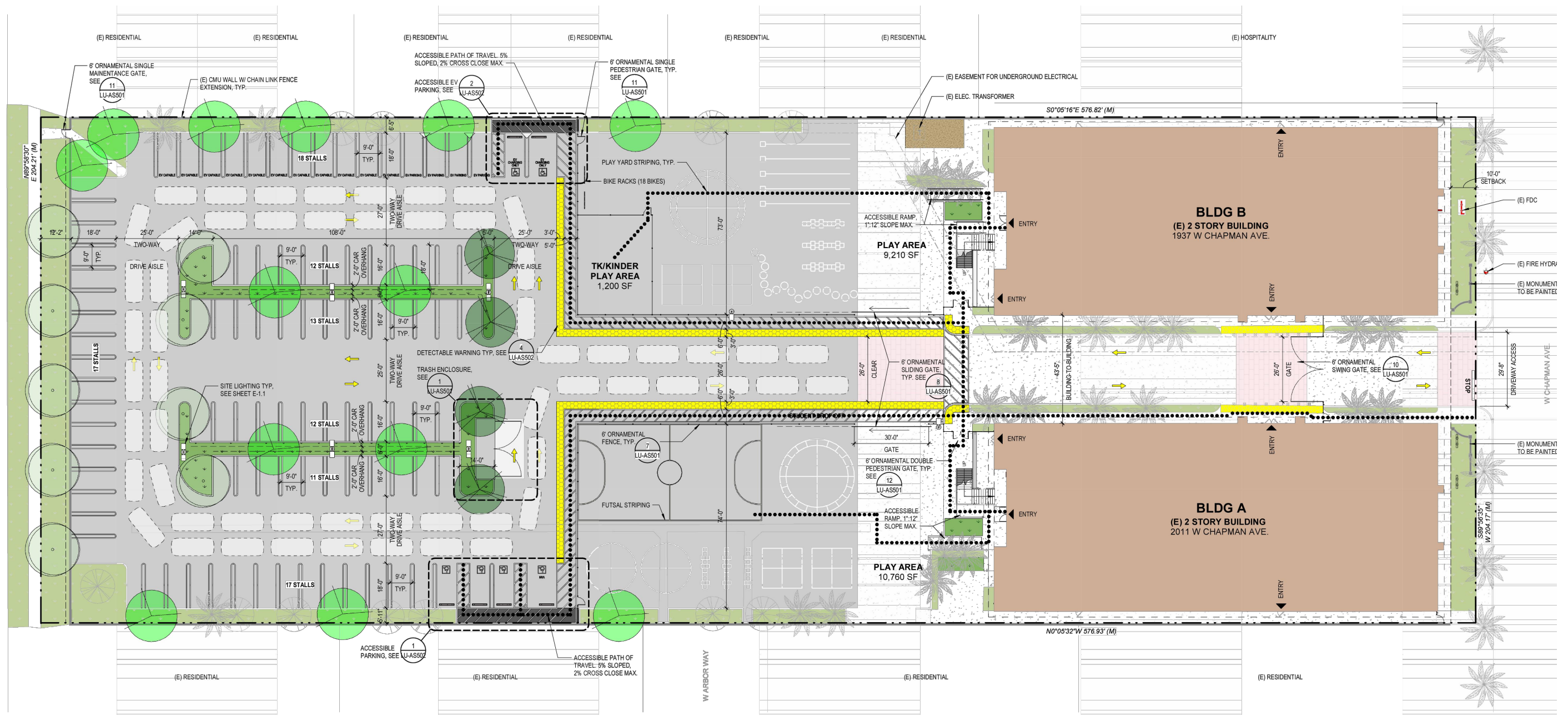
 = PROJECT SITE



FIGURE 2-1

EXISTING SITE AERIAL
CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE



SOURCE: LIONAKIS



FIGURE 2-2

PROPOSED SITE PLAN
CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

3.0 EXISTING CONDITIONS

3.1 Existing Street System

Regional access to the site is provided via the I-5 Freeway and the SR-57 Freeway. The principal local network of streets serving the proposed Project includes Chapman Avenue, The City Drive, Main Street and Batavia Street. The following discussion provides a brief synopsis of these key area streets. The descriptions are based on an inventory of existing roadway conditions.

Chapman Avenue is generally a six-lane divided roadway west of Main Street and generally a four-lane divided roadway east of Main Street, oriented in the east-west direction. Chapman Avenue borders the project site to the south. On-street parking is generally not permitted along this roadway within the vicinity of the project. The posted speed limit on Chapman Avenue is 35 miles per hour (mph) west of The City Drive, 40 mph between The City Drive and Batavia Street, and 35 mph east of Batavia Street. Traffic signals control the study intersections of Chapman Avenue at The City Drive, I-5 SB Ramps, Rampart Street, Anita Drive/SR-57 SB Ramps, SR-57 NB Ramps, Flower Street, Feldner Road, Main Street, and Batavia Street. The intersection of Chapman Avenue at Eckhoff Street is stop-controlled.

The City Drive is generally an eight-lane divided roadway, oriented in the north-south direction. On-street parking is generally not permitted along this roadway within the vicinity of the project. The posted speed limit on The City Drive is 40 mph north of Chapman Avenue and 35 mph south of Chapman Avenue in the immediate vicinity of the Project site. A traffic signal controls the study intersection of The City Drive at Chapman Avenue.

Main Street is generally a four-lane divided roadway north of Chapman Avenue and generally a six-lane divided roadway south of Chapman Avenue, oriented in the north-south direction. On-street parking is generally not permitted along this roadway within the vicinity of the project. The posted speed limit on Main Street is 35 mph north of Chapman Avenue and 40 mph south of Chapman Avenue. Traffic signals control the study intersections of Main Street at Chapman Avenue and Almond Avenue. The intersection of Main Street at Maple Avenue is stop-controlled.

Batavia Street is generally a four-lane divided roadway north of Chapman Avenue and generally a two-lane undivided roadway south of Chapman Avenue, oriented in the north-south direction. On-street parking is generally permitted along this roadway within the vicinity of the project. The posted speed limit on Batavia Street is 35 mph north of Chapman Avenue and 30 mph south of Chapman Avenue. A traffic signal controls the study intersection of Batavia Street at Chapman Avenue.

Figure 3-1 presents an inventory of the existing roadway conditions for the arterials and intersections evaluated in this report. This figure identifies the number of travel lanes for key arterials, as well as intersection configurations and controls for the key area study intersections.

3.2 Existing Public Transit

The Orange County Transportation Authority operates within the study area. Routes 53, 54, 57, 543, and 553 currently operate in the vicinity of the Project. The four closest bus stops are located on the northwest corner and southeast corner of Feldner Road at Chapman Avenue and Flower Street at Chapman Avenue. A description of the transit services within the Project vicinity are as follows:

Route 53:

- Route 53 provides service from Anaheim to Orange to Irvine; via Yale Loop & Alton, Main – Sunflower, MacArthur Blvd & MacArthur Place, Main & Edinger, Santa Ana Mainplace, and Anaheim Regional Transportation Intermodal Center (Artic).
- The route traverses the cities of Anaheim, Orange, Santa Ana, and Irvine.
- During the weekday and weekend AM and PM peak hours, Route 53 has approximate headways of 20 minutes in the northbound and southbound directions.

Route 54:

- Route 54 provides service from Orange to Garden Grove; via Chapman & Valley View, Chapman & Beach, Chapman & Harbor, Orange Transportation Center, Chapman & Rancho Santiago, and Santiago Canyon College.
- The route traverses the cities of Orange, Stanton, and Garden Grove.
- During the weekday and weekend AM and PM peak hours, Route 54 has approximate headways of 30 minutes in the northbound and southbound directions.

Route 57:

- Route 57 provides service from Brea To Newport Beach; via Newport Transportation Center, Jamboree & University, Anton & Sakioka, Bristol & Sunflower, Bristol & McFadden, Bristol & 17th, The Outlets at Orange, State College & Katella, State College & Lincoln, State College & Via Burton, State College & Orangethorpe, State College & Nutwood, and Brea Mall.
- The route traverses the cities of Brea, Fullerton, Anaheim, Orange, Santa Ana, Costa Mesa, and Newport Beach.
- During the weekday and weekend AM and PM peak hours, Route 57 has approximate headways of 30 minutes in the northbound and southbound directions.

Route 543:

- Route 543 provides service from Fullerton to Costa Mesa; via Harbor & MacArthur, Harbor & Edinger, Harbor & Westminster, Harbor & Katella, Harbor & Lincoln, Fullerton Transportation Center.
- The route traverses the cities of Fullerton, Anaheim, Garden Grove, Santa Ana, Costa Mesa.
- During the weekday and weekend AM and PM peak hours, Route 543 has approximate headways of 20 minutes in the northbound and southbound directions.

Route 553:

- Route 553 provides service from Anaheim to Costa Mesa; via Sunflower & Bristol, Main & MacArthur (Santa Ana), Main & Edinger, Santa Ana Mainplace, Anaheim Regional Transportation Intermodal Center (ARTIC), and Disneyland.
- The route traverses the cities of Anaheim, Orange, Santa Ana, and Costa Mesa.
- During the weekday and weekend AM and PM peak hours, Route 553 has approximate headways of 20 minutes in the northbound and southbound directions.

3.3 Existing Bicycle/Pedestrian Circulation

Pedestrian circulation would be provided via existing public sidewalks along Chapman Avenue, Main Street, and Batavia Street in the vicinity of the Project site. There are no bicycle facilities within the vicinity of the project site. See *Section 14.0* for more details on the multimodal circulation of the Project site and the surrounding existing facilities.

3.4 Existing Traffic Volumes

Twelve (12) key study intersections and five (5) key roadway segments have been identified as the locations at which to evaluate existing and future traffic operating conditions. Some portion of potential project-related traffic will pass through each of these intersections/roadway segments, and their analysis will reveal the expected relative impacts of the project. These key intersections and roadway segments were selected for evaluation based on coordination with City of Orange Traffic Engineering staff and application of the “51 or more peak hour trip threshold” criteria outlined in the *City of Orange Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment*, dated July 2025.

Existing daily, AM peak hour, and PM peak hour traffic volumes for the twelve (12) key study intersections and the five (5) key roadway segments evaluated in this report were conducted by Transportation Studies Inc. in December 2025 when local area schools were in session. **Figures 3-2** and **3-3** illustrate the existing AM and PM peak hour traffic volumes at the twelve (12) key study intersections, respectively. *Figure 3-3* also presents the existing average daily traffic volumes for the five (5) key roadway segments. **Appendix B** contains the detailed peak hour count sheets for the key intersections evaluated in this report. *Appendix B* also contains the average daily traffic volumes for the key roadway segments.

3.5 Existing Intersection Conditions

Existing AM and PM peak hour operating conditions for the key study intersections were evaluated using the *Intersection Capacity Utilization (ICU)* methodology for signalized intersections and the methodology outlined in the *Highway Capacity Manual 7 (HCM 7)* for unsignalized intersections.

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

In conformance with City of Orange requirements, existing AM and PM peak hour operating conditions for the key signalized study intersections 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.

Per City of Orange requirements, 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 3-1*.

3.5.2 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. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable, which can reduce users' delay tolerance.

3.5.2.1 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 are shown in *Table 3-2*.

3.5.2.2 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 solely on control delay. The HCM control delay value range for all-way stop-controlled intersections are shown in *Table 3-2*.

3.6 Volume to Capacity (V/C) Ratio Method of Analysis (Roadway Segments)

Existing daily operating conditions for the key roadway segments have been investigated according to the daily volume-to-capacity (V/C) ratio of each link. The daily V/C relationship is used to estimate the LOS of the roadway segment with the volume based on 24-hour traffic count data and the capacity based on either the City of Orange General Plan Circulation and Mobility Element or the Orange County Master Plan of Arterial Highways (MPAH) street classifications. The daily roadway link capacity of each street classification according to the City of Orange General Plan Circulation and Mobility Element which is used for City of Orange locations is presented in **Table 3-3**, along with the six corresponding service levels and associated V/C ratios.

3.7 Level of Service Criteria

3.7.1 City of Orange Locations

According to the City of Orange General Plan Circulation Element and stated in the *City of Orange Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment*, dated July 2025, LOS D is the minimum acceptable condition that should be maintained during the morning and evening peak commute hours on all intersections and LOS C is the minimum acceptable condition that should be maintained on a daily basis on all roadway segments.

3.8 Existing Level of Service Results

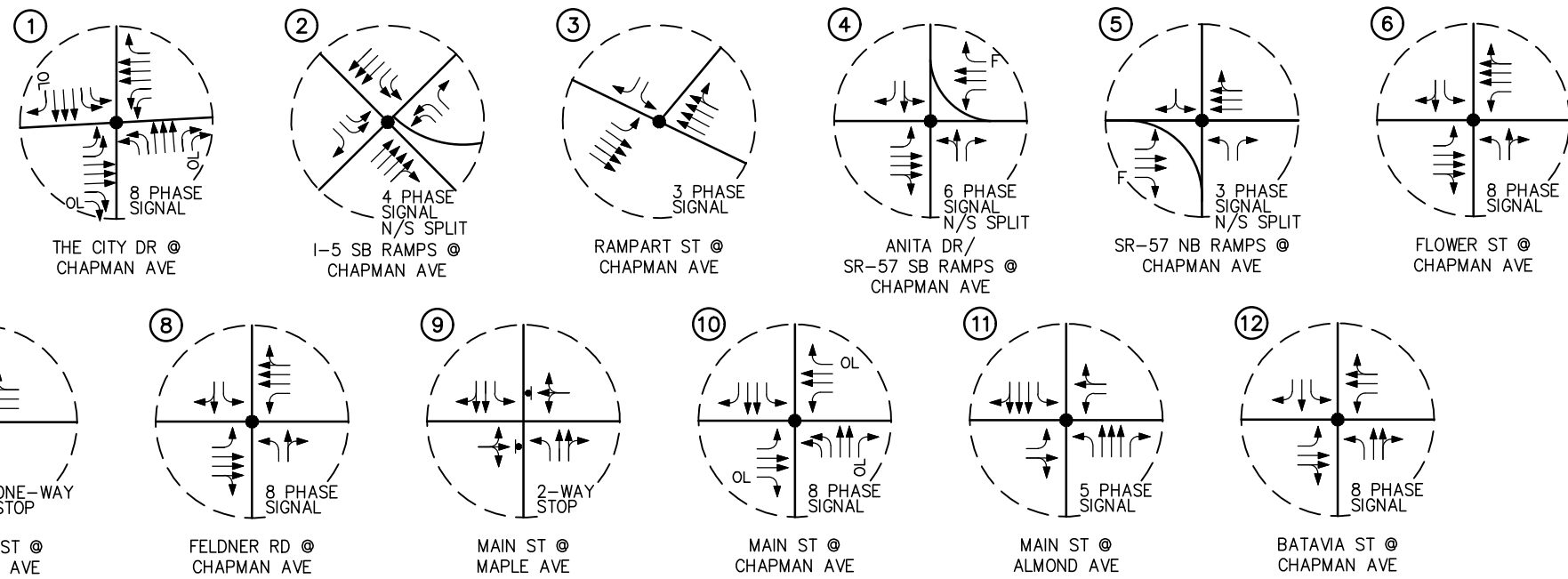
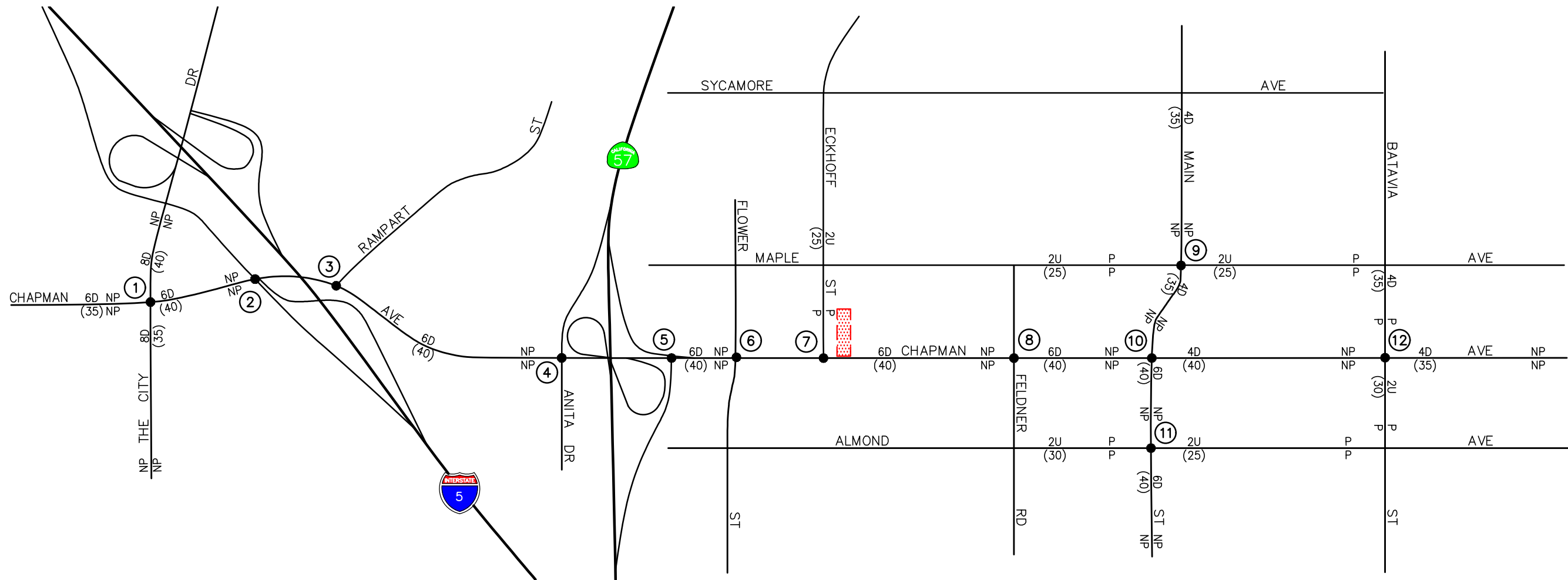
3.8.1 Intersections

Table 3-4 summarizes the existing peak hour service level calculations for the twelve (12) key study intersections based on existing traffic volumes and current street geometry. Review of **Table 3-4** indicates that one (1) of the twelve (12) key study intersections currently operates at an unacceptable level of service during the AM and PM peak hour. The intersection of Main Street at Maple Avenue currently operates at unacceptable LOS F during the AM and PM peak hour. The remaining eleven (11) key study intersections currently operate at acceptable LOS D or better during the AM and PM peak hours.

Appendix C presents the ICU/LOS and HCM/LOS calculations for the twelve (12) key study intersections for the AM peak hour and PM peak hour.

3.8.2 Roadway Segments

Table 3-5 summarizes the existing service level calculations for the five (5) key roadway segments based on existing 24-hour traffic volumes and current roadway geometry. The first column (1) shows the number of lanes, the second column (2) shows the arterial classification and the third column (3) shows the existing LOS “E” capacity. The fourth column (4) shows the daily volume, V/C ratio and resulting level of service. Review of **Table 3-5** indicates that all five (5) key roadway segments currently operate at acceptable LOS B or better on a daily basis.



KEY

- # = STUDY INTERSECTION
- = APPROACH LANE ASSIGNMENT
- = TRAFFIC SIGNAL, ▼ = STOP SIGN
- P = PARKING, NP = NO PARKING
- U = UNDIVIDED, D = DIVIDED
- 2 = NUMBER OF TRAVEL LANES
- (XX) = POSTED SPEED LIMIT (MPH)
- [Red Hatched Box] = PROJECT SITE
- OL = OVERLAP
- F = FREE-RIGHT

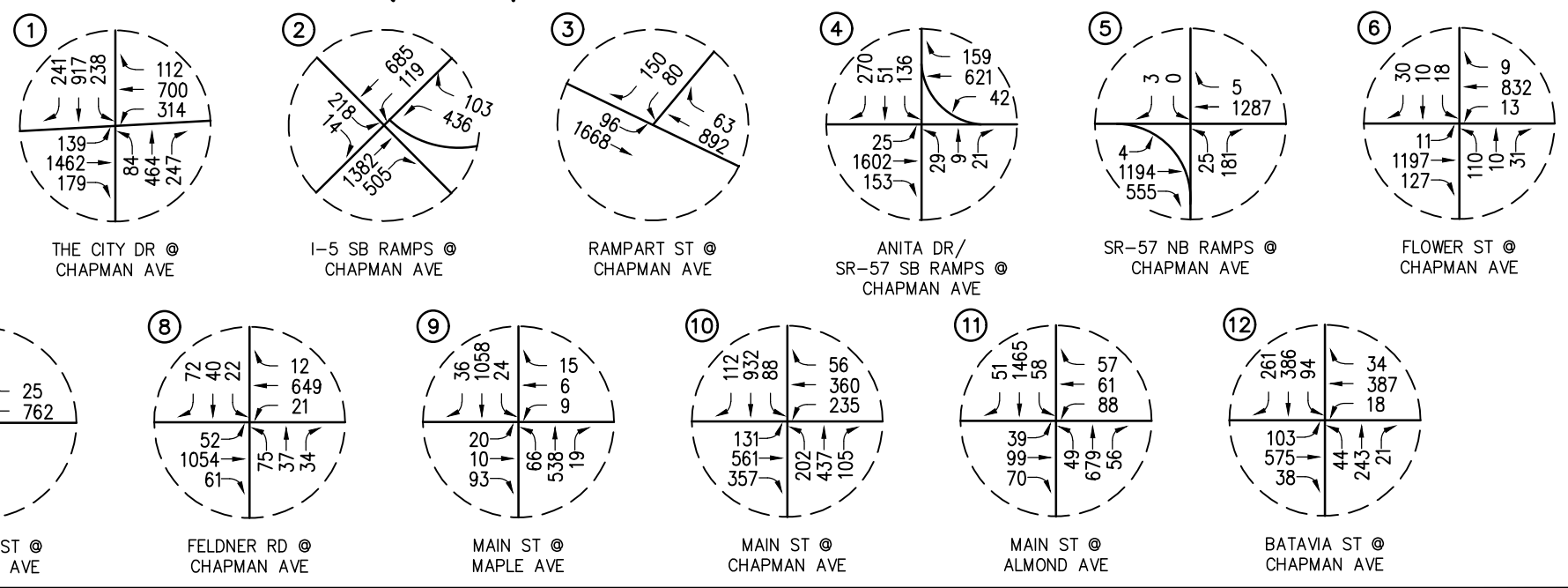
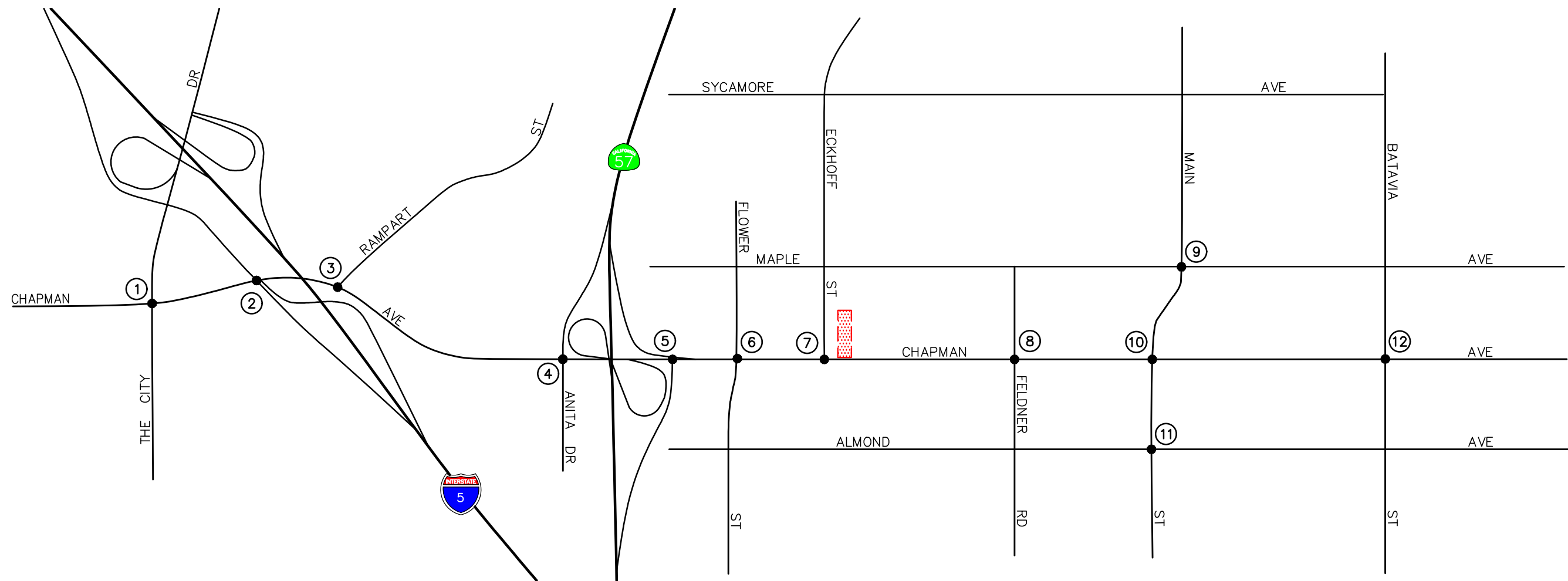
FIGURE 3-1

EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS

CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE



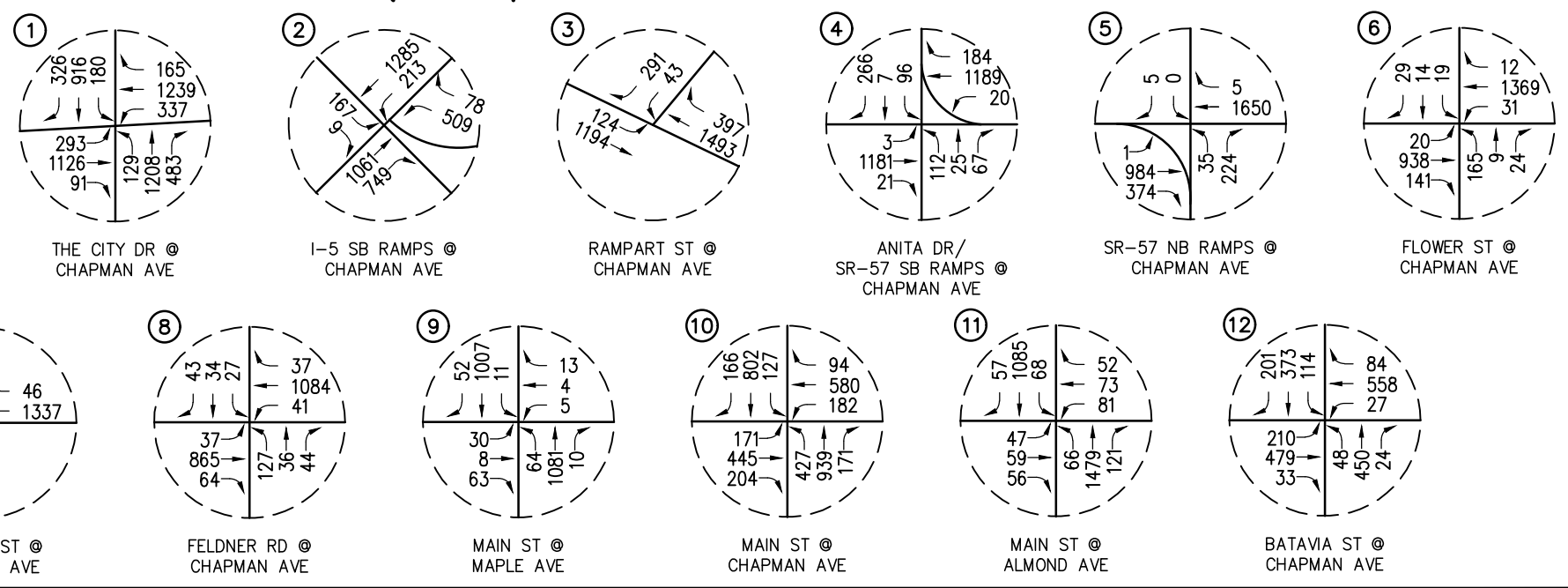
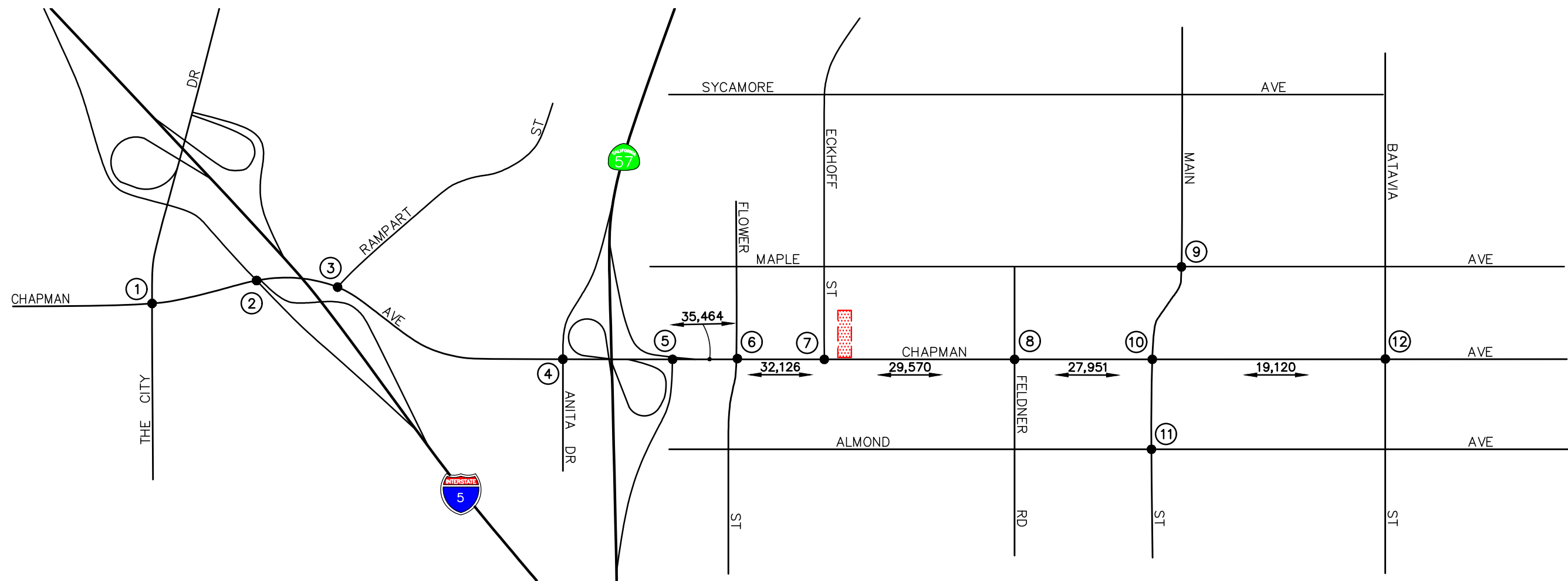
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KEY
 # = STUDY INTERSECTION
 [Red Hatched Box] = PROJECT SITE

FIGURE 3-2

EXISTING AM PEAK HOUR TRAFFIC VOLUMES
 CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE



KEY

- ① = STUDY INTERSECTION
- XX,XXX = DAILY TRAFFIC VOLUMES
- [Red Hatched Box] = PROJECT SITE

FIGURE 3-3

EXISTING PM PEAK HOUR AND DAILY TRAFFIC VOLUMES
CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE



**TABLE 3-1
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS¹**

Level of Service (LOS)	Intersection Capacity Utilization Value (V/C)	Level of Service Description
A	≤ 0.60	EXCELLENT. No vehicle waits longer than one red light, and no approach phase is fully used.
B	0.61 – 0.70	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.71 – 0.80	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.81 – 0.90	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	0.91 – 1.00	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.00	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.

¹ Source: *Transportation Research Board Circular 212 – Interim Materials on Highway Capacity.*

TABLE 3-2
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS²

Level of Service (LOS)	Highway Capacity Manual Delay Value (sec/veh)	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*.

**TABLE 3-3
ROADWAY LINK CAPACITIES**

Facility Type	Number of Lanes	Level of Service Criteria With Associated Roadway Capacity					
		Daily Values (VPD)					
		Level of Service (LOS)					
		A	B	C	D	E ³	F
Principal	8-lanes divided	45,000	52,500	60,000	67,500	75,000	--
Major	6-lanes divided	33,900	39,400	45,000	50,700	56,300	--
Primary	4-lanes divided	22,500	26,300	30,000	33,750	37,500	--
Secondary	4-lanes undivided	14,400	16,800	19,200	21,600	24,000	--
Collector	2-lanes undivided	7,200	8,400	9,600	10,800	12,000	--
V/C Ratio		≤ 0.60	0.61-0.70	0.71-0.80	0.81-0.90	0.91-1.00	≥ 1.00

Notes:

- VPD = vehicles per day

³ Source: City of Orange General Plan; Circulation and Mobility.

**TABLE 3-4
EXISTING PEAK HOUR LEVELS OF SERVICE**

Key Intersection	Time Period	Jurisdiction	Minimum Acceptable LOS	Control Type	ICU	LOS
1. The City Drive at Chapman Avenue	AM	Orange	D	8Ø Traffic	0.634	B
	PM			Signal	0.669	B
2. I-5 SB Ramps at Chapman Avenue	AM	Orange/ Caltrans	D	4Ø Traffic	0.555	A
	PM			Signal	0.578	A
3. Rampart Street at Chapman Avenue	AM	Orange	D	3Ø Traffic	0.384	A
	PM			Signal	0.572	A
4. Anita Drive/SR-57 SB Ramps at Chapman Avenue	AM	Orange/ Caltrans	D	6Ø Traffic	0.600	B
	PM			Signal	0.639	B
5. SR-57 NB Ramps at Chapman Avenue	AM	Orange/ Caltrans	D	3Ø Traffic	0.509	A
	PM			Signal	0.510	A
6. Flower Street at Chapman Avenue	AM	Orange	D	8Ø Traffic	0.405	A
	PM			Signal	0.455	A
7. Eckhoff Street at Chapman Avenue	AM	Orange	D	One-Way	19.7 s/v	C
	PM			Stop	25.3 s/v	D
8. Feldner Road at Chapman Avenue	AM	Orange	D	8Ø Traffic	0.391	A
	PM			Signal	0.412	A
9. Main Street at Maple Avenue	AM	Orange	D	Two-Way	119.9 s/v	F
	PM			Stop	261.4 s/v	F
10. Main Street at Chapman Avenue	AM	Orange	D	8Ø Traffic	0.687	B
	PM			Signal	0.683	B
11. Main Street at Almond Avenue	AM	Orange	D	5Ø Traffic	0.527	A
	PM			Signal	0.495	A
12. Batavia Street at Chapman Avenue	AM	Orange	D	8Ø Traffic	0.494	A
	PM			Signal	0.610	B

Notes:

- **BOLD ICU/LOS** and **HCM/LOS** values indicate unacceptable service level
- s/v = seconds per vehicle

**TABLE 3-5
EXISTING ROADWAY SEGMENT LEVEL OF SERVICE SUMMARY**

Key Roadway Segment	Jurisdiction	Min. Acc. LOS	(1) No. of Existing Lanes	(2) Arterial Classification	(3) Existing Capacity at LOS "E"	(4) Existing Traffic Conditions		
						Daily Volume	V/C Ratio	LOS
A. Chapman Avenue between SR-57 NB Ramps and Flower Street	Orange	C	6D	Major	56,300	35,464	0.630	B
B. Chapman Avenue between Flower Street and Eckhoff Street	Orange	C	6D	Major	56,300	32,126	0.571	A
C. Chapman Avenue between Eckhoff Street and Feldner Road	Orange	C	6D	Major	56,300	29,570	0.525	A
D. Chapman Avenue between Feldner Road and Main Street	Orange	C	6D	Major	56,300	27,951	0.496	A
E. Chapman Avenue between Main Street and Batavia Street	Orange	C	4D	Primary	37,500	19,120	0.510	A

4.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the potential unacceptable operational traffic characteristics of the proposed Project, a multi-step process has been utilized. The first step is trip generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the project development tabulation.

The second step of the forecasting process is trip distribution, which identifies the origins and destinations of inbound and outbound project traffic. These origins and destinations are typically based on demographics and existing/anticipated 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 operational traffic conditions of the proposed Project are isolated by comparing operational (LOS) conditions at selected key intersections using expected future traffic volumes with and without forecast project traffic. If necessary, the need for site-specific and/or cumulative local area traffic circulation improvements can then be evaluated.

5.0 PROJECT TRAFFIC CHARACTERISTICS

5.1 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].

Table 5-1 summarizes the trip generation rates and/or equations used in forecasting the vehicular trips generated by the existing land use and the proposed Project and presents the forecast daily and peak hour project traffic volumes for a “typical” weekday. As shown in the upper portion of **Table 5-1**, the trip generation potential of the existing land use is conservatively estimated using ITE Land Use 710: General Office Building trip rates. The trip generation potential of the proposed Project is estimated using ITE Land Use 536: Charter Elementary School trip rates. It should be noted that per the *Trip Generation* manual, a Charter Elementary School is a school that serves students attending Kindergarten through the 5th, 6th or 8th grade and is therefore appropriate for use in determining the potential trip generation of the proposed Project.

A review of the middle portion of **Table 5-1** indicates that the proposed Project is forecast to generate approximately 1,598 daily trips, with 899 trips (467 inbound, 432 outbound) produced in the AM peak hour and 138 trips (48 inbound, 90 outbound) produced in the PM peak hour on a “typical” weekday. *The potential impact of these Project trips (i.e. 899 AM trips and 138 PM trips) will be assessed in the traffic study.* It should be noted that the trip generation methodology and forecasts were approved by City of Orange staff prior to proceeding with further analysis.

For informational purposes, further review of the lower portion of **Table 5-1** indicates that the existing land use is forecast to generate approximately 422 daily trips, with 67 trips (59 inbound, 8 outbound) produced in the AM peak hour and 64 trips (10 inbound, 54 outbound) produced in the PM peak hour on a “typical” weekday. As shown at the bottom of **Table 5-1**, comparison of the trips generated by the existing land use to the trips generated by the proposed Project shows that the proposed Project will generate 1,176 greater daily trips, 832 greater AM peak hour trips, and 74 greater PM peak hour trips.

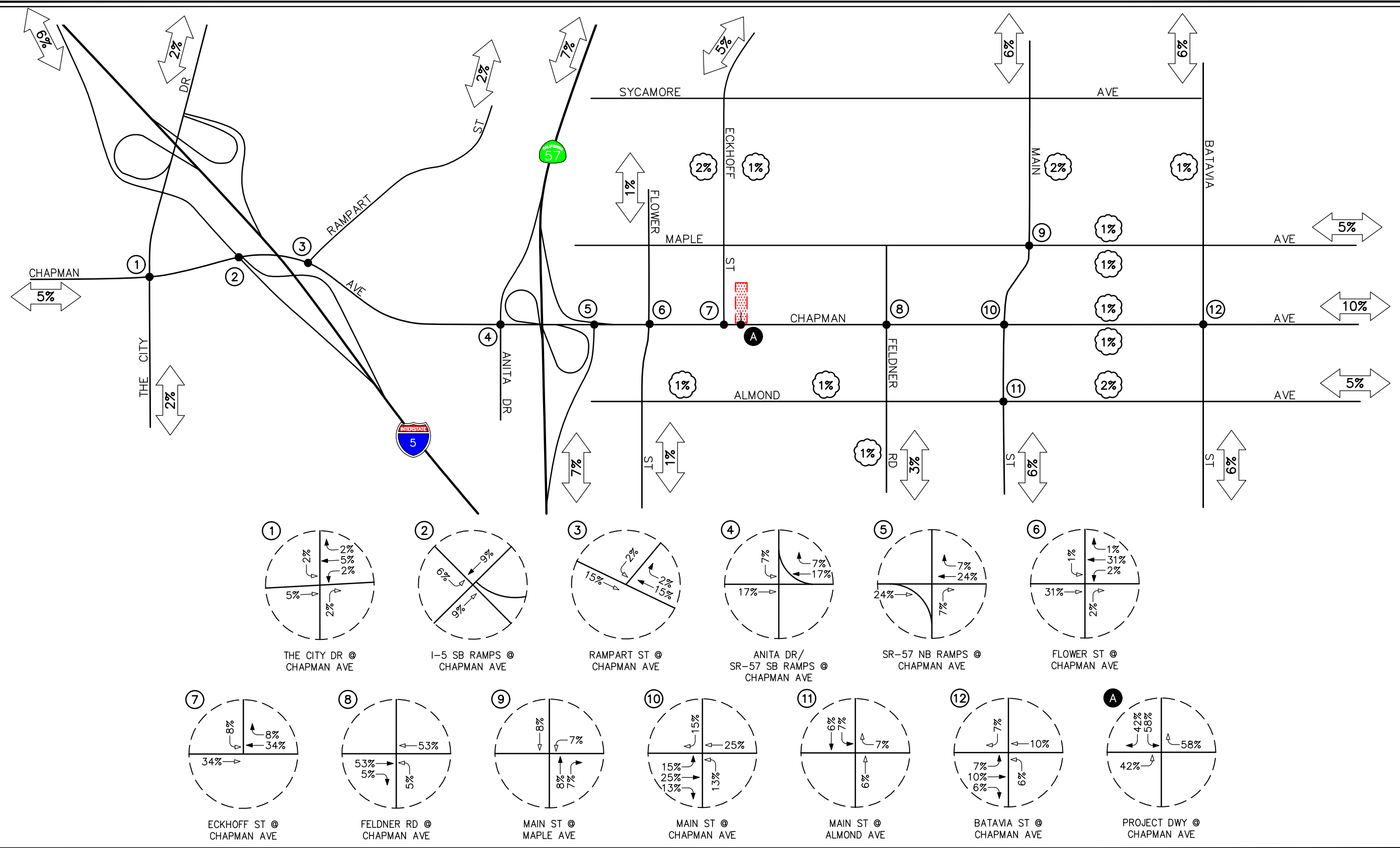
5.2 Project Traffic Distribution and Assignment

The general, directional traffic distribution pattern for the proposed Project is presented in **Figure 5-1**. Project traffic volumes both entering and exiting the project site have been distributed and assigned to the adjacent street system based on the following considerations:

- the site's proximity to major traffic carriers (i.e. Chapman Avenue, Main Street, I-5 Freeway, SR-57 Freeway, etc.),
- expected localized traffic flow patterns based on adjacent street channelization and presence of traffic signals, and

- ingress/egress availability at the project site.

The anticipated AM and PM peak hour project traffic volumes associated with the proposed Project are presented in **Figures 5-2** and **5-3**, respectively. *Figure 5-3* also presents the daily project traffic volumes for the proposed Project. The traffic volume assignments presented in *Figures 5-2* and *5-3* reflect the traffic distribution characteristics shown in *Figure 5-1* and the traffic generation forecast presented in *Table 5-1*.



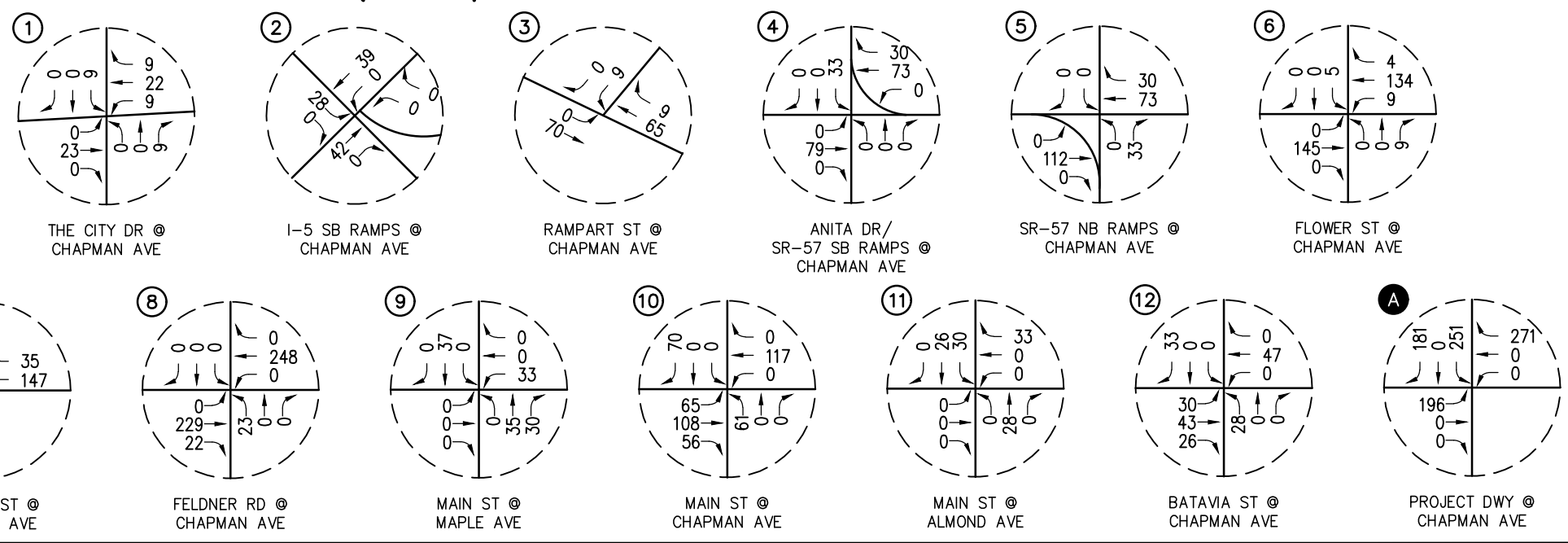
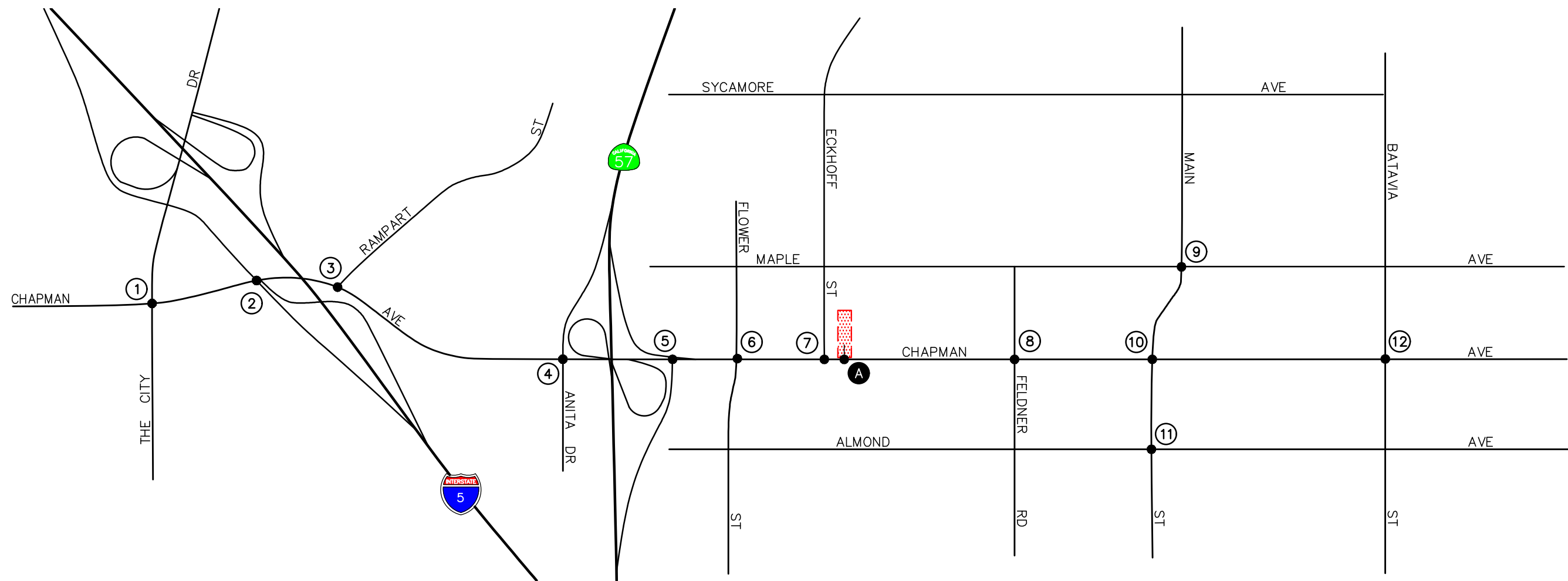
KEY

- # = STUDY INTERSECTION
- ← = INBOUND PERCENTAGE
- = OUTBOUND PERCENTAGE
- ▤ = PROJECT SITE

FIGURE 5-1



PROJECT TRAFFIC DISTRIBUTION PATTERN
CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

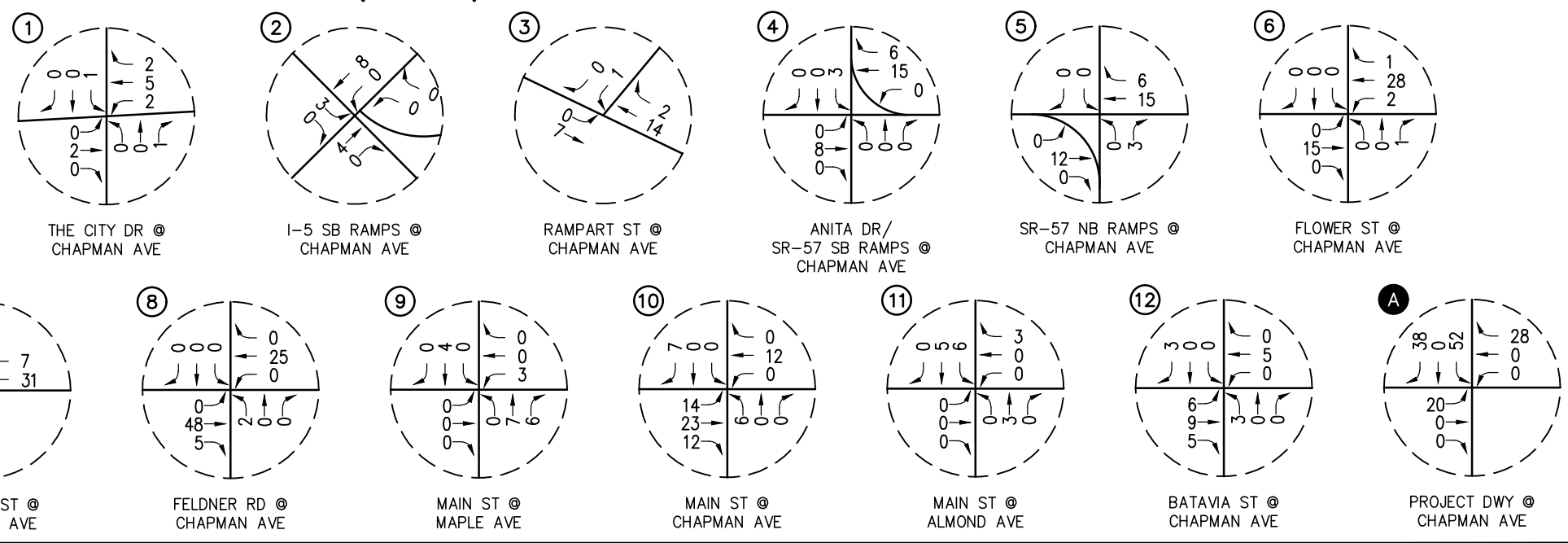
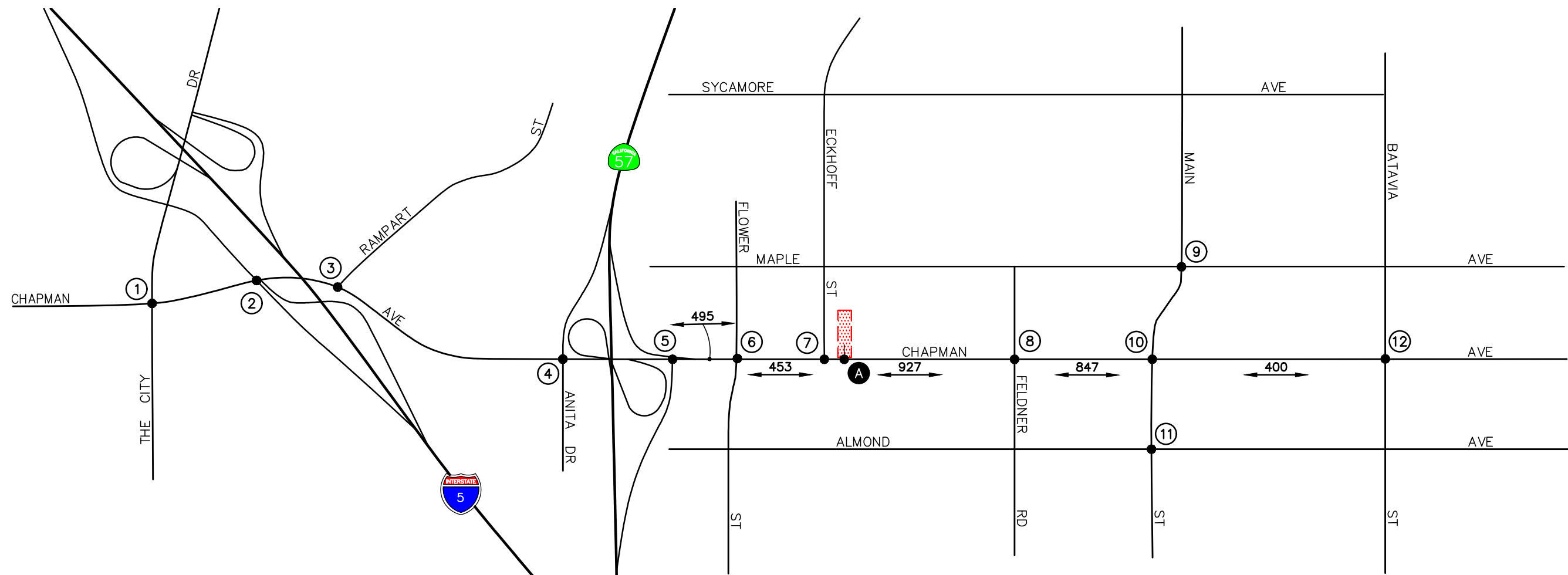


KEY
 # = STUDY INTERSECTION
 = PROJECT SITE



FIGURE 5-2

AM PEAK HOUR PROJECT TRAFFIC VOLUMES
 CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE



KEY

- # = STUDY INTERSECTION
- XX,XXX = DAILY TRAFFIC VOLUMES
- [Red Hatched Box] = PROJECT SITE

FIGURE 5-3

PM PEAK HOUR AND DAILY PROJECT TRAFFIC VOLUMES
CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE



**TABLE 5-1
PROJECT TRAFFIC GENERATION FORECAST⁴**

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
<u>Trip Generation Rates:</u>							
▪ 536: Charter Elementary School (TE/Student)	1.85	52%	48%	1.04	35%	65%	0.16
▪ 710: General Office Building (TE/TSF)	7.83	88%	12%	1.24	16%	84%	1.18
<u>Proposed Project Trip Generation Forecast:</u>							
▪ Charter School Project (864 Students)	1,598	467	432	899	48	90	138
<u>Existing Land Use Trip Generation Forecast:</u>							
▪ Existing Buildings (53,913 SF)	422	59	8	67	10	54	64
Net Project Trip Generation Forecast (Proposed Project vs. Existing Land Use)	+1,176	+408	+424	+832	+38	+36	+74

Notes:

- TE/Student = Trip End per Student
- TE/TSF = Trip End per Thousand Square Feet

⁴ Source: Trip rates based on *Trip Generation, 12th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2025)*.

6.0 FUTURE TRAFFIC CONDITIONS

6.1 Ambient Traffic Growth

Horizon year, background traffic growth estimates have been calculated using an ambient traffic growth factor. The ambient traffic growth factor is intended to include unknown and future cumulative 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 future growth in traffic volumes has been calculated at one percent (1.0%) per year. Applied to the Year 2025 existing traffic volumes, this factor results in a 2.0% growth in existing volumes to the near-term horizon year 2027.

6.2 Cumulative Projects Traffic Characteristics

In order to make a realistic estimate of future on-street conditions prior to implementation of the proposed Project, the status of other known development projects (cumulative projects) in the vicinity of the proposed Project has been researched at the City of Orange and the City of Anaheim. With this information, the potential impact of the proposed Project can be evaluated within the context of the cumulative impact of all ongoing development.

Based on our research, there are six (6) cumulative projects in the City of Orange and nine (9) cumulative projects in the City of Anaheim within the vicinity of the subject site that have either been built, but not yet fully occupied, or are being processed for approval. These fifteen (15) planned and/or approved cumulative projects were considered in the cumulative traffic analysis for this project.

Table 6-1 provides a brief description for each of the fifteen (15) cumulative projects. *Figure 6-1* graphically illustrates the location of the cumulative projects. These cumulative projects are expected to generate vehicular traffic, which may affect the operating conditions of the key study intersections and/or roadway segments.

Table 6-2 presents the trip generation for the fifteen (15) cumulative projects. As shown in *Table 6-2*, the fifteen (15) cumulative projects are forecast to generate a total of 35,991 daily trips, with 2,038 trips (934 inbound and 1,104 outbound) forecast during the AM peak hour and 3,053 trips (1,781 inbound and 1,272 outbound) forecast during the PM peak hour.

6.3 Year 2027 Traffic Volumes

The AM and PM peak hour traffic volumes associated with the fifteen (15) cumulative projects are presented in *Figures 6-2* and *6-3*, respectively. *Figure 6-3* also presents the daily cumulative project traffic volumes.

Figures 6-4 and *6-5* present the AM and PM peak hour cumulative traffic volumes (existing traffic + ambient growth traffic + cumulative project traffic) at the key study intersections for the Year 2027, respectively. *Figure 6-5* also presents the Year 2027 daily cumulative traffic volumes.

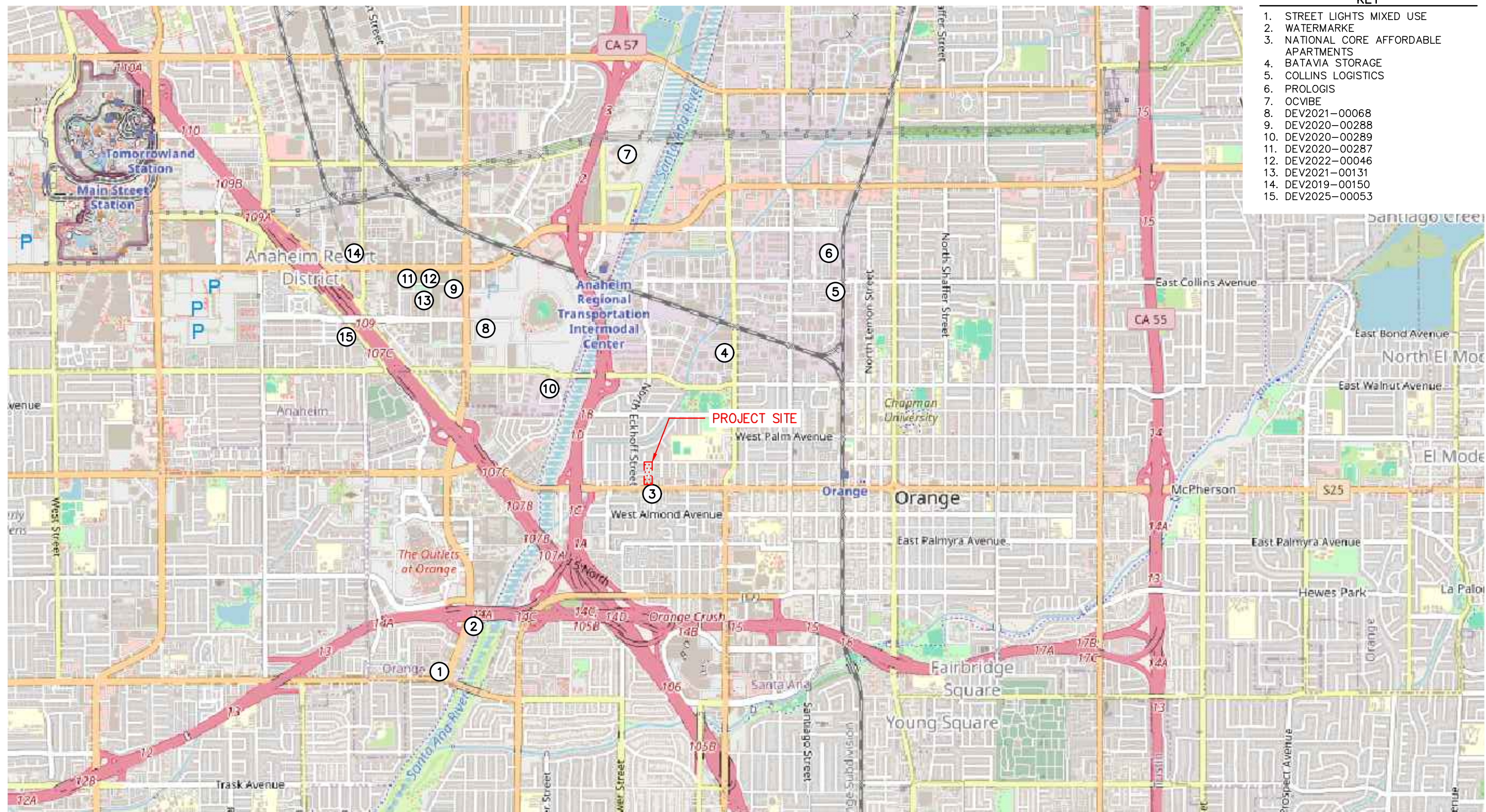
Figures 6-6 and *6-7* illustrate the Year 2027 forecast AM and PM peak hour traffic volumes, with the inclusion of the trips generated by the proposed Project, respectively. *Figure 6-7* also presents the Year 2027 daily cumulative plus project traffic volumes.

6.4 General Plan Buildout Traffic Conditions

Year 2050 traffic volume forecasts for this traffic study were developed via the utilization of the OCTAM 5.1 Year 2050 traffic model provided by OCTA. Specifically, AM peak period and PM peak period link traffic volumes were provided by OCTA for the existing base year (i.e. Year 2019) and for the Year 2050 year. The AM peak period corresponds to a three-hour morning commute period while the PM peak period corresponds to a four-hour afternoon commute period. Using the peak period model runs and the OCTA approved peak hour factors (i.e. AM = 0.3566 and PM = 0.2662), the one-hour peak hour link traffic volumes were determined. These future year 2050 link traffic volumes were post-processed based on the relationship of the base year validation model run output to the base year ground traffic counts resulting in Year 2050 without Project daily traffic volumes for the roadway segments and AM peak hour/PM peak hour turning movements for the key study intersections.

Figures 6-8 and *6-9* present the AM and PM peak hour General Plan Buildout traffic volumes at the twelve (12) key study intersections, respectively. *Figure 6-9* also presents the daily General Plan Buildout traffic volumes.

Figures 6-10 and *6-11* present the AM and PM peak hour General Plan Buildout with Project traffic volumes at the twelve (12) key study intersections, respectively. *Figure 6-11* also presents the daily General Plan Buildout with Project traffic volumes.



- KEY**
1. STREET LIGHTS MIXED USE
 2. WATERMARKE
 3. NATIONAL CORE AFFORDABLE APARTMENTS
 4. BATAVIA STORAGE
 5. COLLINS LOGISTICS
 6. PROLOGIS
 7. OCVIBE
 8. DEV2021-00068
 9. DEV2020-00288
 10. DEV2020-00289
 11. DEV2020-00287
 12. DEV2022-00046
 13. DEV2021-00131
 14. DEV2019-00150
 15. DEV2025-00053

SOURCE: OPENSTREET

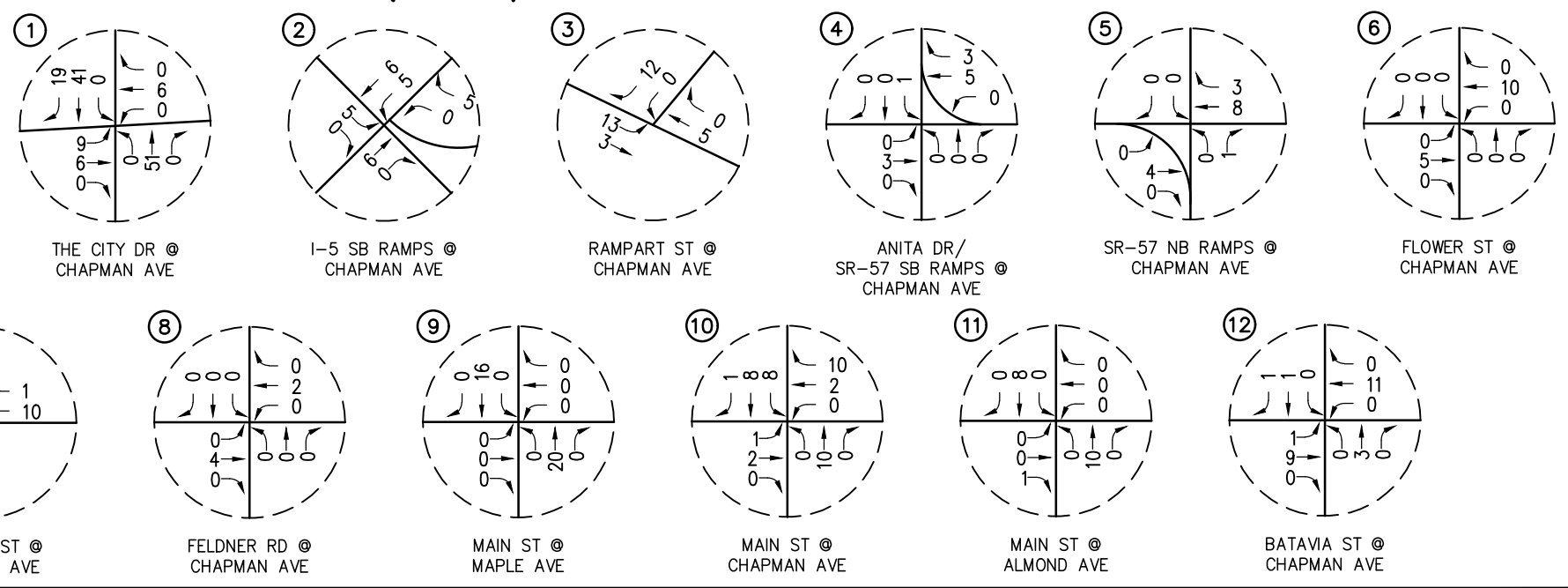
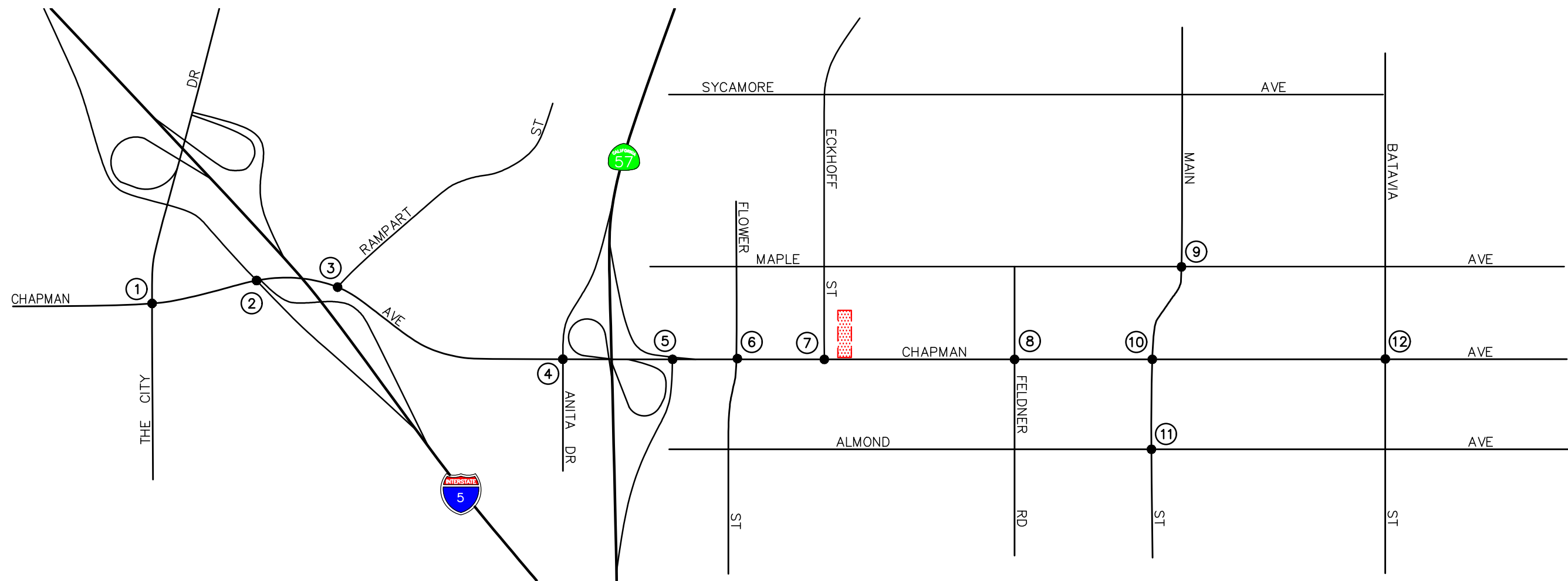
KEY

- # = LOCATION OF CUMULATIVE PROJECT
- = PROJECT SITE



FIGURE 6-1

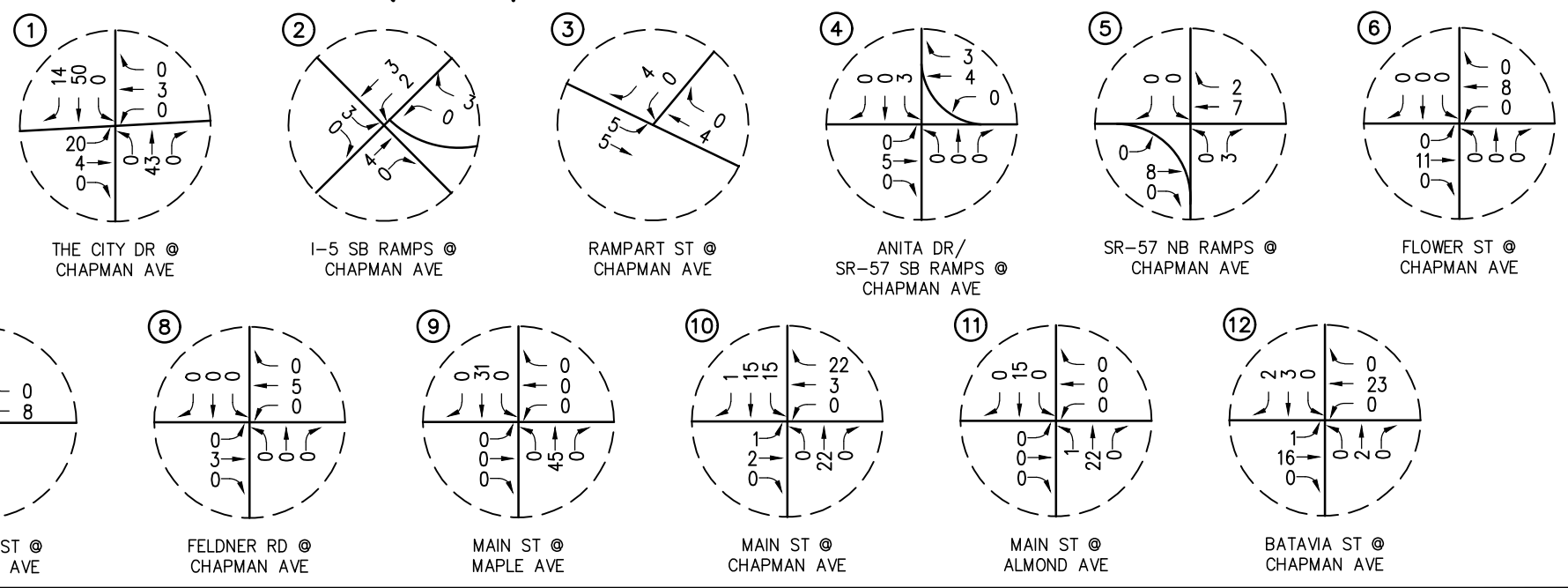
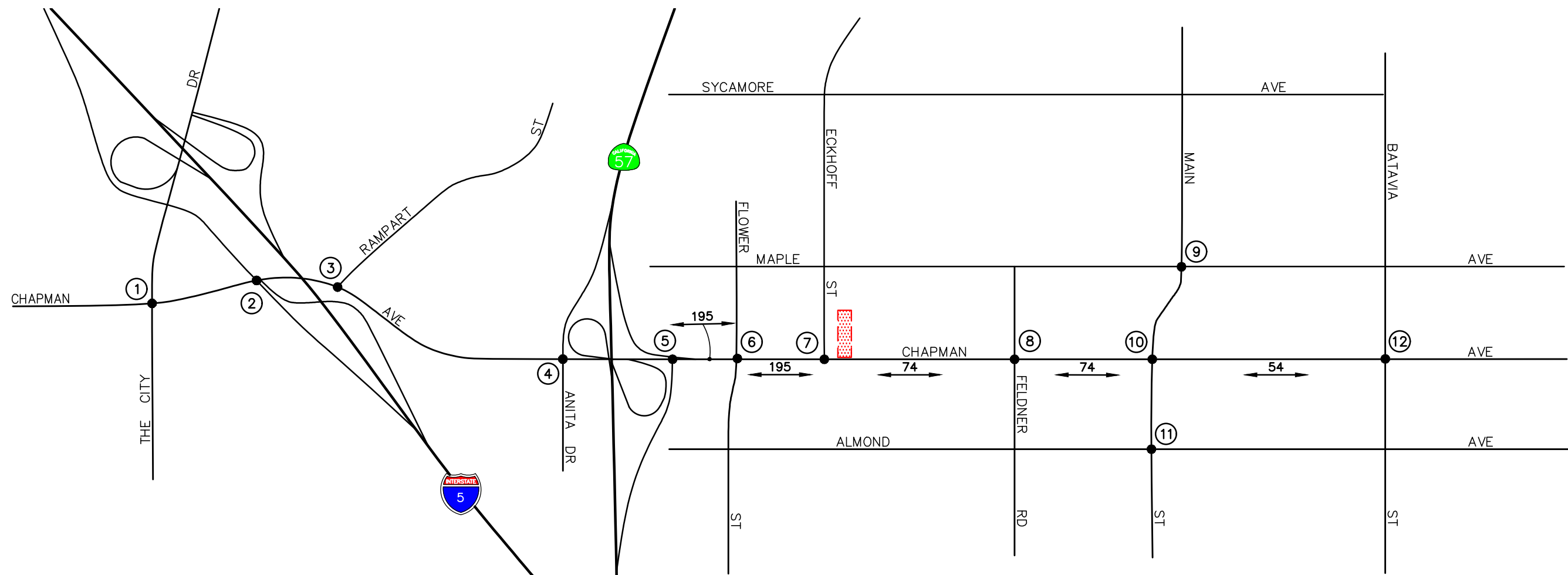
LOCATION OF CUMULATIVE PROJECTS
CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE



KEY
 # = STUDY INTERSECTION
 = PROJECT SITE



FIGURE 6-2
AM PEAK HOUR CUMULATIVE PROJECTS TRAFFIC VOLUMES
 CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

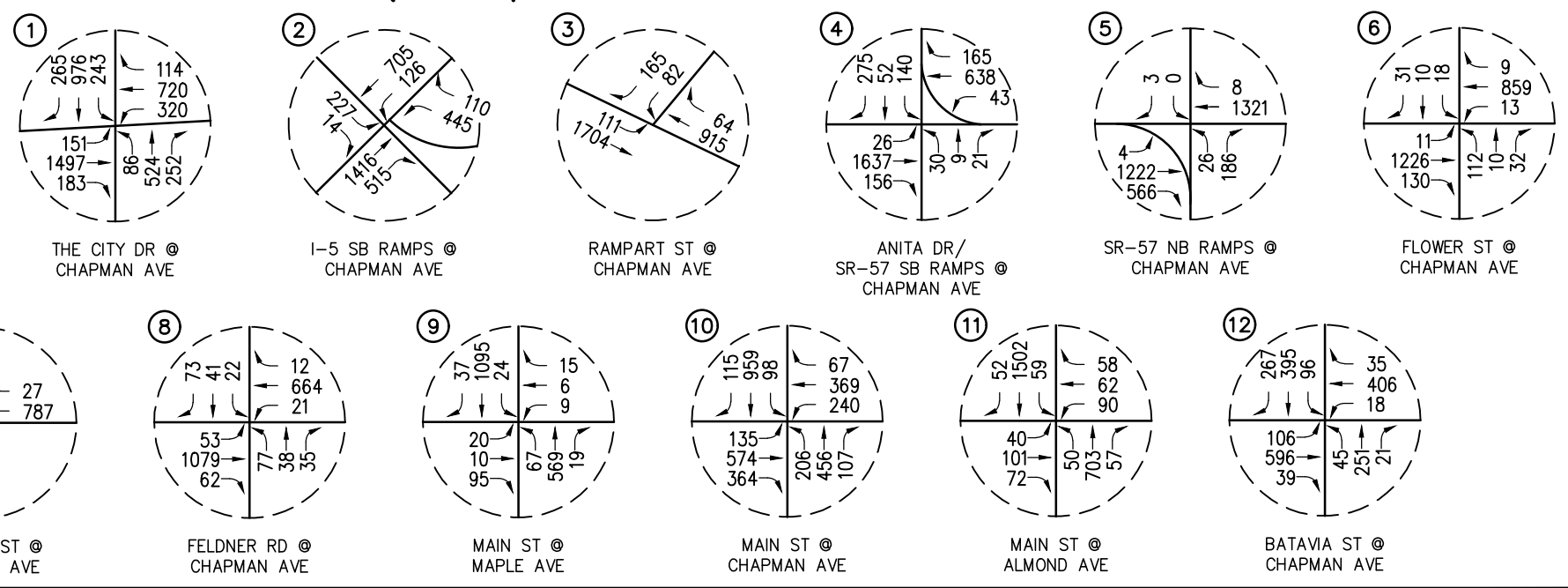
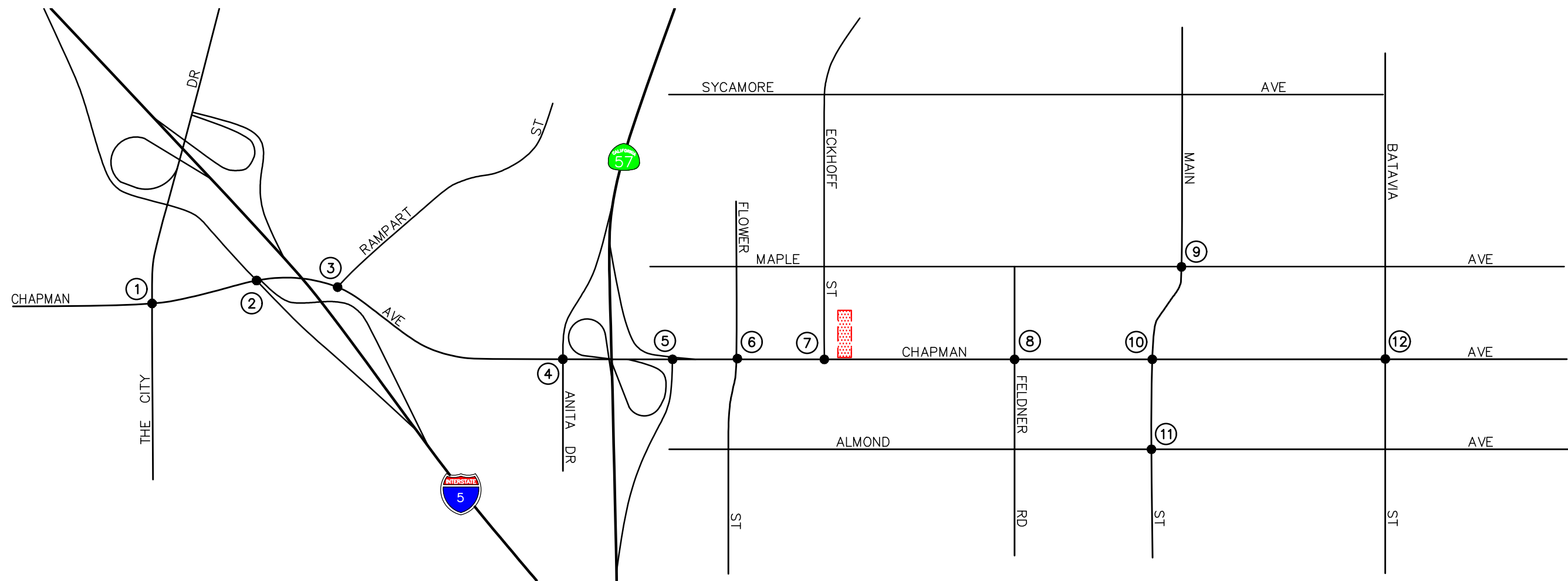


KEY

- # = STUDY INTERSECTION
- XX,XXX = DAILY TRAFFIC VOLUMES
- [Red Hatched Box] = PROJECT SITE



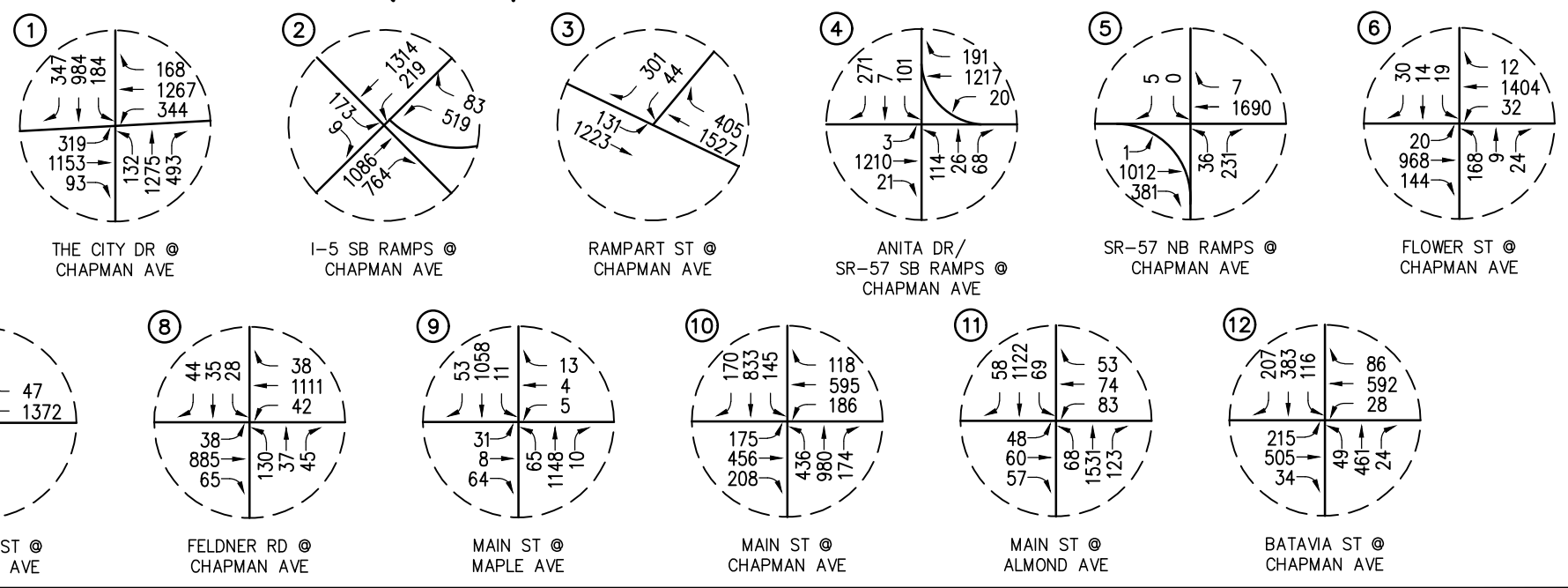
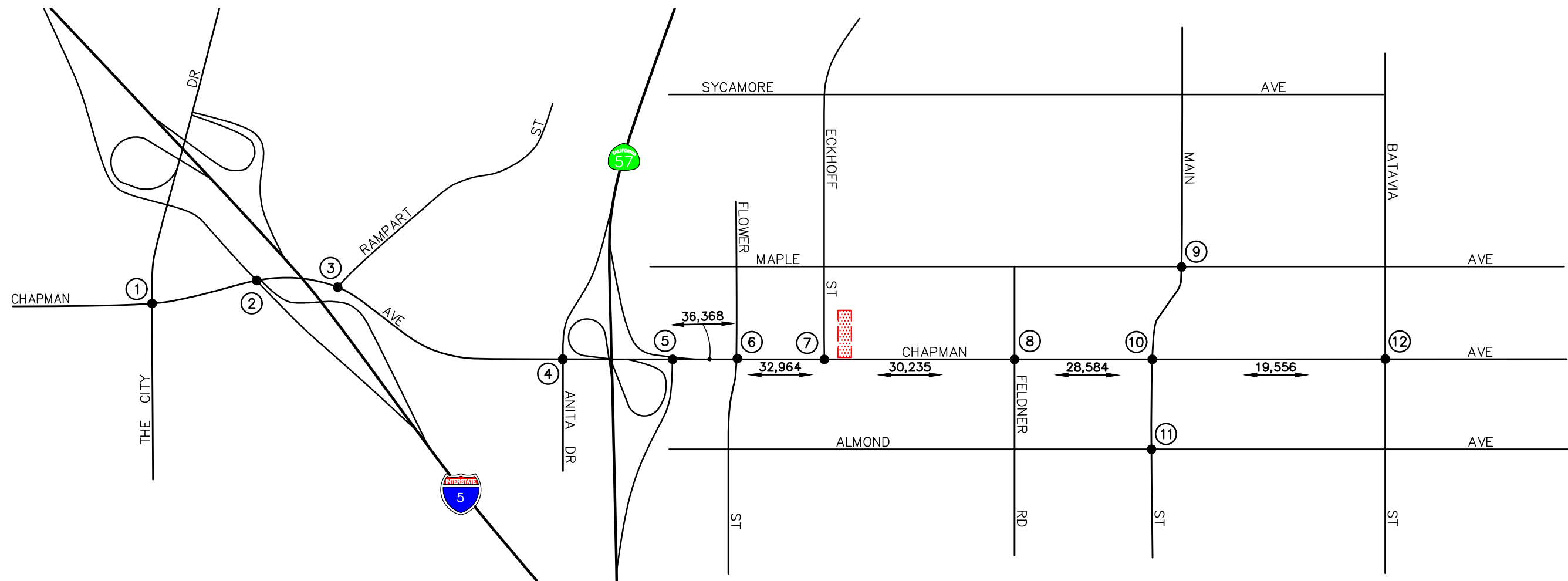
FIGURE 6-3
PM PEAK HOUR AND DAILY CUMULATIVE PROJECTS TRAFFIC VOLUMES
 CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE



KEY
 # = STUDY INTERSECTION
 = PROJECT SITE



FIGURE 6-4
 YEAR 2027 CUMULATIVE
 AM PEAK HOUR TRAFFIC VOLUMES
 CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

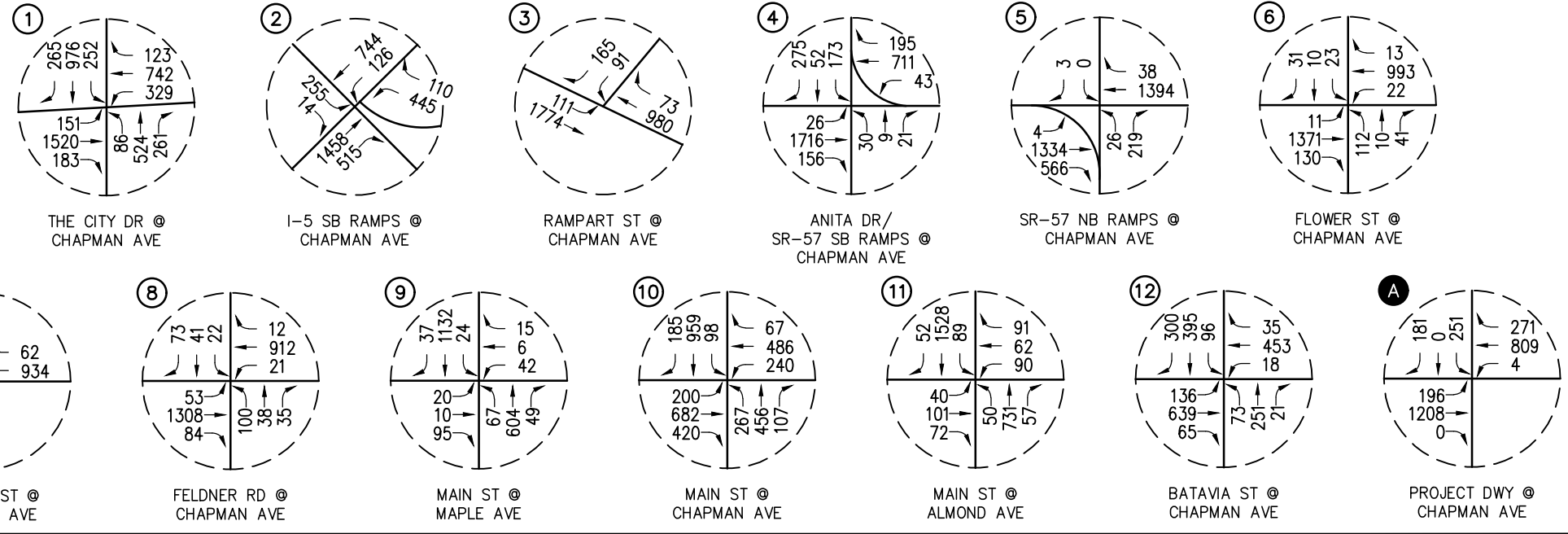
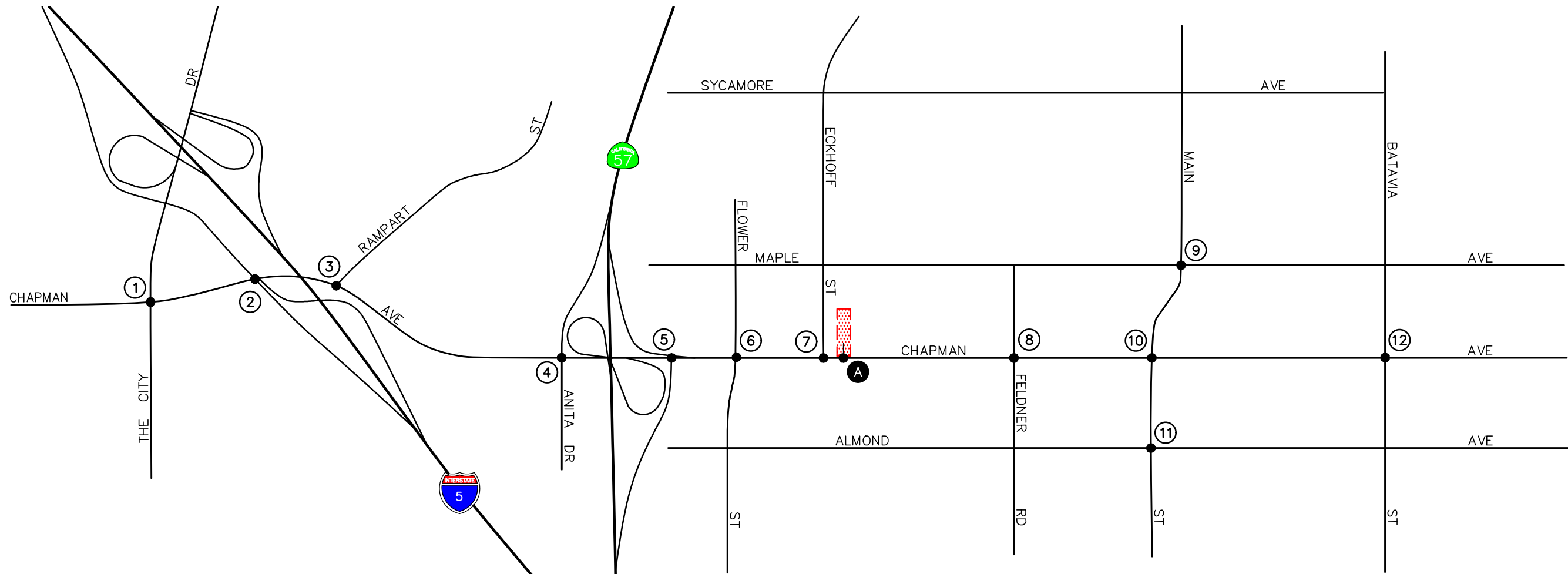


KEY

- # = STUDY INTERSECTION
- XX,XXX = DAILY TRAFFIC VOLUMES
- [Red Hatched Box] = PROJECT SITE



FIGURE 6-5
YEAR 2027 CUMULATIVE
PM PEAK HOUR AND DAILY TRAFFIC VOLUMES
 CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

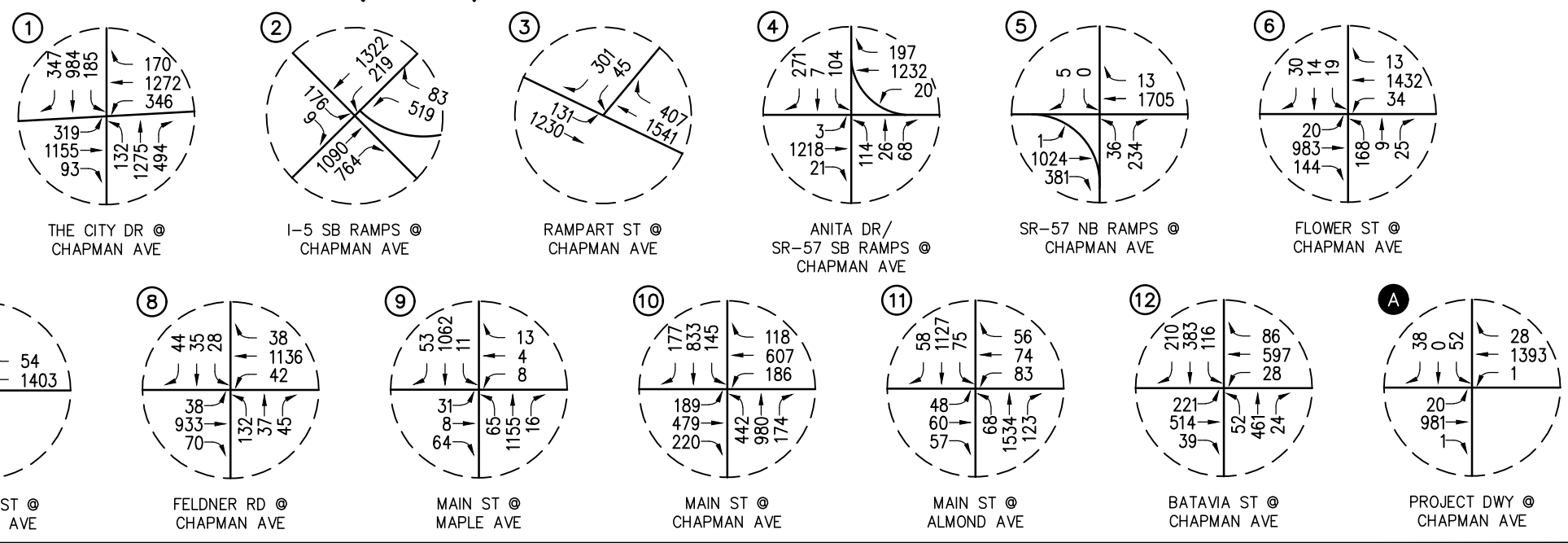
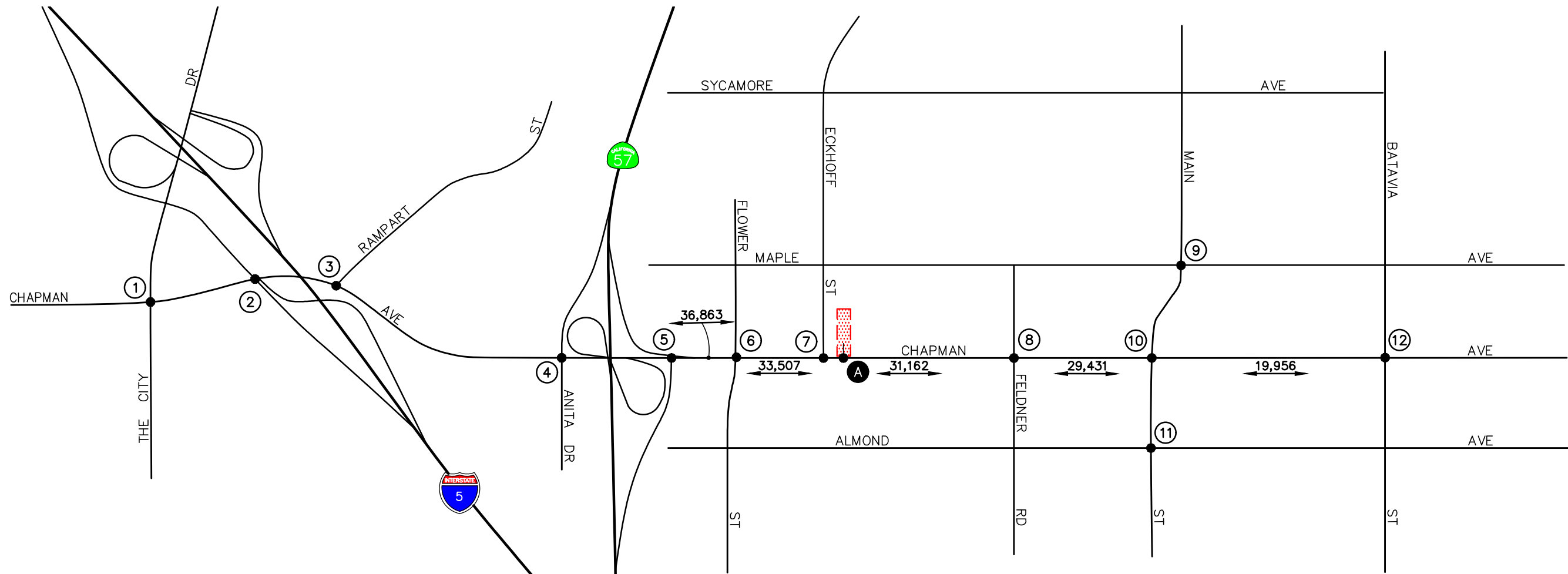


KEY
 # = STUDY INTERSECTION
 [Red Dotted Box] = PROJECT SITE



FIGURE 6-6
YEAR 2027 CUMULATIVE PLUS PROJECT
AM PEAK HOUR TRAFFIC VOLUMES
 CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

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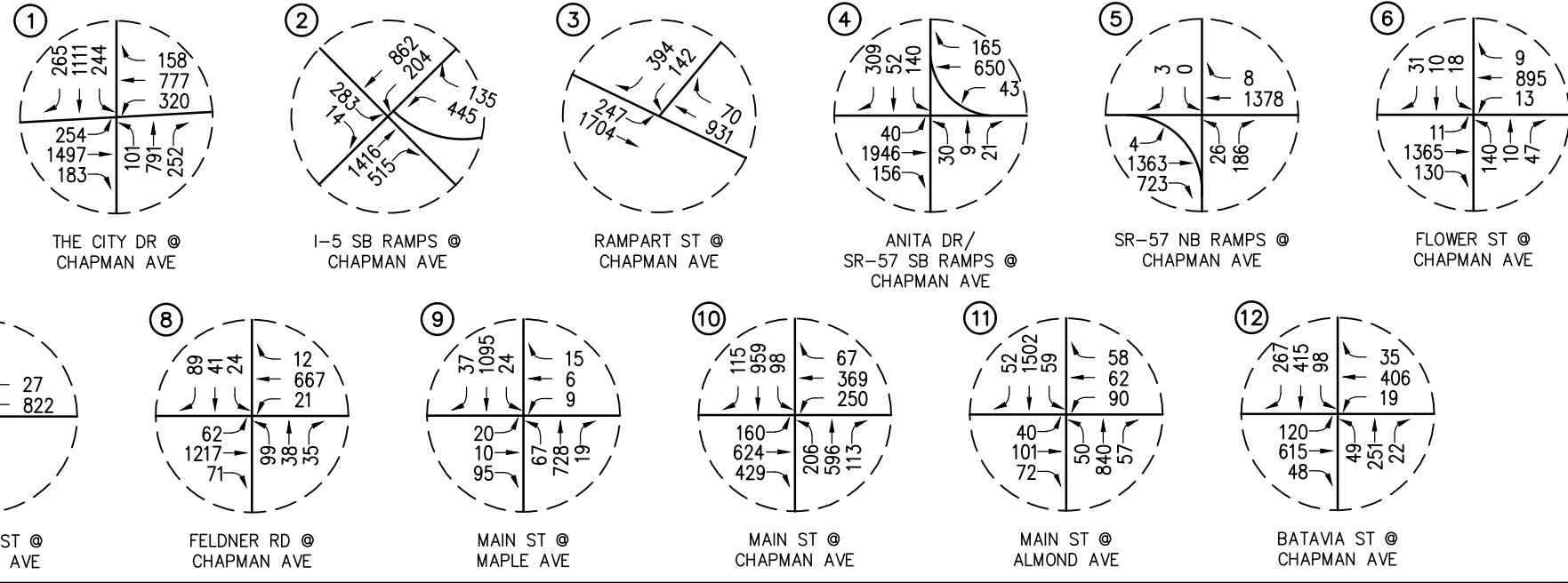
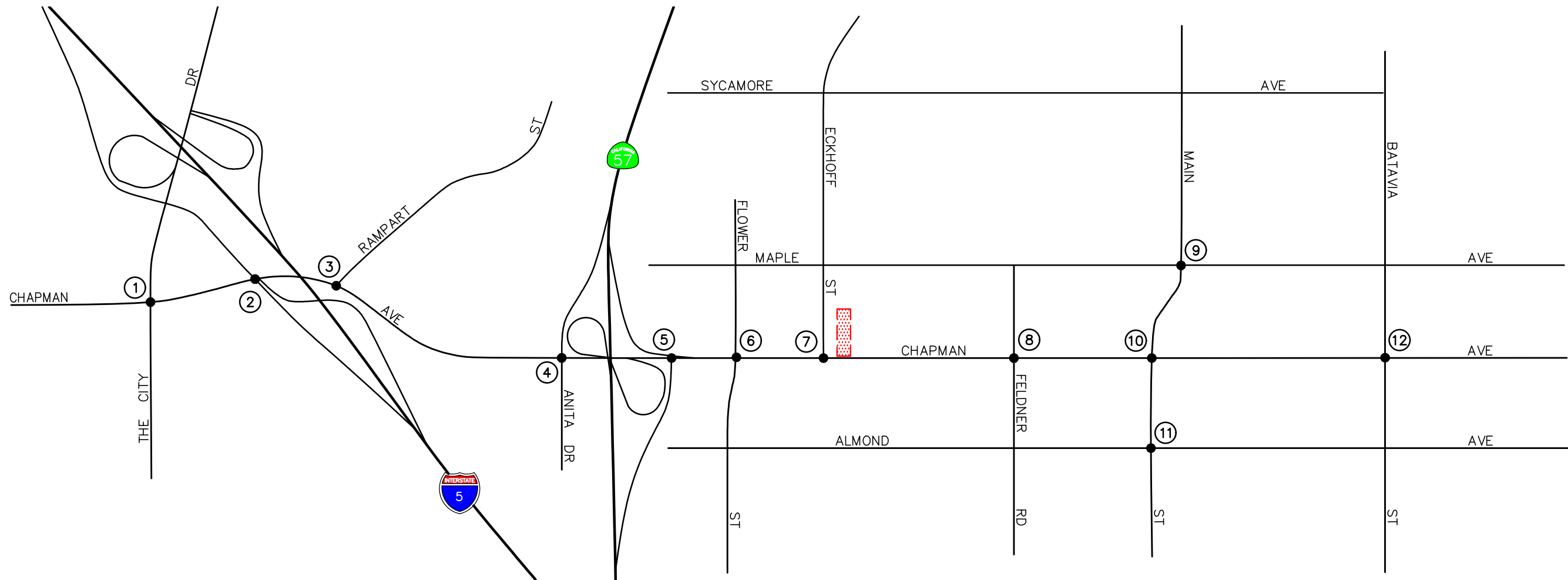
KEY

- # = STUDY INTERSECTION
- XX,XXX = DAILY TRAFFIC VOLUMES
- [Red Hatched Box] = PROJECT SITE



FIGURE 6-7
YEAR 2027 CUMULATIVE PLUS PROJECT
PM PEAK HOUR AND DAILY TRAFFIC VOLUMES
 CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

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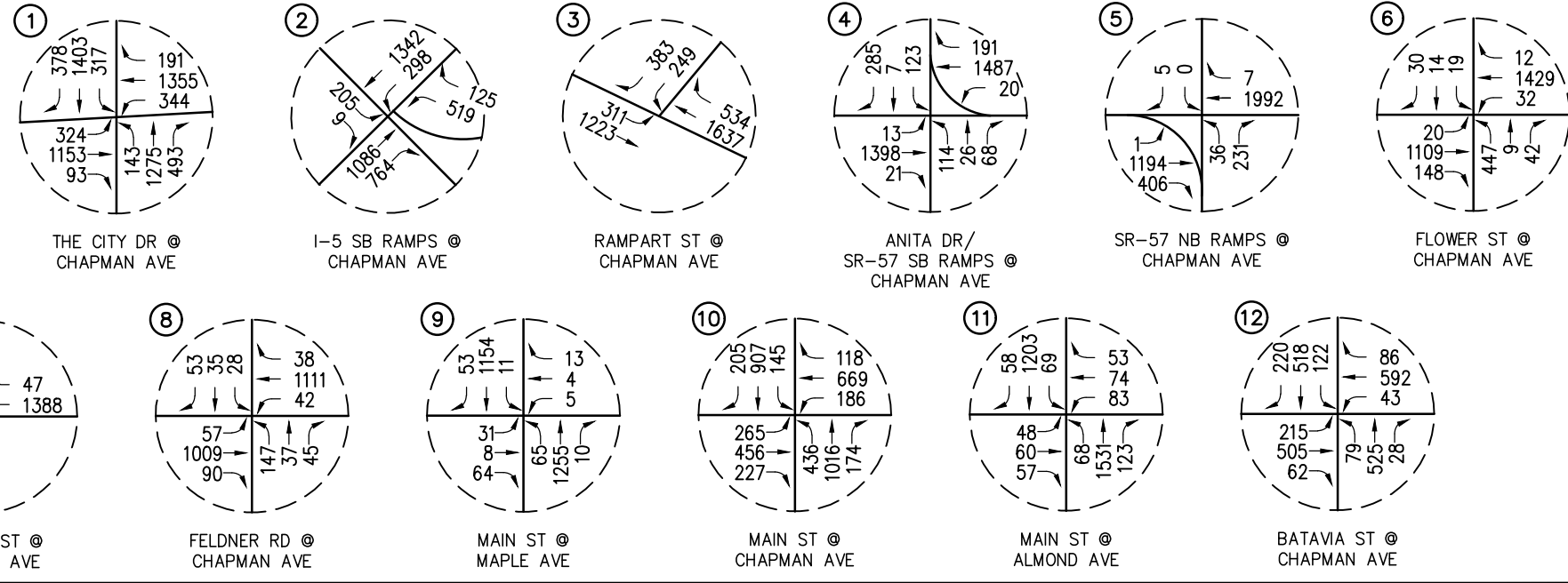
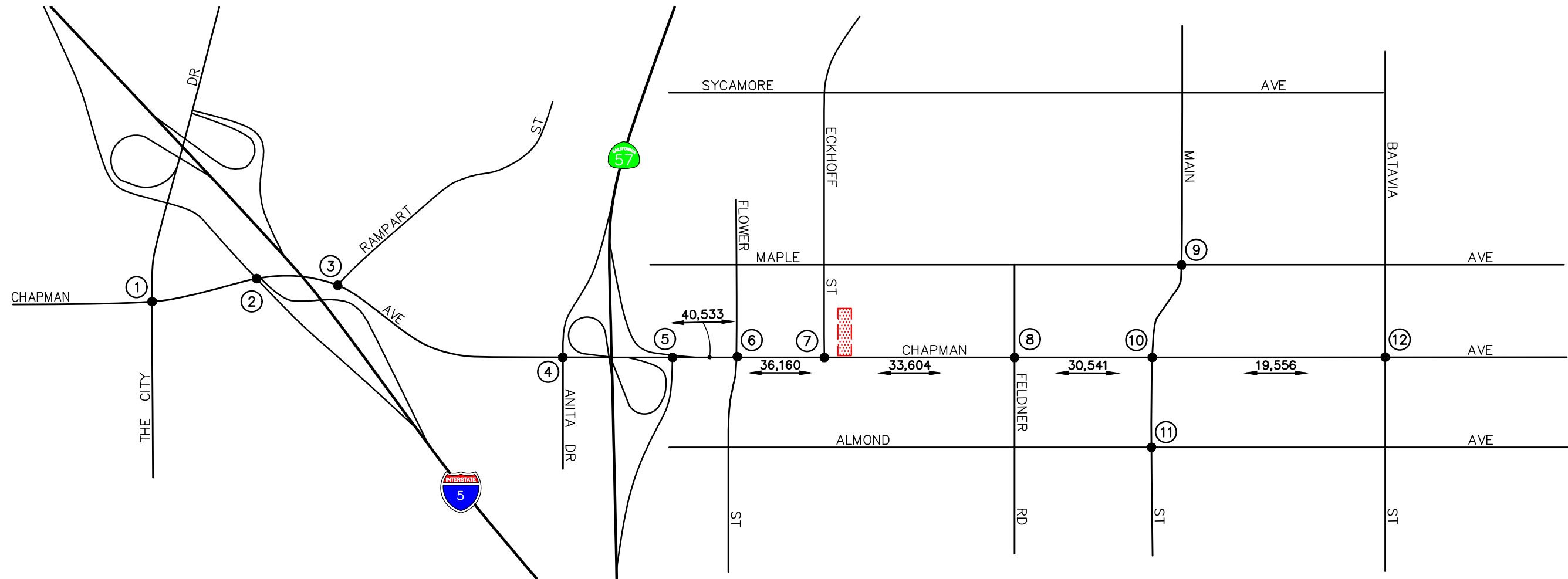


KEY
 # = STUDY INTERSECTION
 [Red Hatched Box] = PROJECT SITE



FIGURE 6-8
GENERAL PLAN BUILDOUT
AM PEAK HOUR TRAFFIC VOLUMES
 CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

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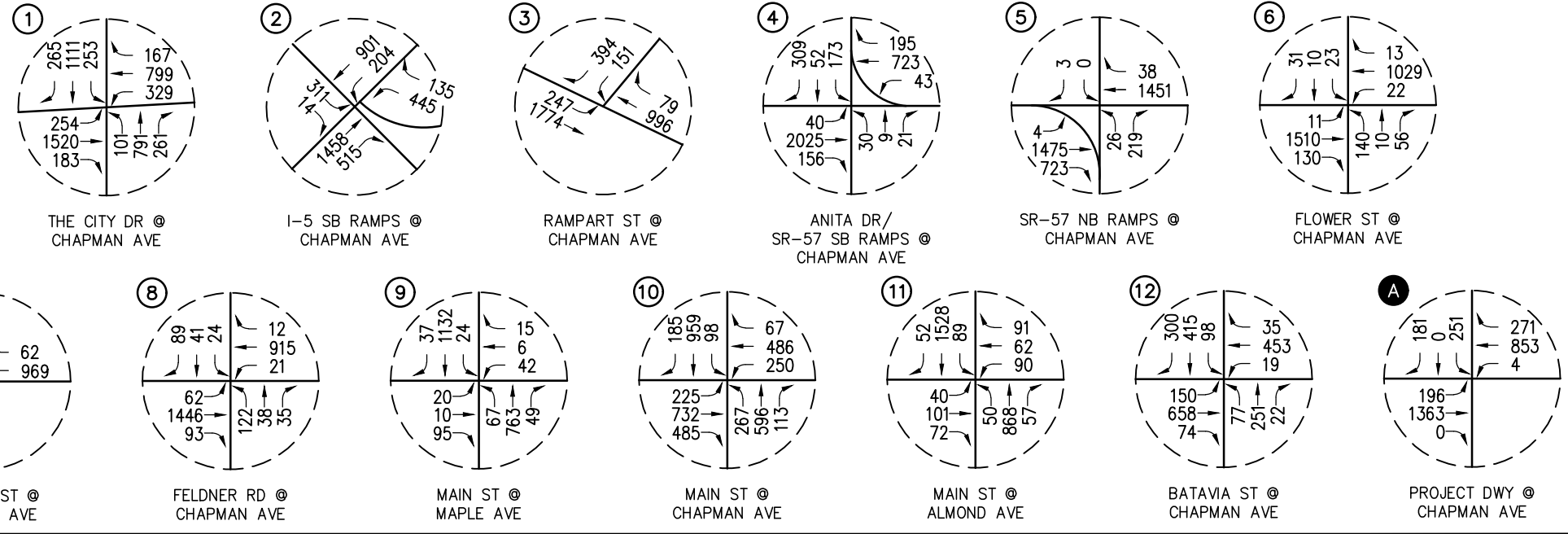
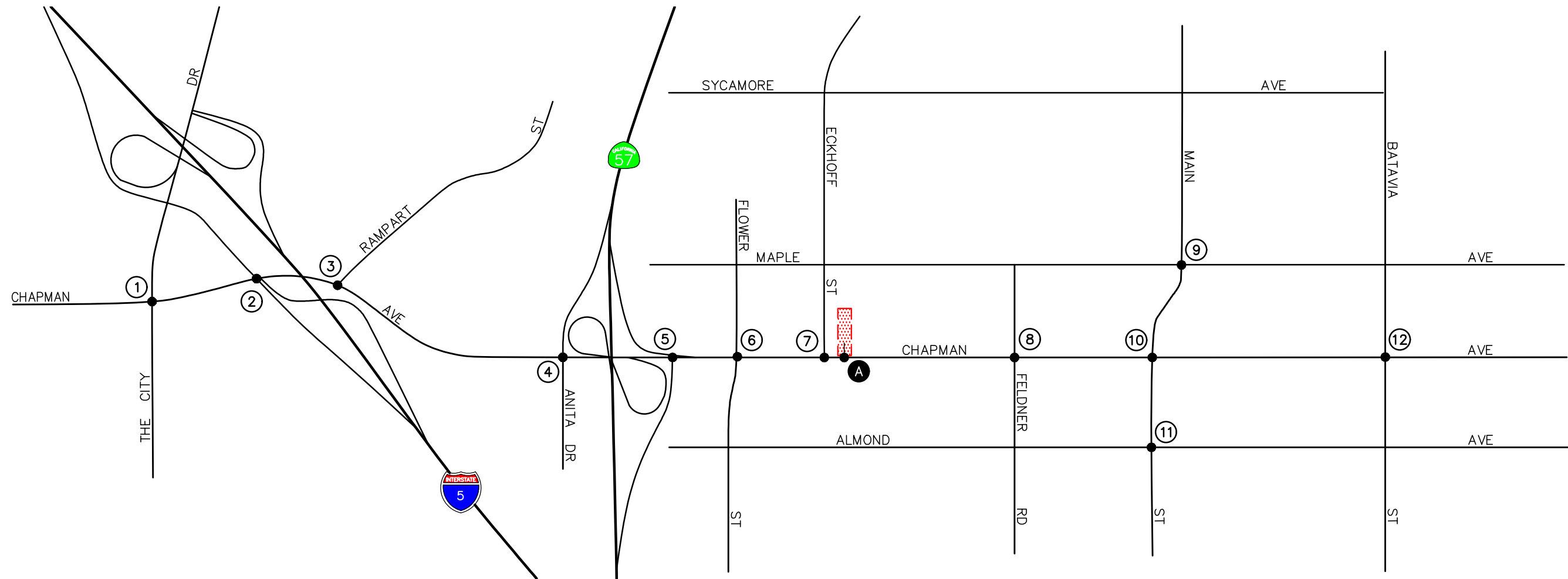


KEY

- # = STUDY INTERSECTION
- XX,XXX = DAILY TRAFFIC VOLUMES
- [Red Hatched Box] = PROJECT SITE

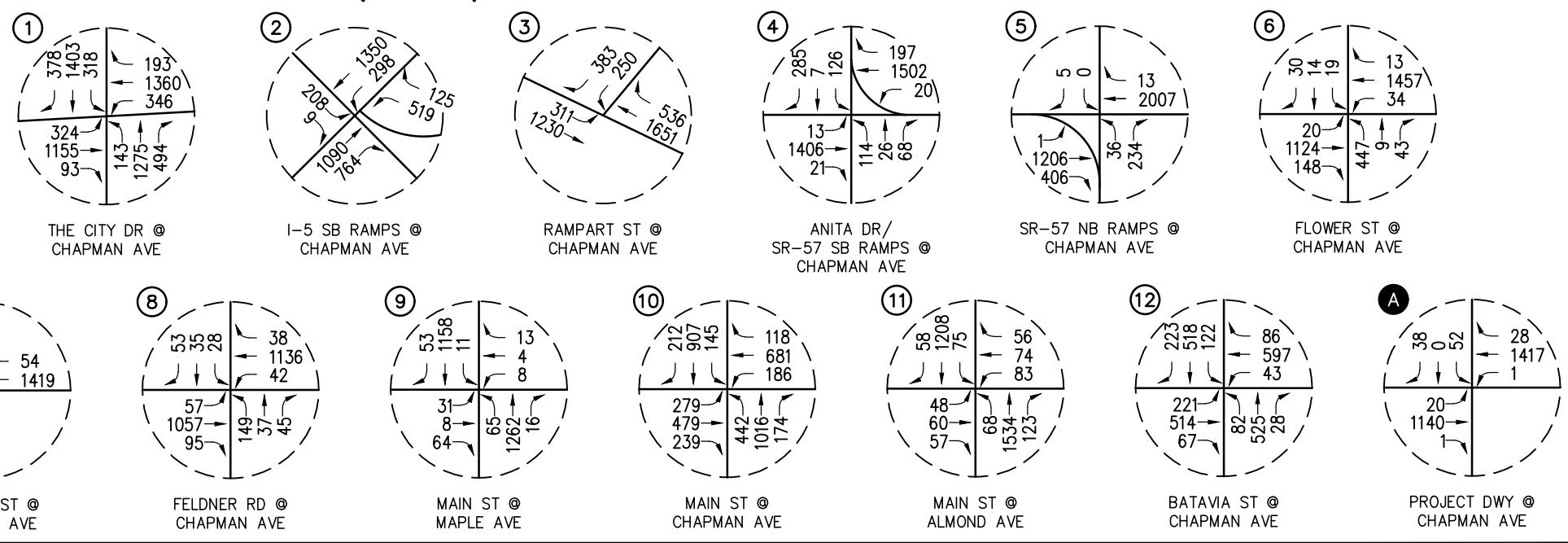
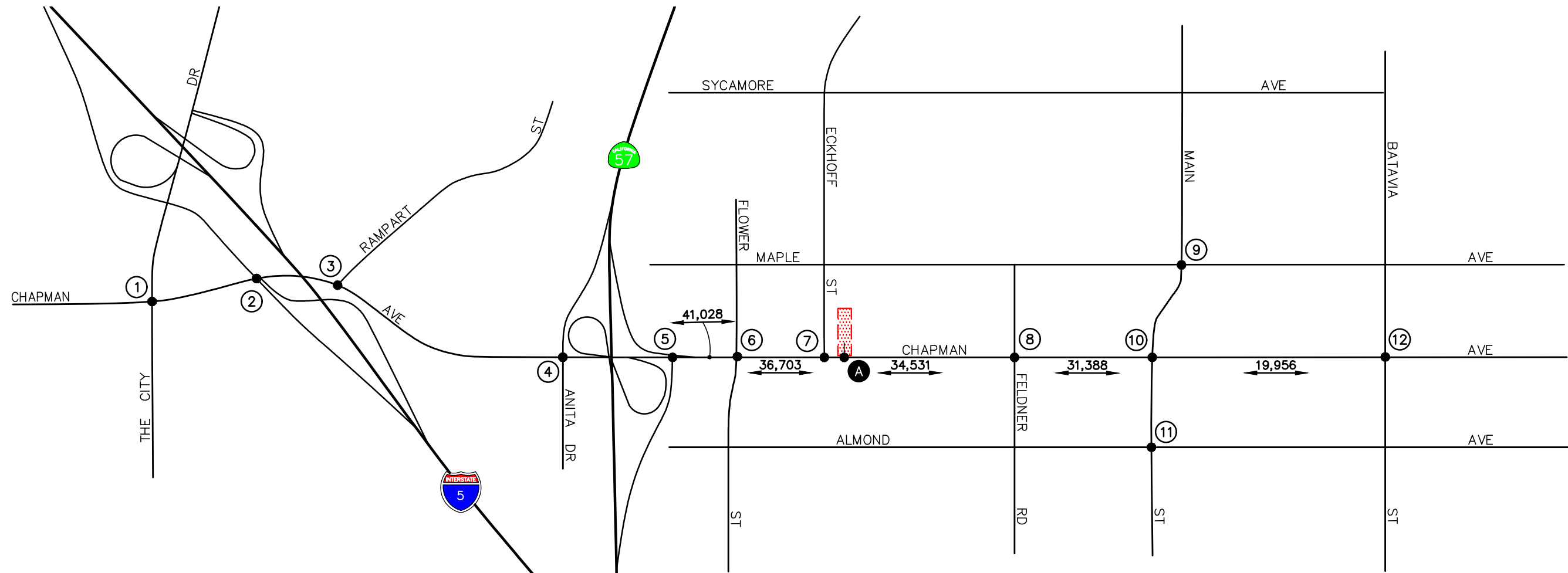


FIGURE 6-9
GENERAL PLAN BUILDOUT
PM PEAK HOUR AND DAILY TRAFFIC VOLUMES
 CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE



KEY
 # = STUDY INTERSECTION
 = PROJECT SITE

FIGURE 6-10
GENERAL PLAN BUILDOUT PLUS PROJECT
AM PEAK HOUR TRAFFIC VOLUMES
 CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE



KEY

- # = STUDY INTERSECTION
- XX,XXX = DAILY TRAFFIC VOLUMES
- [Red Hatched Box] = PROJECT SITE



FIGURE 6-11
GENERAL PLAN BUILDOUT PLUS PROJECT
PM PEAK HOUR AND DAILY TRAFFIC VOLUMES
 CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

**TABLE 6-1
LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS⁵**

No.	Cumulative Project	Location/Address	Description
<i>City of Orange</i>			
1.	Street Lights Mixed Use	840 The City Drive South	225 DU Multifamily Low Rise 9,169 SF Retail
2.	Watermarke	625 The City Drive South	401 DU Multifamily Low Rise
3.	National Core Affordable Apartments	164 S. Marks Way	50 DU Affordable Housing
4.	Batavia Self Storage	630 N. Batavia Avenue	133,372 SF Self-Storage
5.	Collins Logistics	500 W Collins Avenue	128,953 SF Warehouse
6.	Prologis	534 W Struck Avenue	213,572 SF Warehouse
<i>City of Anaheim</i>			
7.	OCVibe DEV2025-00019 DEV2023-00050 DEV2020-00125	1500 S Douglas Rd	530 DU Multifamily Low Rise 750 DU Multifamily Low Rise 325,000 SF Office 1,500 DU Multifamily Low Rise 490,000 SF Commercial Space 492,000 SF Office 550 Hotel Rooms
8.	DEV2021-00068	1900 S State College Blvd	22,607 SF Office
9.	DEV2020-00288	1845 State College Blvd	257 DU Multifamily Low Rise
10.	DEV2020-00289	2121 S Towne Centre Place	925 SF Café
11.	DEV2020-00287	1338 E Katella Avenue	270 DU Multifamily Low Rise 21,615 SF Commercial Space
12.	DEV2022-00046	1432 E Katella Avenue	253 DU Multifamily Low Rise 17,277 SF Commercial Space 255 DU Multifamily Low Rise
13.	DEV2021-00131	Tract 17703 Anaheim	73 Multifamily Low Rise
14.	DEV2019-00150	801 E Katella Avenue	28,640 SF Office
15.	DEV2025-00053	2001 Manchester Avenue	96 DU Single family Attached

Notes:

- DU = Dwelling Unit
- SF = Square-feet

⁵ Source: City of Orange and City of Anaheim Planning Departments.

**TABLE 6-2
CUMULATIVE PROJECTS TRAFFIC GENERATION FORECAST⁶**

Cumulative Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
1. Street Lights Mixed Use ⁷	2,091	107	112	219	82	65	147
2. Watermarke ⁸	1,821	34	114	148	95	61	156
3. National Core Affordable Apartments	241	5	13	18	14	9	23
4. Batavia Self Storage	172	6	5	11	9	10	19
5. Collins Logistics	178	12	3	15	5	14	19
6. Prologis	295	20	6	26	9	23	32
7. OCVibe ⁹	21,833	486	386	872	1,112	743	1,855
8. DEV2021-00068	177	25	3	28	4	23	27
9. DEV2020-00288	1,596	25	80	105	83	51	134
10. DEV2020-00289	292	43	41	84	15	14	29
11. DEV2020-00287	2,736	69	118	187	128	94	222
12. DEV2022-00046	3,251	52	162	214	168	101	269
13. DEV2021-00131	453	7	23	30	24	14	38
14. DEV2019-00150	224	32	4	36	5	29	34
15. DEV2025-00053	631	11	34	45	28	21	49
Cumulative Projects Total Trip Generation Potential	35,991	934	1,104	2,038	1,781	1,272	3,053

⁶ Unless otherwise noted, Source: *Trip Generation*, 12th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2025).

⁷ Source: *Traffic Impact Analysis Report for 840 The City Drive South Apartments* prepared by LLG Engineers, dated September 21, 2022.

⁸ Source: *Site Access Analysis for Watermarke Orange Project* prepared by LLG Engineers, dated October 31, 2024.

⁹ Source: *Opening Year Analysis for The OCVibe Mixed Use Project* prepared by Pirzadeh & Associates and Gibson Transportation Consulting, dated July 2022. Trip generation was based on land uses assumed for the Project opening year of 2027. Apartment, hotel, and office land uses occurring beyond 2027 were excluded from the analysis. Total trip generation for OC vibe is 36,457 net daily trips, with net 1,863 produced in the AM peak hour and 2,865 net trips produced in the PM peak hour on a “typical” weekday.

7.0 TRAFFIC IMPACT ANALYSIS METHODOLOGY

The relative traffic circulation effects of the proposed Project during the AM peak hour/PM peak hour and on a daily basis was evaluated based on analysis of future operating conditions at the twelve (12) key study intersections and five (5) key roadway segments, without, then with the proposed Project. The previously discussed capacity analysis procedures were utilized to investigate the future volume-to-capacity relationships and service level characteristics at each study intersection and roadway segment. The significance of the potential traffic circulation effects of the Project at each key intersection and key roadway segment was then evaluated using the following LOS criteria and thresholds.

7.1 Impact Criteria and Thresholds

Deficiencies to local and regional transportation systems located in the City of Orange are considered significant if:

Intersections:

- An unacceptable peak hour Level of Service (LOS) at any of the key intersections is projected. According to the City's Circulation Element and stated in the *City of Orange Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment, dated July 2025*, LOS D is the minimum acceptable condition that should be maintained during the morning and evening peak commute hours on all intersections; and
- The project increases traffic demand at the study intersection by 1% of capacity (ICU increase ≥ 0.010), causing or worsening LOS E or LOS F (ICU > 0.900). 0.010), causing or worsening LOS E or LOS F (ICU > 0.900).
- An unsignalized intersection impact is considered to be significant if the project causes an intersection operating at LOS D or better to degrade to LOS E or LOS F, and the traffic signal warrant analysis determines that a traffic signal is justified.

Roadway Segments:

- An unacceptable daily Level of Service (LOS) at any of the key roadway segments is projected. According to the City of Orange General Plan Circulation Element and stated in the *City of Orange Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment, dated July 2025*, LOS C is the minimum acceptable condition that should be maintained on a daily basis on all roadway segments; and
- The project increases traffic demand at the roadway segment by 1% of capacity (V/C increase ≥ 0.010), causing or worsening LOS E or LOS F (V/C > 0.900).

7.2 Traffic Impact Analysis Scenarios

The following scenarios are those for which volume/capacity calculations have been performed at the twelve (12) key study intersections and five (5) key roadway segments for existing, near-term (Year 2027), and General Plan Buildout traffic conditions:

- (a) Existing Traffic Conditions;
- (b) Near-Term (Year 2027) Cumulative Traffic Conditions,
- (c) Near-Term (Year 2027) Cumulative plus Project Traffic Conditions; and
- (d) Scenario (c) with Improvements, if necessary.
- (e) General Plan Buildout Traffic Conditions,
- (f) General Plan Buildout Plus Project Traffic Conditions; and
- (g) Scenario (f) with Improvements, if necessary.

8.0 YEAR 2027 PLUS PROJECT ANALYSIS

The following summarizes the “Year 2027 Plus Project” level of service results for the twelve (12) key study intersections and five (5) key roadway segments. The level of service results for the one (1) project driveway is presented in *Section 11.0* of this report.

8.1 Intersections

Table 8-1 summarizes the peak hour level of service results at the twelve (12) key study intersections for Year 2027 traffic conditions. The first column (1) of ICU/LOS and HCM/LOS values in *Table 8-1* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Table 3-4*). The second column (2) lists projected cumulative traffic conditions (existing plus ambient traffic plus cumulative project traffic) based on existing intersection geometry, but without any traffic generated from the proposed Project. The third column (3) presents forecast Year 2027 near-term traffic conditions with the addition of Project traffic. The fourth column (4) shows the increase in ICU and/or Delay value due to the added peak hour project trips and indicates whether the traffic associated with the Project will have an operational deficiency based on the LOS standards and criteria defined in this report. The fifth column (5) indicates the anticipated level of service with recommended improvements.

8.1.1 Year 2027 Cumulative Traffic Conditions

An analysis of future (Year 2027) cumulative traffic conditions indicates that the addition of ambient traffic growth and cumulative project traffic will adversely impact one (1) of the twelve (12) key study intersections. The remaining eleven (11) key study intersections are forecast to continue to operate at acceptable levels of service during the AM and PM peak hours with the addition of ambient traffic growth and cumulative project traffic. The location forecast to operate at an adverse LOS is as follows:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>HCM</u>	<u>LOS</u>	<u>HCM</u>	<u>LOS</u>
9. Main Street at Maple Avenue	103.0 s/v	F	390.1 s/v	F

8.1.2 Year 2027 Cumulative Plus Project Traffic Conditions

Review of columns (3) and (4) of *Table 8-1* indicates that one (1) of the twelve (12) key study intersections will continue to operate at an operational deficiency with the addition of project traffic, when compared to the LOS criteria specified in this report. The remaining eleven (11) key study intersections currently operate and are forecast to continue to operate at an acceptable LOS D or better during the AM and PM peak hours with the addition of Project generated traffic to Year 2027 cumulative traffic. The location forecast to operate at an adverse LOS is as follows:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>HCM</u>	<u>LOS</u>	<u>HCM</u>	<u>LOS</u>
9. Main Street at Maple Avenue	265.6 s/v	F	406.1 s/v	F

However, as shown in column (5) of *Table 8-1*, the implementation of recommended improvements at the deficient location improves this intersection to acceptable service levels.

Although operational deficiencies are not forecasted in Year 2027 traffic conditions with the project at the key study intersections of Flower Street at Chapman Avenue, Eckhoff Street at Chapman Avenue, Feldner Road at Chapman Avenue, Main Street at Maple Avenue, Main Street at Chapman Avenue, and Batavia Street at Chapman Avenue (i.e. key study intersections #6, #7, #8, #9, #10 and #12), LOS values are shown in column (5) of *Table 8-1* for these key study intersections due to the recommended improvements for the Project Driveway at Chapman Avenue. The recommended improvements, which are discussed further in Section 11.4, will consist of modifying the egress to southbound right-turns out only during the AM peak period (7:00 AM – 9:00 AM) and PM peak period (4:00 PM – 6:00 PM). With these peak period restrictions, vehicles wanting to travel eastbound on Chapman Avenue from the project site will be required to alter their travel patterns. As such, column (5) of *Table 8-1* also shows the respective level of service results for key study intersections #6, #7, #8, #9, #10 and #12 with the additional re-routed traffic.

Figures 8-1 and **8-2** present the Year 2027 Cumulative Plus Project with improvements (rerouted volumes) AM and PM peak hour traffic volumes at the six (6) affected key study intersections (i.e. key study intersections #6, #7, #8, #9, #10 and #12) as well as the Project driveway, respectively. It should be noted that *Figure 8-1* also includes an adjustment to the project traffic volumes to account for the proposed staggered start times during the AM peak hour. Based on the staggered start times, only 592 students out of the 864 students would arrive to the project site during the same hour (i.e. AM peak hour).

Appendix C also presents the Year 2027 plus project ICU/LOS and HCM/LOS calculations for the twelve (12) key study intersections. *Appendix C* also contains the traffic signal warrant for the intersection of Main Street at Maple Avenue.

8.2 Roadway Segments

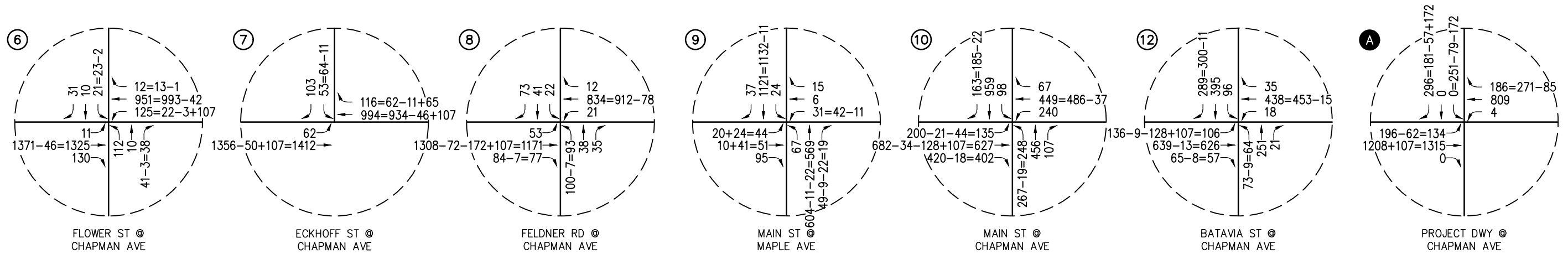
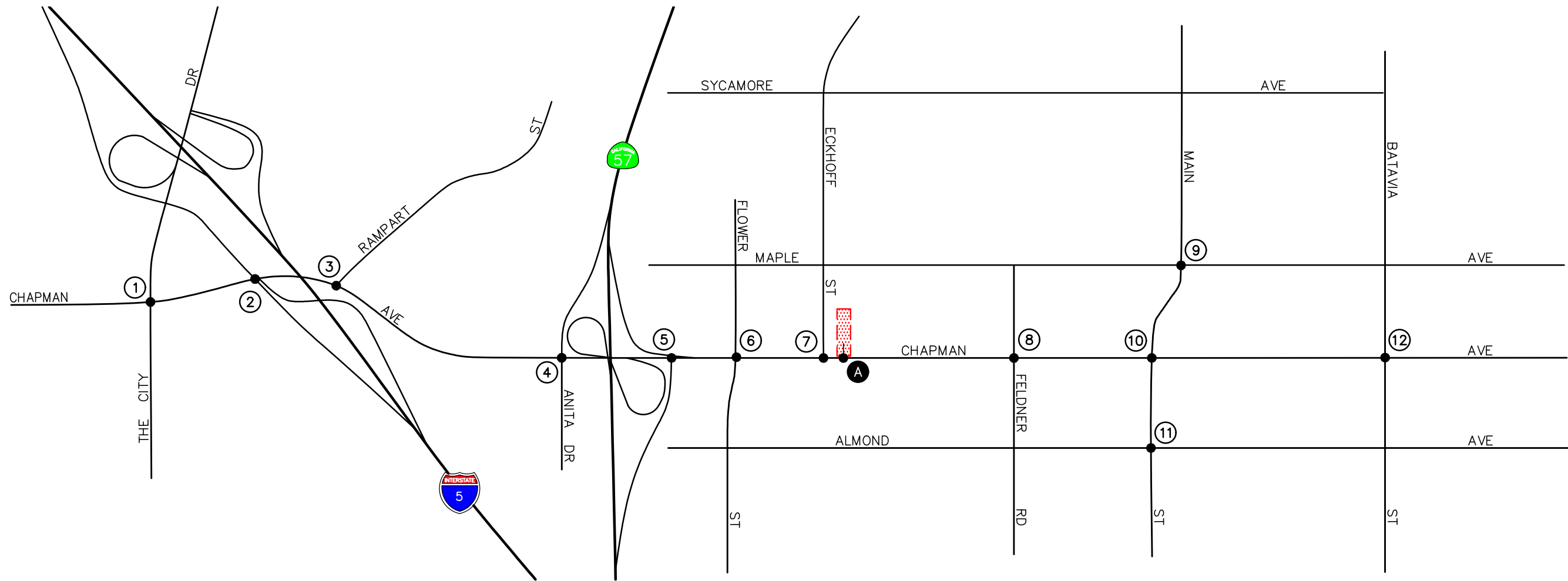
Table 9-2 summarizes the roadway segment level of service results at the five (5) key roadway segments for Year 2027 traffic conditions. The first column (1) shows the number of lanes, the second column (2) shows the arterial classification, and the third column (3) shows the LOS “E” capacity. The fourth column (4) presents a summary of projected Year 2027 cumulative daily traffic conditions. The fifth column (5) lists Year 2027 plus project daily traffic conditions. Column (5) also shows the increase in V/C ratio value due to the added daily project trips and indicates whether the traffic associated with the Project will have an operational deficiency based on the LOS standards criteria defined in this report.

8.2.1 Year 2027 Cumulative Traffic Conditions

An analysis of future (Year 2027) cumulative traffic conditions indicates that the five (5) key roadway segments are forecast to continue to operate at acceptable levels of service on a daily basis with the addition of ambient traffic growth and cumulative projects traffic.

8.2.2 Year 2027 Cumulative Plus Project Traffic Conditions

Review of column (5) of *Table 8-2* indicates that the proposed Project ***will not*** cause an operational deficiency at any of the five (5) key roadway segments. The five (5) key roadway segments are forecast to continue to operate at acceptable service levels on a daily basis with the addition of project generated traffic in the Year 2027 traffic conditions.



KEY

⊙ = STUDY INTERSECTION

▨ = PROJECT SITE

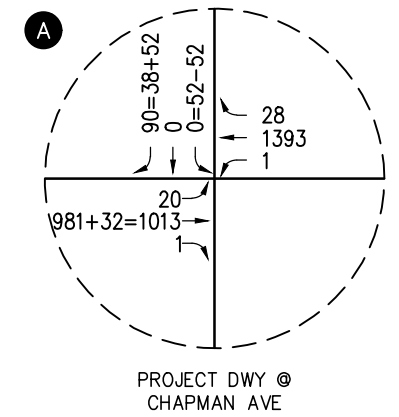
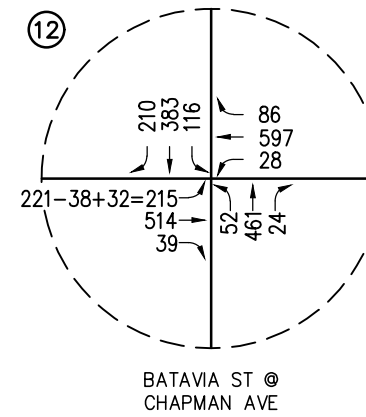
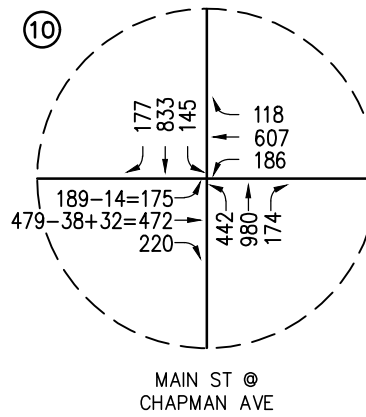
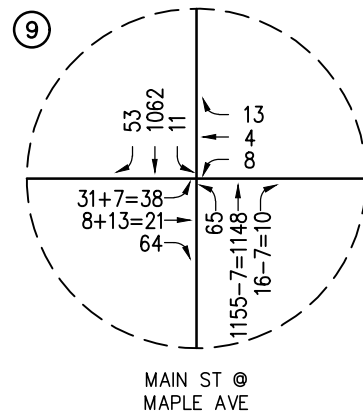
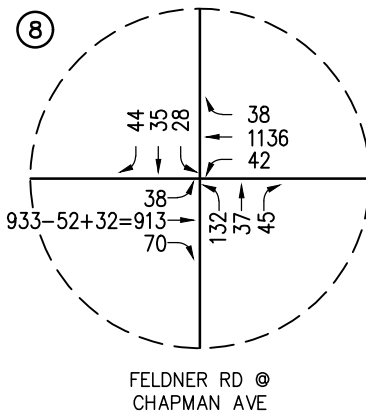
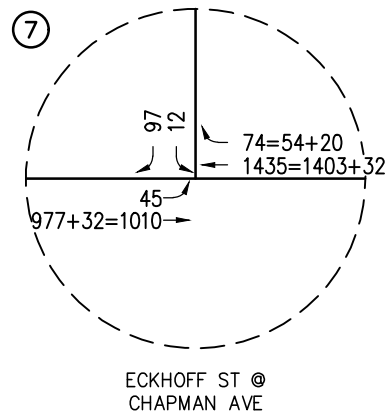
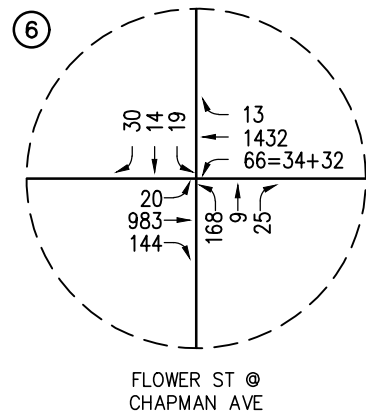
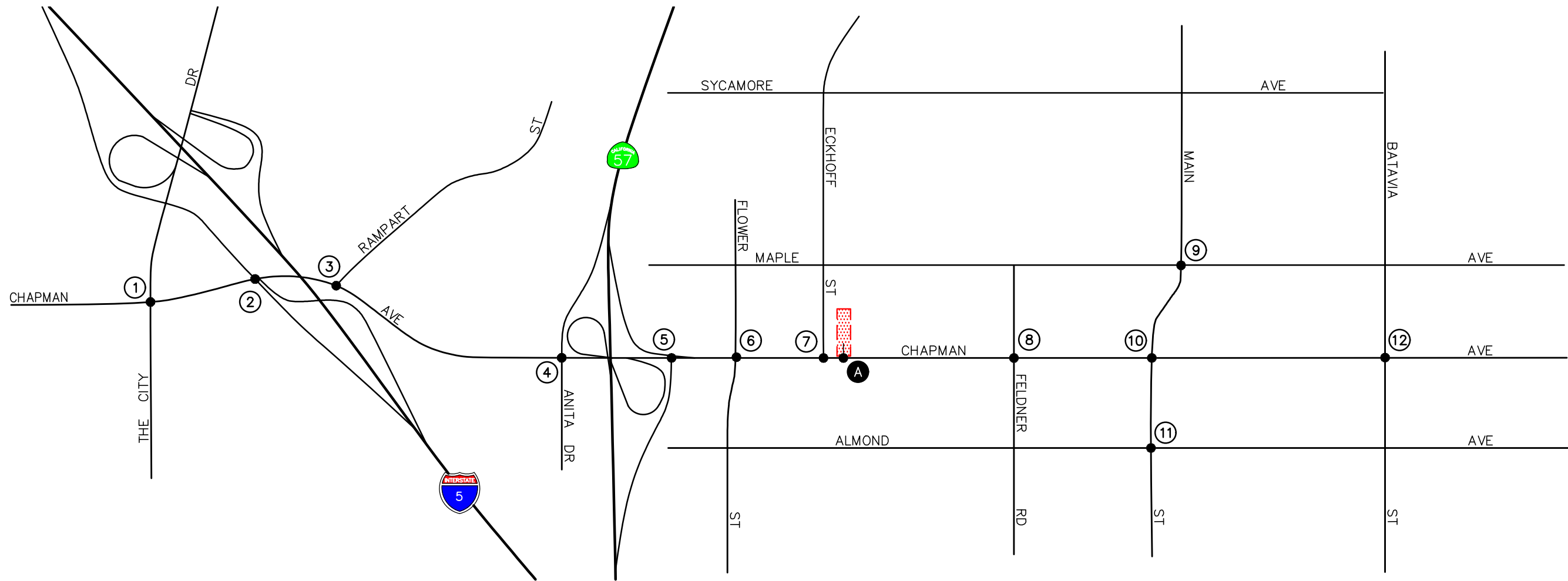


FIGURE 8-1

YEAR 2027 CUMULATIVE PLUS PROJECT AM PEAK HOUR TRAFFIC VOLUMES - WITH IMPROVEMENTS (REROUTED VOLUMES)

CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

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KEY

① = STUDY INTERSECTION

[Red Hatched Box] = PROJECT SITE

FIGURE 8-2

YEAR 2027 CUMULATIVE PLUS PROJECT PM PEAK HOUR TRAFFIC VOLUMES - WITH IMPROVEMENTS (REROUTED VOLUMES)

CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

**TABLE 8-1
YEAR 2027 PEAK HOUR INTERSECTION CAPACITY ANALYSIS**

Key Intersections	Time Period	Minimum Acceptable LOS	(1)		(2)		(3)		(4)		(5)	
			Existing Traffic Conditions		Year 2027 Cumulative Traffic Conditions		Year 2027 Cumulative Plus Project Traffic Conditions		Operational Deficiency		Year 2027 Cumulative Plus Project With Improvements [a]	
			ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Increase	Yes/No	ICU/HCM	LOS
1. The City Drive at Chapman Avenue	AM	D	0.634	B	0.654	B	0.661	B	0.007	No	--	--
	PM		0.669	B	0.696	B	0.698	B	0.002	No	--	--
2. I-5 SB Ramps at Chapman Avenue	AM	D	0.555	A	0.588	A	0.596	A	0.008	No	--	--
	PM		0.578	A	0.590	A	0.591	A	0.001	No	--	--
3. Rampart Street at Chapman Avenue	AM	D	0.384	A	0.398	A	0.408	A	0.010	No	--	--
	PM		0.572	A	0.588	A	0.591	A	0.003	No	--	--
4. Anita Drive/SR-57 SB Ramps at Chapman Avenue	AM	D	0.600	B	0.612	B	0.627	B	0.015	No	--	--
	PM		0.639	B	0.651	B	0.656	B	0.005	No	--	--
5. SR-57 NB Ramps at Chapman Avenue	AM	D	0.509	A	0.521	A	0.573	A	0.052	No	--	--
	PM		0.510	A	0.522	A	0.528	A	0.006	No	--	--
6. Flower Street at Chapman Avenue	AM	D	0.405	A	0.414	A	0.447	A	0.033	No	0.499	A
	PM		0.455	A	0.464	A	0.470	A	0.006	No	0.470	A
7. Eckhoff Street at Chapman Avenue	AM	D	19.7 s/v	C	17.9 s/v	C	32.2 s/v	D	14.3 s/v	No	34.6 s/v	D
	PM		25.3 s/v	D	26.8 s/v	D	31.3 s/v	D	4.5 s/v	No	33.6 s/v	D
8. Feldner Road at Chapman Avenue	AM	D	0.391	A	0.398	A	0.461	A	0.063	No	0.429	A
	PM		0.412	A	0.421	A	0.427	A	0.006	No	0.427	A

Notes:

- **BOLD ICU/LOS and HCM/LOS** values indicate unacceptable service level
- s/v = seconds per vehicle
- [a] = The improvements consist of peak period turn restrictions at the project driveway as described in Section 11.4, which results in re-routed traffic volumes at intersections #6, #7, #8, #9, #10 and #12.

TABLE 8-1 (CONTINUED)
YEAR 2027 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Year 2027 Cumulative Traffic Conditions		(3) Year 2027 Cumulative Plus Project Traffic Conditions		(4) Operational Deficiency		(5) Year 2027 Cumulative Plus Project With Improvements [a]	
			ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Increase	Yes/No	ICU/HCM	LOS
9. Main Street at Maple Avenue	AM	D	119.9 s/v	F	103.0 s/v	F	265.6 s/v	F	162.6 s/v	Yes	0.587	A
	PM		261.4 s/v	F	390.1 s/v	F	406.1 s/v	F	16.0 s/v	Yes	0.513	A
10. Main Street at Chapman Avenue	AM	D	0.687	B	0.703	C	0.752	C	0.049	No	0.731	C
	PM		0.683	B	0.701	C	0.715	C	0.014	No	0.706	C
11. Main Street at Almond Avenue	AM	D	0.527	A	0.539	A	0.544	A	0.005	No	--	--
	PM		0.495	A	0.508	A	0.513	A	0.005	No	--	--
12. Batavia Street at Chapman Avenue	AM	D	0.494	A	0.506	A	0.549	A	0.043	No	0.531	A
	PM		0.610	B	0.630	B	0.637	B	0.007	No	0.633	B

Notes:

- **BOLD ICU/LOS** and **HCM/LOS** values indicate unacceptable service level
- s/v = seconds per vehicle
- [a] = The improvements consist of peak period turn restrictions at the project driveway as described in Section 11.4, which results in re-routed traffic volumes at intersections #6, #7, #8, #9, #10 and #12.

**TABLE 8-2
YEAR 2027 ROADWAY SEGMENT LEVEL OF SERVICE SUMMARY**

Key Roadway Segment	Min. Acc. LOS	(1) No. of Existing Lanes	(2) Arterial Classification	(3) Existing Capacity at LOS "E"	(4) Year 2027 Cumulative Traffic Conditions			(5) Year 2027 Cumulative Plus Project Traffic Conditions				
					Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Inc.	Adverse (Yes/No)
A. Chapman Avenue between SR-57 NB Ramps and Flower Street	C	6D	Major	56,300	36,368	0.646	B	36,863	0.655	B	0.009	No
B. Chapman Avenue between Flower Street and Eckhoff Street	C	6D	Major	56,300	32,964	0.586	A	33,507	0.595	A	0.009	No
C. Chapman Avenue between Eckhoff Street and Feldner Road	C	6D	Major	56,300	30,235	0.537	A	31,162	0.553	A	0.016	No
D. Chapman Avenue between Feldner Road and Main Street	C	6D	Major	56,300	28,584	0.508	A	29,431	0.523	A	0.015	No
E. Chapman Avenue between Main Street and Batavia Street	C	4D	Primary	37,500	19,556	0.521	A	19,956	0.532	A	0.011	No

9.0 GENERAL PLAN BUILDOUT PLUS PROJECT ANALYSIS

The following summarizes the “General Plan Buildout Plus Project” level of service results for the twelve (12) key study intersections and five (5) key roadway segments. The level of service results for the one (1) project driveway is presented in *Section 11.0* of this report.

9.1 Intersections

Table 9-1 summarizes the peak hour level of service results at the twelve (12) key study intersections for General Plan Buildout traffic conditions. The first column (1) of ICU/LOS and HCM/LOS values in *Table 9-1* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Table 3-4*). The second column (2) lists General Plan Buildout traffic conditions. The third column (3) presents General Plan Buildout traffic conditions with the addition of Project traffic. The fourth column (4) shows the increase in ICU and/or Delay value due to the added peak hour project trips and indicates whether the traffic associated with the Project will cause an operational deficiency based on the LOS criteria defined in this report. The fifth column (5) indicates the anticipated level of service with recommended improvements.

9.1.1 General Plan Buildout Traffic Conditions

Review of column (2) of *Table 9-1* indicates that one (1) of the twelve (12) key study intersections is forecast to operate at an adverse LOS under General Buildout traffic conditions when compared to the LOS standards defined in this report. The remaining eleven (11) key study intersections are forecast to operate at acceptable LOS D or better during the AM and PM peak hours. The location forecast to operate at an adverse LOS is as follows:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>HCM</u>	<u>LOS</u>	<u>HCM</u>	<u>LOS</u>
9. Main Street at Maple Avenue	92.4 s/v	F	486.3 s/v	F

9.1.2 General Plan Buildout Plus Project Traffic Conditions

Review of columns (3) and (4) of *Table 9-1* indicates that one (1) of the twelve (12) key study intersections will continue to operate at an operational deficiency with the addition of project traffic, when compared to the LOS criteria specified in this report. The remaining eleven (11) key study intersections are forecast to continue to operate at an acceptable LOS with the addition of project generated traffic to General Plan Buildout traffic conditions. The location forecast to operate at an adverse LOS is as follows:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>HCM</u>	<u>LOS</u>	<u>HCM</u>	<u>LOS</u>
9. Main Street at Maple Avenue	301.7 s/v	F	502.5 s/v	F

However, as shown in column (5) of *Table 9-1*, the implementation of recommended improvements at the deficient location improves this intersection to acceptable service levels.

Although operational deficiencies are not forecasted in General Plan Buildout traffic conditions with the project at the key study intersections of Flower Street at Chapman Avenue, Eckhoff Street at Chapman Avenue, Feldner Road at Chapman Avenue, Main Street at Maple Avenue, Main Street at Chapman Avenue, and Batavia Street at Chapman Avenue (i.e. key study intersections #6, #7, #8, #9, #10 and #12), LOS values are shown in column (5) of *Table 9-1* for these key study intersections due to the recommended improvements for the Project Driveway at Chapman Avenue. The recommended improvements, which are discussed further in Section 11.4, will consist of modifying the egress to southbound right-turns out only during the AM peak period (7:00 AM – 9:00 AM) and PM peak period (4:00 PM – 6:00 PM). With these peak period restrictions, vehicles wanting to travel eastbound on Chapman Avenue from the project site will be required to alter their travel patterns. As such, column (5) of *Table 9-1* also shows the respective level of service results for key study intersections #6, #7, #8, #9, #10 and #12 with the additional re-routed traffic.

Figures 9-1 and **9-2** present the General Plan Buildout Plus Project with improvements (rerouted volumes) AM and PM peak hour traffic volumes at the six (6) affected key study intersections (i.e. key study intersections #6, #7, #8, #9, #10 and #12) as well as the Project driveway, respectively. It should be noted that *Figure 9-1* also includes an adjustment to the project traffic volumes to account for the proposed staggered start times during the AM peak hour. Based on the staggered start times, only 592 students out of the 864 students would arrive to the project site during the same hour (i.e. AM peak hour).

Appendix C also presents the General Plan Buildout ICU/LOS and HCM/LOS calculations for the twelve (12) key study intersections for the AM peak hour and PM peak hour. *Appendix C* also presents the traffic signal warrant analysis worksheets for the intersection of Main Street at Maple Avenue.

9.2 Roadway Segments

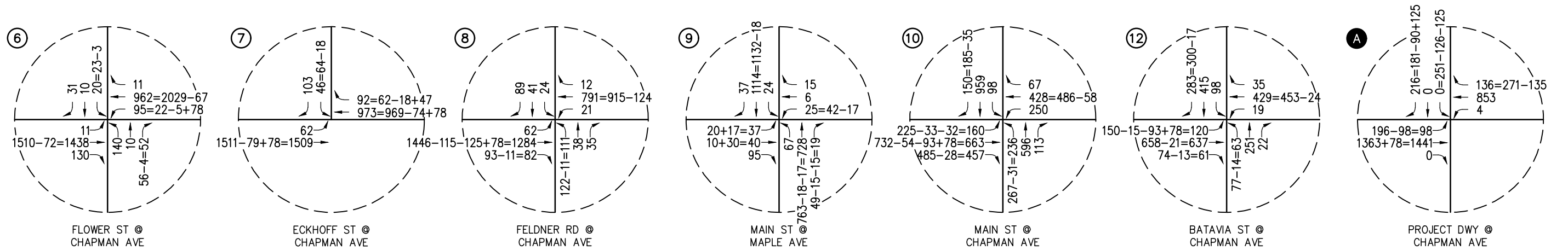
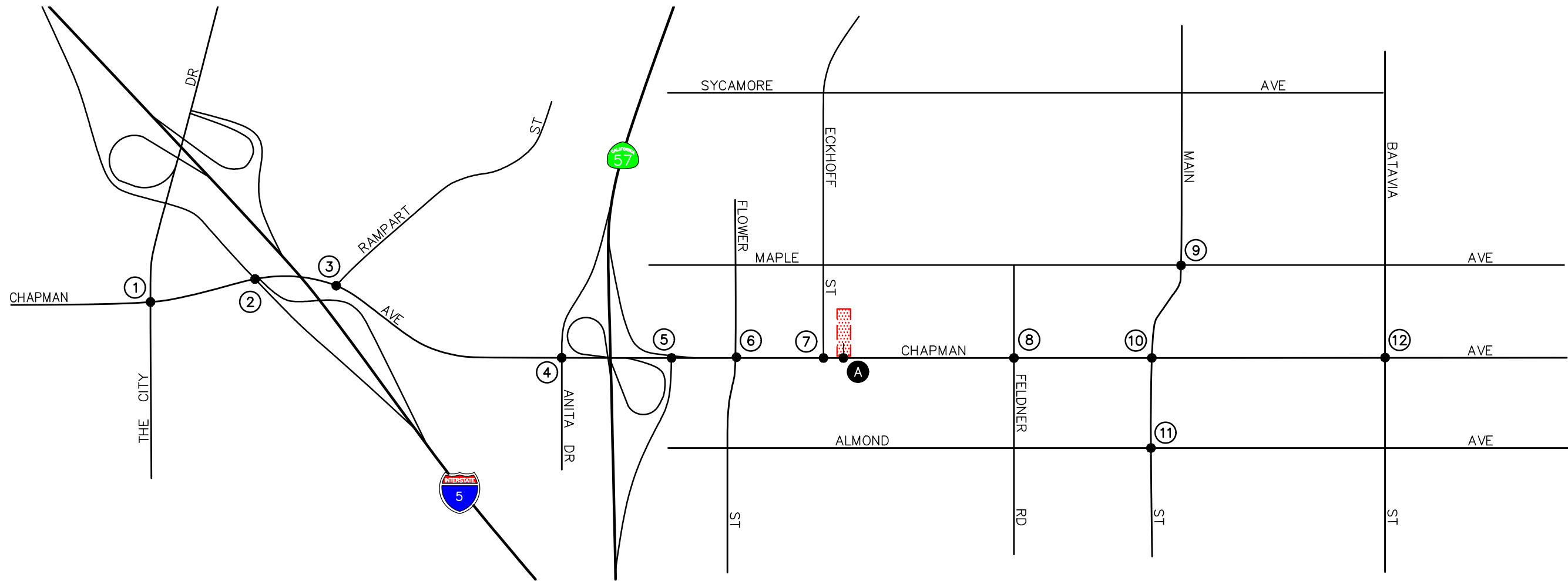
Table 9-2 summarizes the roadway segment level of service results at the five (5) key roadway segments for General Plan Buildout traffic conditions. The first column (1) shows the number of lanes, the second column (2) shows the arterial classification and the third column (3) shows the LOS “E” capacity. The fourth column (4) presents a summary of General Plan Buildout daily traffic conditions. The fifth column (5) lists General Plan Buildout daily traffic conditions with the addition of Project traffic. Column (5) also shows the increase in V/C ratio value due to the added daily project trips and indicates whether the traffic associated with the Project will cause an operational deficiency based on the LOS criteria defined in this report.

9.2.1 General Plan Buildout Traffic Conditions

An analysis of projected General Plan Buildout without project traffic conditions indicates that the five (5) key roadway segments are forecast to continue to operate at acceptable levels of service on a daily basis.

9.2.2 General Plan Buildout Plus Project Traffic Conditions

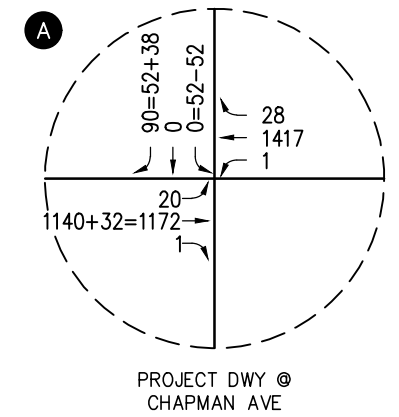
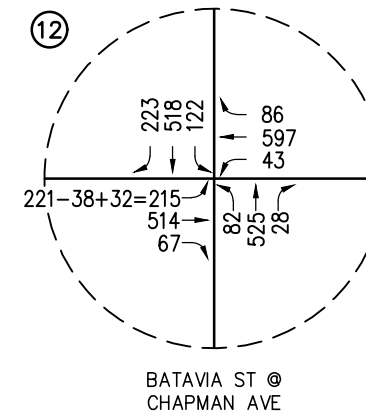
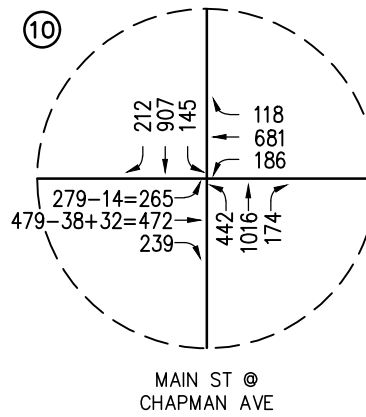
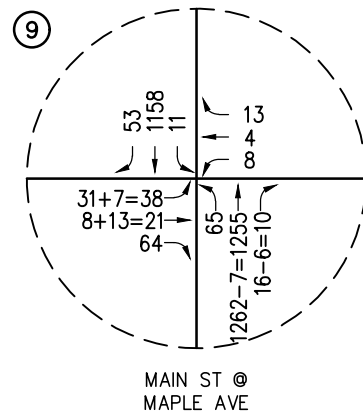
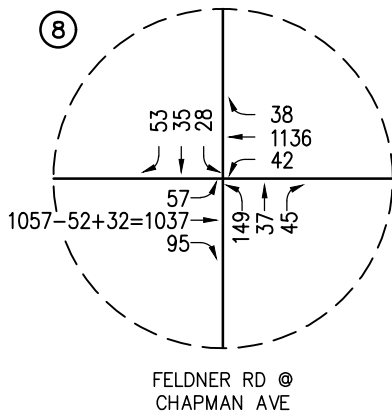
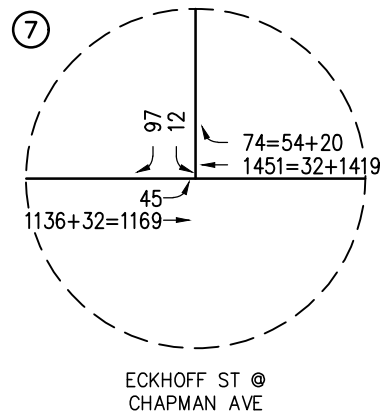
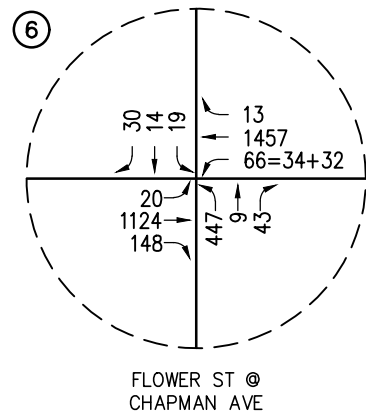
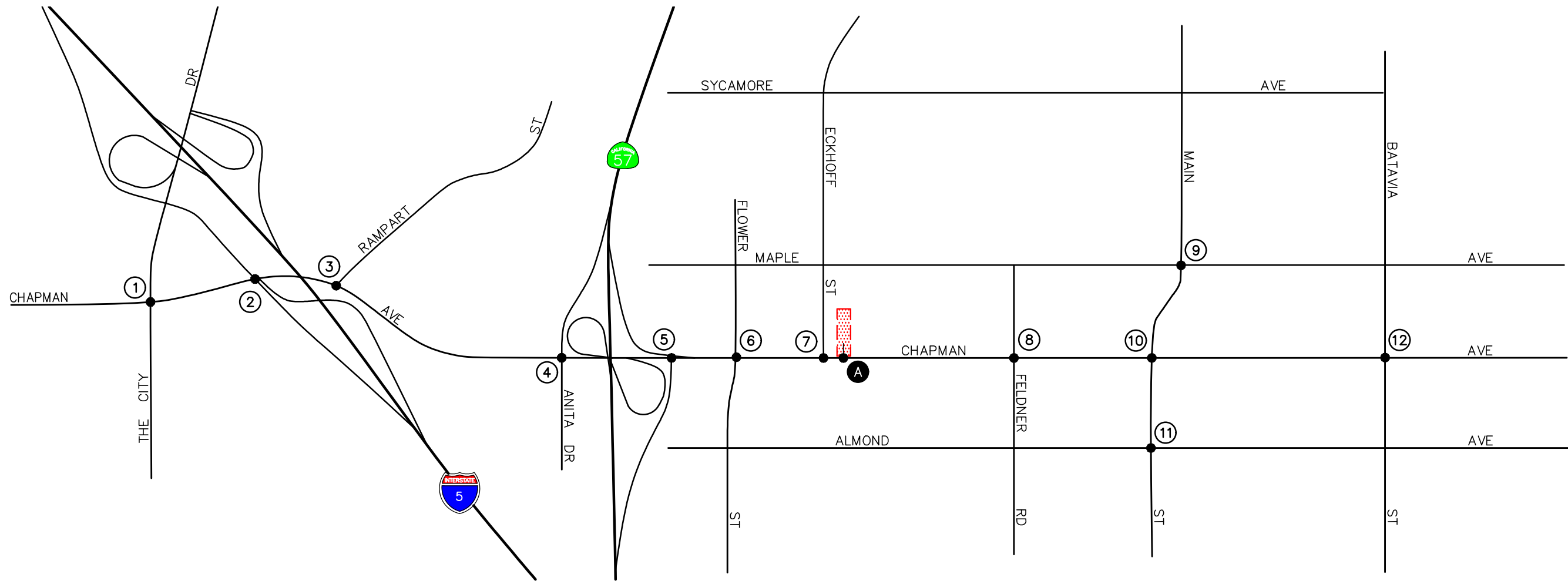
Review of column (5) of *Table 9-2* indicates that traffic associated with the proposed Project ***will not*** cause an operational deficiency at any of the five (5) key roadway segments when compared to the LOS standards defined in this report. The five (5) key roadway segments are forecast to continue to operate at acceptable service levels on a daily basis with the addition of project generated traffic in the General Plan Buildout traffic condition.



KEY
 # = STUDY INTERSECTION
 [Red Hatched Box] = PROJECT SITE



FIGURE 9-1
GENERAL PLAN BUILDOUT PLUS PROJECT AM PEAK HOUR TRAFFIC VOLUMES - WITH IMPROVEMENTS (REROUTED VOLUMES)
 CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE



KEY

⑥ = STUDY INTERSECTION

▨ = PROJECT SITE

FIGURE 9-2

GENERAL PLAN BUILDOUT PLUS PROJECT PM PEAK HOUR TRAFFIC VOLUMES - WITH IMPROVEMENTS (REROUTED VOLUMES)

CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

**TABLE 9-1
GENERAL PLAN BUILDOUT PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY**

Key Intersections	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) General Plan Buildout Traffic Conditions		(3) General Plan Buildout Plus Project Traffic Conditions		(4) Operational Deficiency		(5) General Plan Buildout Plus Project With Improvements [a]	
			ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Increase	Yes/No	ICU/HCM	LOS
1. The City Drive at Chapman Avenue	AM	D	0.634	B	0.685	B	0.692	B	0.007	No	--	--
	PM		0.669	B	0.754	C	0.755	C	0.001	No	--	--
2. I-5 SB Ramps at Chapman Avenue	AM	D	0.555	A	0.627	B	0.635	B	0.008	No	--	--
	PM		0.578	A	0.623	B	0.624	B	0.001	No	--	--
3. Rampart Street at Chapman Avenue	AM	D	0.384	A	0.574	A	0.585	A	0.011	No	--	--
	PM		0.572	A	0.778	C	0.780	C	0.002	No	--	--
4. Anita Drive/SR-57 SB Ramps at Chapman Avenue	AM	D	0.600	B	0.692	B	0.708	C	0.016	No	--	--
	PM		0.639	B	0.745	C	0.749	C	0.004	No	--	--
5. SR-57 NB Ramps at Chapman Avenue	AM	D	0.509	A	0.562	A	0.614	B	0.052	No	--	--
	PM		0.510	A	0.581	A	0.587	A	0.006	No	--	--
6. Flower Street at Chapman Avenue	AM	D	0.405	A	0.457	A	0.491	A	0.034	No	0.520	A
	PM		0.455	A	0.633	B	0.639	B	0.006	No	0.639	B
7. Eckhoff Street at Chapman Avenue	AM	D	19.7 s/v	C	17.6 s/v	C	30.3 s/v	D	12.7 s/v	No	26.2 s/v	D
	PM		25.3 s/v	D	24.7 s/v	C	27.9 s/v	D	3.2 s/v	No	29.6 s/v	D
8. Feldner Road at Chapman Avenue	AM	D	0.391	A	0.450	A	0.512	A	0.062	No	0.472	A
	PM		0.412	A	0.447	A	0.453	A	0.006	No	0.453	A

- Notes:
- **BOLD ICU/LOS and HCM/LOS** values indicate unacceptable service level
 - s/v = seconds per vehicle
 - [a] = The improvements consist of peak period turn restrictions at the project driveway as described in Section 11.4, which results in re-routed traffic volumes at intersections #6, #7, #8, #9, #10 and #12.

TABLE 9-1 (CONTINUED)
GENERAL PLAN BUILDOUT PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY

Key Intersections	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) General Plan Buildout Traffic Conditions		(3) General Plan Buildout Plus Project Traffic Conditions		(4) Operational Deficiency		(5) General Plan Buildout Plus Project With Improvements [a]	
			ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS	Increase	Yes/No	ICU/HCM	LOS
9. Main Street at Maple Avenue	AM	D	119.9 s/v	F	92.4 s/v	F	301.7 s/v	F	209.3 s/v	Yes	0.544	A
	PM		261.4 s/v	F	486.3 s/v	F	502.5 s/v	F	16.2 s/v	Yes	0.521	A
10. Main Street at Chapman Avenue	AM	D	0.687	B	0.731	C	0.773	C	0.042	No	0.748	C
	PM		0.683	B	0.798	C	0.811	D	0.013	No	0.803	D
11. Main Street at Almond Avenue	AM	D	0.527	A	0.539	A	0.544	A	0.005	No	--	--
	PM		0.495	A	0.508	A	0.513	A	0.005	No	--	--
12. Batavia Street at Chapman Avenue	AM	D	0.494	A	0.529	A	0.571	A	0.042	No	0.548	A
	PM		0.610	B	0.727	C	0.734	C	0.007	No	0.730	C

- Notes:
- **BOLD ICU/LOS and HCM/LOS** values indicate unacceptable service level
 - s/v = seconds per vehicle
 - [a] = The improvements consist of peak period turn restrictions at the project driveway as described in Section 11.4, which results in re-routed traffic volumes at intersections #6, #7, #8, #9, #10 and #12.

**TABLE 9-2
GENERAL PLAN BUILDOUT ROADWAY SEGMENT LEVEL OF SERVICE SUMMARY**

Key Roadway Segment	Min. Acc. LOS	(1) No. of Existing Lanes	(2) Arterial Classification	(3) Existing Capacity at LOS "E"	(4) General Plan Buildout Traffic Conditions			(5) General Plan Buildout Plus Project Traffic Conditions				
					Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Inc.	Adverse (Yes/No)
A. Chapman Avenue between SR-57 NB Ramps and Flower Street	C	6D	Major	56,300	40,533	0.720	C	41,028	0.729	C	0.009	No
B. Chapman Avenue between Flower Street and Eckhoff Street	C	6D	Major	56,300	36,160	0.642	B	36,703	0.652	B	0.010	No
C. Chapman Avenue between Eckhoff Street and Feldner Road	C	6D	Major	56,300	33,604	0.597	A	34,531	0.613	B	0.016	No
D. Chapman Avenue between Feldner Road and Main Street	C	6D	Major	56,300	30,541	0.542	A	31,388	0.558	A	0.016	No
E. Chapman Avenue between Main Street and Batavia Street	C	4D	Primary	37,500	19,556	0.521	A	19,956	0.532	A	0.011	No

10.0 STATE OF CALIFORNIA (CALTRANS) METHODOLOGY

10.1 Vehicle Miles Traveled Analysis

The Department of Transportation (Caltrans) has also formally adopted VMT as the metric for reviewing the transportation impacts of a land use development project. Caltrans has released the *Vehicle Miles Traveled-Focused Transportation Impact Study Guide (TISG)*, dated May 20, 2020, and the *Caltrans Local Development Review (LDR) Safety Review Practitioner's Guidance*, dated February 2024, in order to provide guidance on Caltrans' review of land use projects.

Caltrans' TISG references the *Technical Advisory on Evaluating Transportation Impacts In California Environmental Quality Act (CEQA)*, dated December 2018, prepared by the State of California Governor's Office of Land Use and Climate Innovation (LCI) as the basis for its guidance on VMT assessment. The City of Orange recently adopted new traffic impact criteria in July 2025 to be consistent with the CEQA revisions and LCI recommendations. These new guidelines are contained within the *City of Orange Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment*, dated July 2025 and provide screening criteria and methodology for VMT analysis. Since the City's guidelines are generally consistent with OPR guidelines, no separate VMT analysis has been prepared for Caltrans' review of the proposed project. The VMT analysis for this project is contained within a separate document (i.e. refer to the *Vehicle Miles Traveled Analysis for California Republic Leadership Academy (CRLA)*, dated March 18, 2026).

10.2 Off-Ramp Vehicle Queuing Analysis

The *Caltrans Local Development Review (LDR) Safety Review Practitioner's Guidance*, dated February 2024, aims to provide recommendations that encourage land use decisions to closely align with state transportation planning priorities, goals, policies, and plans for all land uses, so that these decisions do not impact the safety of the State Highway System (SHS). The following six challenge areas were identified as high priorities in California as they represent the greatest opportunity to reduce fatalities and severe injuries:

- Lane Departures
- Impaired Driving
- Speed Management
- Pedestrians
- Bicyclists
- Intersection

The Caltrans district traffic safety reviewer should consider these safety challenge areas when conducting a safety review.

Given that the proposed Project does not take direct access from a State facility, the Project has not been reviewed for factors pertaining to site access or local roadways. However, the proposed project is expected to generate new project trips at the I-5 and SR-57 Freeway ramps along Chapman Avenue (i.e. key study intersections #2, #4 and #5). Therefore, an analysis of the Project's effect on

off-ramp queuing was prepared in order to determine if the project would cause, or contribute towards, slowing or stopped traffic on mainline travel lanes resulting in unsafe speed differentials between adjacent lanes.

If the Project adds two or more car lengths to the ramp queue that will extend into the freeway mainline, then the location must be reviewed for traffic safety impacts. This review must evaluate speed differential between the off-ramp queue and the mainline of the freeway during the same period. Traffic safety mitigation shall not be requested under conditions where queuing already exists on a freeway exit ramp.

If the speed differential between the mainline lane speeds and the ramp traffic is less than 30 miles per hour (mph), the project would be considered to cause a less-than-significant safety impact and no traffic safety impact mitigation shall be requested.

If the speed differential is 30 mph or more, then there is a potential safety impact. To offset these potential conditions, the traffic safety review should consider requesting the following preferred traffic safety impact mitigation strategies:

- Transportation demand management program(s) to reduce the project's trip generation, which may include increased transit access, commute trip reductions such as rideshare programs, shared mobility facilities (bicycle or vehicular), increased bicycle and pedestrian infrastructure;
- Investments to existing active transportation infrastructure, or transit system amenities (or expansion) to reduce the project's trip generation; and/or
- Potential change(s) to the ramp terminal operations including, but not limited to lane reassignment, traffic signalization, signal phasing or timing modifications, turn lane extensions to accommodate the additional project traffic.

As described in *Section 3.0* above, the off-ramp queuing calculations were prepared utilizing the HCM 7 operational methodology for signalized intersections. A *Vistro* network was created based on existing conditions field reviews at the three (3) ramp intersections. In addition, specifics such as traffic volume data, lane configurations, available vehicle storage lengths, crosswalk locations, posted speed limits, traffic signal phasing, etc., were coded to complete the existing network. Consistent with prior studies conducted in the area, the traffic signal timing cycle lengths were optimized between 90 seconds and 120 seconds for all future traffic analysis scenarios. The corresponding weekday AM peak hour and PM peak hour HCM 7 worksheets for purposes of determining the 95th percentile vehicle queues are contained in ***Appendix D***.

The queuing analysis was prepared for Existing, Year 2027 Plus Project, and General Plan Buildout Plus Project traffic conditions. All of the freeway off-ramp intersection approaches were reviewed in terms of expected maximum vehicle queues (i.e. 95th percentile queues) which represent the maximum back of vehicle queues with 95th percentile traffic volumes. The corresponding maximum vehicle queue lengths were then compared to the total ramp storage lengths (i.e. the available storage

length as measured from the applicable off-ramp/frontage road lane striping to the respective off-ramp approach limit lines/merge points).

10.2.1 Year 2027 Cumulative Plus Project Traffic Conditions

As shown in *Table 10-1*, adequate storage is provided to accommodate the forecast 95th percentile queues under Year 2027 and Year 2027 Cumulative Plus Project traffic conditions at the three (3) off-ramp locations. The proposed Project is expected to neither cause nor contribute towards vehicle queuing which extends back into the I-5 and SR-57 Freeway mainline travel lanes for Year 2027 and Year 2027 Plus Project traffic conditions. Therefore, the proposed Project is not anticipated to negatively influence safety on the State Highway System.

10.2.2 General Plan Buildout Traffic Conditions

As shown in *Table 10-2*, adequate storage is provided to accommodate the forecast 95th percentile queues under General Plan Buildout and General Plan Buildout Plus Project traffic conditions at the three (3) off-ramp locations. The proposed Project is expected to neither cause nor contribute towards vehicle queuing which extends back into the I-5 and SR-57 Freeway mainline travel lanes for General Plan Buildout and General Plan Buildout Plus Project traffic conditions. Therefore, the proposed Project is not anticipated to negatively influence safety on the State Highway System.

TABLE 10-1
YEAR 2027 PLUS PROJECT PEAK HOUR FREEWAY OFF-RAMP QUEUING ANALYSIS¹⁰

Key Ramp Intersection	Estimated Storage Provided (feet)	Year 2027 Cumulative Traffic Conditions				Year 2027 Cumulative Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue (feet)	Adequate Storage (Yes / No)	Max Queue (feet)	Adequate Storage (Yes / No)	Max. Queue (feet)	Adequate Storage (Yes / No)	Max. Queue (feet)	Adequate Storage (Yes / No)
2. I-5 SB Ramps at Chapman Avenue <i>Northbound Left Turn</i>	1,140 ¹¹	217'	Yes	322'	Yes	217'	Yes	322'	Yes
	<i>Northbound Right Turn</i>	300'	99'	Yes	98'	Yes	99'	Yes	98'
4. Anita Drive/SR-57 SB Ramps at Chapman Avenue <i>Southbound Through/Left Turn</i>	1,065'	178'	Yes	94'	Yes	208'	Yes	97'	Yes
	<i>Southbound Right Turn</i>	535'	268'	Yes	267'	Yes	267'	Yes	267'
5. SR-57 NB Ramps at Chapman Avenue <i>Northbound Left Turn</i>	795'	25'	Yes	32'	Yes	25'	Yes	32'	Yes
	<i>Northbound Right Turn</i>	1,275'	203'	Yes	237'	Yes	230'	Yes	239'

¹⁰ Queue is based on the 95th Percentile Queue and is reported in total queue length (feet) per lane for signalized intersections.

¹¹ The northbound left-turn consists of dual lanes. The first lane consists of approximately 815 feet of storage, and the second lane consists of approximately 1,465 feet of storage. The storage reported is the average of both lanes.

**TABLE 10-2
GENERAL PLAN BUILDOUT PLUS PROJECT PEAK HOUR FREEWAY OFF-RAMP QUEUING ANALYSIS¹²**

Key Ramp Intersection	Estimated Storage Provided (feet)	General Plan Buildout Traffic Conditions				General Plan Buildout Plus Project Traffic Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue (feet)	Adequate Storage (Yes / No)	Max Queue (feet)	Adequate Storage (Yes / No)	Max. Queue (feet)	Adequate Storage (Yes / No)	Max. Queue (feet)	Adequate Storage (Yes / No)
2. I-5 SB Ramps at Chapman Avenue <i>Northbound Left Turn</i>	1,140 ¹³	209'	Yes	308'	Yes	209'	Yes	308'	Yes
	<i>Northbound Right Turn</i>	300'	119'	Yes	146'	Yes	119'	Yes	146'
4. Anita Drive/SR-57 SB Ramps at Chapman Avenue <i>Southbound Through/Left Turn</i>	1,065'	164'	Yes	109'	Yes	205'	Yes	120'	Yes
	<i>Southbound Right Turn</i>	535'	282'	Yes	267'	Yes	296'	Yes	280'
5. SR-57 NB Ramps at Chapman Avenue <i>Northbound Left Turn</i>	795'	25'	Yes	30'	Yes	25'	Yes	30'	Yes
	<i>Northbound Right Turn</i>	1,275'	196'	Yes	229'	Yes	221'	Yes	231'

¹² Queue is based on the 95th Percentile Queue and is reported in total queue length (feet) per lane for signalized intersections.

¹³ The northbound left-turn consists of dual lanes. The first lane consists of approximately 815 feet of storage, and the second lane consists of approximately 1,465 feet of storage. The storage reported is the average of both lanes.

11.0 SITE ACCESS AND INTERNAL CIRCULATION EVALUATION

11.1 Site Access Evaluation

As shown previously in *Figure 2-2*, access to the proposed Project is currently provided and will continue to be provided via one full access driveway located along W. Chapman Avenue.

11.2 Year 2027 Cumulative Plus Project Traffic Conditions

Table 11-1 summarizes the intersection operations at the one (1) existing project driveway for Year 2027 plus Project traffic conditions. The operations analysis for the project driveway is based on the *Highway Capacity Manual 7th Edition* (HCM 7) unsignalized methodology. Review of columns (1) and (2) of *Table 11-1* shows that the Project Driveway at Chapman Avenue is forecast to operate in the Year 2027 Plus Project at an unacceptable LOS F during the AM and PM peak hours, resulting in an operational deficiency.

However, as shown in column (3) of *Table 11-1*, with recommended improvements, the Project Driveway at Chapman Avenue is forecast to operate at acceptable LOS D or better during the AM and PM peak hours. As such, project access will be adequate.

11.3 General Plan Buildout Plus Project Traffic Conditions

Table 11-2 summarizes the intersection operations at the one (1) existing project driveway for General Plan Buildout Plus Project traffic conditions. Review of columns (1) and (2) of *Table 11-2* shows that the Project Driveway at Chapman Avenue is forecast to operate in the General Plan Buildout Plus Project at an unacceptable LOS F during the AM and PM peak hours, resulting in an operational deficiency.

However, as shown in column 3 of *Table 11-2*, with recommended improvements, the Project Driveway at Chapman Avenue is forecast to operate at acceptable LOS C during the AM and PM peak hours. As such, project access will be adequate.

Appendix E presents the level of service calculation worksheets for the one (1) existing project driveway under Year 2027 Cumulative Plus Project traffic conditions and General Plan Buildout Plus Project traffic conditions. *Appendix E* also contains the peak hour traffic signal warrant worksheets for Project Driveway at Chapman Avenue.

11.4 Recommended Improvements

The following improvements are recommended to offset the proposed Project's operational deficiency at the intersection of Project Driveway at Chapman Avenue.

- **Project Driveway at Chapman Avenue:** Utilizing appropriate signage, to be confirmed by City of Orange staff, restrict the egress to southbound right-turns out only during the weekday AM peak period (7:00 AM – 9:00 AM) and weekday PM peak period (4:00 PM – 6:00 PM). With this restriction, vehicles wanting to travel eastbound on Chapman Avenue will be required to make a southbound right-turn at the intersection of Project Driveway at Chapman Avenue and

either a westbound right-turn movement at the intersection of Eckhoff Street at Chapman Avenue or a westbound U-turn movement at the intersection of Flower Street at Chapman Avenue to continue back to their intended destination east of the project site. It should be noted that the school will also provide pick-up and drop-off procedures to parents indicating this peak hour turning restriction and it will be monitored by school staff.

It should be noted that in addition to the peak period turning restrictions, the level of service results shown in column (3) of *Tables 11-1* and *11-2*, also include an adjustment to the project traffic volumes to account for the proposed staggered start times during the AM peak hour. Based on the staggered start times, only 592 students out of the 864 students would arrive to the project site during the same hour (i.e. AM peak hour), and the LOS results shown in column (3) of the tables reflect that number of students. It should be further noted that no trip adjustments for staggered start times were made to the primary intersection level of service analysis results shown in *Tables 8-1* and *9-1*, thus resulting in a conservative analysis at the twelve (12) key study intersections.

11.5 School Drop-Off and Pick-Up Evaluation

As requested by City of Orange staff, an evaluation of the school drop-off and pick-up area was conducted to ensure that vehicles will not queue back onto Chapman Avenue. The evaluation is based on the best practice standards for on-site queuing related to school drop-off/pick-up activities published in *Strategies for the Greening of Student Pick-Ups at School Dismissal White Paper*, Dustin Qualls, PE, PTOE (“White Paper”), which states that 6% of the effective student enrollment is a reasonable factor for estimating the “maximum queue” of vehicles on site. Given that the data included in the White Paper included some districts that provide school bus service for up to 50% of the student population, the recommended 6% factor was increased by 50% to account for the proposed Project not providing school bus service, thus conservatively resulting in a 9% design factor to estimate the “maximum queue” of vehicles on site.

As stated previously in Section 2.0 of this report, the proposed school will have a maximum enrollment of 864 students and will have staggered start and end times. The proposed Project will have three primary morning start times (i.e. 8:00 AM, 8:30 AM and 9:00 AM) and three primary afternoon end times (i.e. 2:30 PM, 3:00 PM and 3:30 PM). The staggered start times will result in at most 592 students (i.e. the 8:30 and 9:00 start times) out of the 864 students arriving during the same hour. Application of the 9% factor to the 592 students results in a “maximum queue” of 54 vehicles. As presented previously in *Figure 2-2*, the proposed Project can accommodate a maximum queue of approximately 58 vehicles on-site. Therefore, we conclude that the on-site storage for the drop-off/pick-up area is adequate and vehicles are not anticipated to queue back onto Chapman Avenue.

TABLE 11-1
YEAR 2027 PLUS PROJECT DRIVEWAY PEAK HOUR LEVELS OF SERVICE SUMMARY

Project Driveway	Time Period	Intersection Control	(1)		(2)	(3)	
			Year 2027 Plus Project Traffic Conditions		Operational Deficiency	Year 2027 Plus Project With Improvements [a]	
			HCM	LOS	Yes/No	HCM	LOS
A. Project Driveway at Chapman Avenue	AM	One-Way	1,227.2 s/v	F	Yes	33.3 s/v	D
	PM	Stop	89.4 s/v	F	Yes	21.8 s/v	C

Notes:

s/v = seconds per vehicle

[a] = The improvements consist of peak period turn restrictions at the project driveway as described in Section 11.4.

**TABLE 11-2
GENERAL PLAN BUILDOUT PLUS PROJECT DRIVEWAY PEAK HOUR LEVELS OF SERVICE SUMMARY**

Project Driveway	Time Period	Intersection Control	(2) General Plan Buildout Plus Project Traffic Conditions		(3) Operational Deficiency	(4) General Plan Buildout Plus Project With Improvements [a]	
			HCM	LOS	Yes/No	HCM	LOS
A. Project Driveway at Chapman Avenue	AM	One-Way	1,062.4 s/v	F	Yes	20.5 s/v	C
	PM	Stop	76.0 s/v	F	Yes	20.8 s/v	C

Notes:

s/v = seconds per vehicle

[a] = The improvements consist of peak period turn restrictions at the project driveway as described in Section 11.4.

11.6 Internal Circulation Evaluation

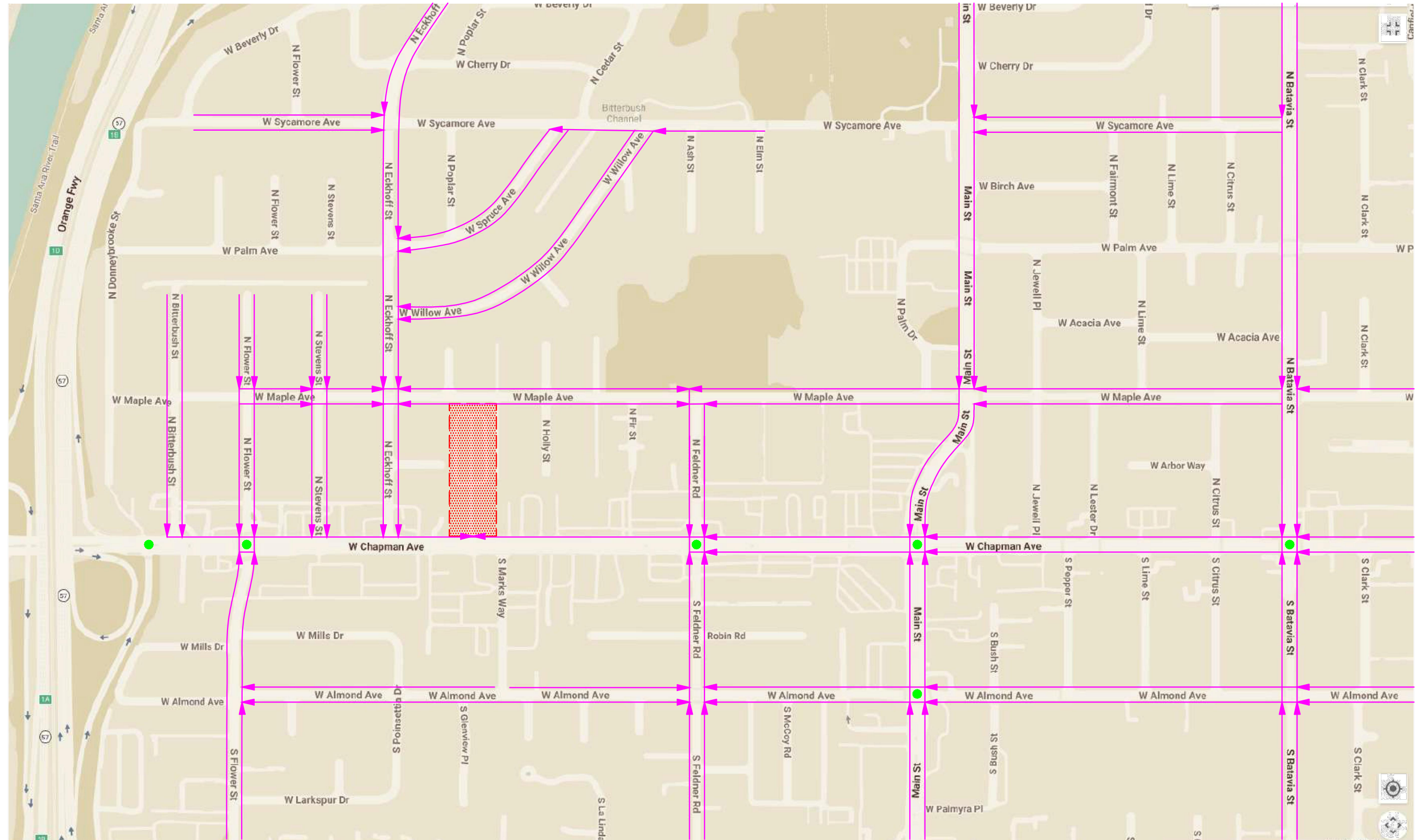
The on-site circulation layout of the proposed Project as illustrated in *Figure 2-2* on an overall basis is adequate. Curb return radii have been confirmed and are generally adequate for small service/delivery (FedEx, UPS) trucks and trash trucks.

11.7 Recommended Safe Route To School Evaluation

Figure 11-1 presents the recommended safe route to school path of travel for students walking and/or biking to/from the school. This figure illustrates the recommended path of travel and the locations of the signalized intersections. It should be noted that all non-signalized crossings shown on the figure occur at locations that are controlled by a stop sign.

Review of *Figure 11-1* indicates that it is recommended that students located north of the school site make their way to the project site by heading south to Chapman Avenue via Maple Avenue to Eckhoff Street, Feldner Road, Main Street, or Batavia Street. Further review of *Figure 11-1* indicates that it is recommended that students located west and east of the school site make their way to the project site via Chapman Avenue. Lastly, as shown in *Figure 11-1*, it is recommended that students located south of the school site make their way to the project site by heading north to Chapman Avenue via Almond Avenue to Flower Street, Feldner Road, Main Street or Batavia Street. It is then recommended that these students cross the street within the crosswalks at either the signalized intersection of Flower Street/Chapman Avenue or the signalized intersection of Feldner Road/Chapman Avenue and travel along the north side of Chapman Avenue to the project site.

Based on the recommended safe route to school paths of travel, all crossings in the vicinity were evaluated and no locations were identified for additional traffic control. The existing pedestrian facilities in the area are generally adequate for students in the vicinity to walk to school. Furthermore, the north leg of the side-street stop-controlled intersection of Eckhoff Street at Chapman Avenue could be considered for yellow crosswalk striping.



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KEY

- = STUDY INTERSECTION
- = PEDESTRIAN PATH OF TRAVEL
- = SIGNALIZED INTERSECTION
- = PROJECT SITE

NOTE: ALL OTHER CROSSINGS SHOWN ARE CONTROLLED BY A STOP SIGN



FIGURE 11-1

EXISTING SITE AERIAL

CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

12.0 PARKING ANALYSIS

12.1 City Parking Code

The parking analysis for the proposed Project was conducted by utilizing the parking ratios defined in the *City of Orange Municipal Code; Section 17.34.060; Table 17.34.060(B)*, and comparing it to the proposed parking supply. The following parking ratio was used to determine the required parking.

- **Kindergarten – 8th Grade:** *1.8 spaces per classroom, plus adequate loading/unloading zone.*

Table 12-1 presents the City-code parking requirements for the proposed Project. As shown, application of the above-referenced parking code ratio to the development totals (i.e. 45 classrooms) results in a City-code parking requirement of 81 spaces. With a proposed on-site parking supply of 100 spaces, the City's parking requirements are satisfied and there will be a surplus of 19 spaces. Given these results, we conclude that there will be adequate parking on site to accommodate the proposed Project.

12.2 Special Event Parking

Based on information provided by the applicant, special event parking may be handled in two ways depending on the type of event. The applicant has an agreement with St. John Maron Maronite Catholic Church (located at 300 S Flower Street, Orange, CA 92868) to use the church parking lot for special events. Families who utilize this off-site parking will either walk or take a shuttle from the church parking lot to the Project site. Alternatively, the proposed special event can be broken into multiple days. For example, Back to School Night would have two to four grade levels per night so that the school parking lot can accommodate all visitors.

**TABLE 12-1
CITY CODE PARKING REQUIREMENTS¹⁴**

Project Description	Size	City of Orange Code Parking Ratio	Spaces Required
California Republic Leadership Academy	45 classrooms	▪ 1.8 parking spaces per classroom	81 Spaces
Total City Code Parking Requirement:			81 Spaces
Proposed Parking Supply:			100 Spaces
Total Parking Surplus (+) or Deficiency (-):			+19 Spaces

¹⁴ Source: *City of Fontana Municipal Code Section 30-685*.

13.0 AREA-WIDE TRAFFIC IMPROVEMENTS

For those intersections and roadway segments where projected traffic volumes are expected to result in operational deficiencies, this report recommends traffic improvements that change the intersection and/or roadway segments geometry to increase capacity. These capacity improvements involve roadway widening and/or re-striping to reconfigure (add lanes) roadways to specific approaches of a key intersection and/or roadway segment. The identified improvements are expected to:

- Address the impact of existing traffic, Project traffic and future non-project (ambient traffic growth and cumulative) traffic, and
- Improve Levels of Service to an acceptable range and/or to pre-project conditions.

13.1 Year 2027 Plus Project Recommended Improvements

The results of the “Year 2027 Plus Project” intersection capacity analysis presented previously in *Table 8-1* indicates that the proposed Project will cumulatively cause unacceptable operational LOS conditions at the intersection of Main Street at Maple Avenue. The following improvements are recommended for Year 2027 Plus Project traffic conditions:

- **Intersection 9. Main Street at Maple Avenue:** Install a traffic signal with two-phase operation. It should be noted that a traffic signal is warranted at this location under existing traffic conditions.

The results of the “Year 2027 Plus Project” daily roadway segment analysis presented previously in *Table 8-2* indicates that the proposed Project will not cause operational deficiencies at any of the five (5) key roadway segments. As such, no improvements are recommended under this traffic scenario.

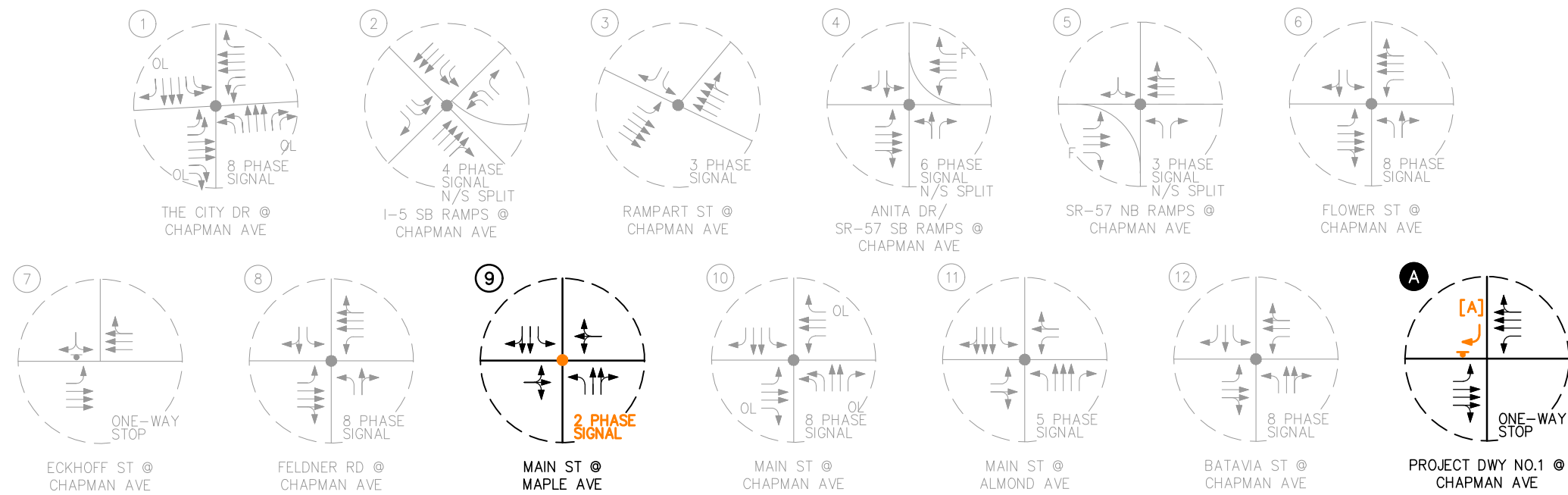
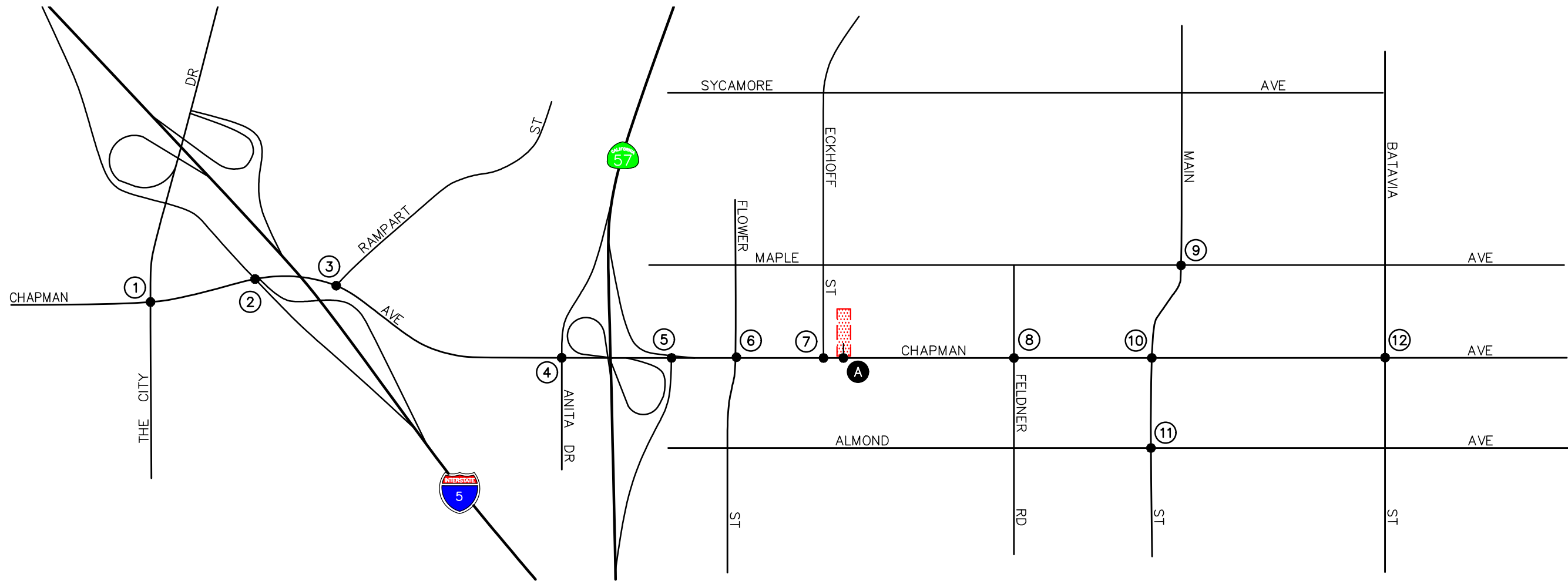
13.2 General Plan Buildout Plus Project Recommended Improvements

The results of the “General Plan Buildout Plus Project” intersection capacity analysis presented previously in *Table 9-1* indicates that the proposed Project will cumulatively cause unacceptable operational LOS conditions at the intersections of Main Street at Maple Avenue. The following improvements are recommended for General Plan Buildout Plus Project traffic conditions:

- **Intersection 9. Main Street at Maple Avenue:** Install a traffic signal with two-phase operation. It should be noted that a traffic signal is warranted at this location under existing traffic conditions.

The results of the “General Plan Buildout Plus Project” daily roadway segment analysis presented previously in *Table 9-2* indicates that the proposed Project will not cause operational deficiencies at any of the five (5) key roadway segments. As such, no improvements are recommended under this traffic scenario.

Figure 13-1 graphically illustrates the recommended improvements for the intersection of Main Street at Maple Avenue. This figure also includes the recommended improvements for the Project Driveway at Chapman Avenue, as described previously in Section 11.4.



KEY

- = RECOMMENDED IMPROVEMENT
- = UTILIZING APPROPRIATE SIGNAGE, RESTRICT THE EGRESS TO SOUTHBOUND RIGHT-TURN ONLY DURING THE WEEKDAY AM PEAK PERIOD (7:00AM-9:00AM) AND WEEKDAY PM PEAK PERIOD (4:00PM-6:00PM).
- = PROJECT



FIGURE 13-1

RECOMMENDED IMPROVEMENTS
CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

TABLE 14-1
YEAR 2027 PLUS PROJECT TRAFFIC CONDITIONS FAIR SHARE CONTRIBUTION

Key Intersection	Impacted Time Period	(1) Project Only Volume	(2) Year 2027 Plus Project Volume	(3) Project Fair Share Responsibility
9. Main Street at Maple Avenue	AM	135	2,101	6.43%
	PM	20	2,490	0.80%

Notes:

- Project Fair Share (3) = Column (1) / Column (2)
- **Project Fair Share Responsibility** is based on worse case

TABLE 14-2
GENERAL PLAN BUILDOUT PLUS PROJECT TRAFFIC CONDITIONS FAIR SHARE CONTRIBUTION

Key Intersection	Impacted Time Period	(1) Project Only Volume	(2) Buildout Plus Project Volume	(3) Project Fair Share Responsibility
9. Main Street at Maple Avenue	AM	135	2,296	5.88%
	PM	20	2,769	0.72%

Notes:

- Project Fair Share (3) = Column (1) / Column (2)
- **Project Fair Share Responsibility** is based on worse case

15.0 MULTIMODAL CIRCULATION

The on-site circulation layout of the proposed Project as illustrated in *Figure 2-2* on an overall basis is adequate for drivers, pedestrians, bicycles, and public transit users.

Figure 15-1 illustrates the multimodal transportation (vehicular, pedestrian, bicycle) aspects of the Project site, including connections between sidewalks, signalized crosswalks, unsignalized crossings, as well as bicycle facilities.

Pedestrian Circulation

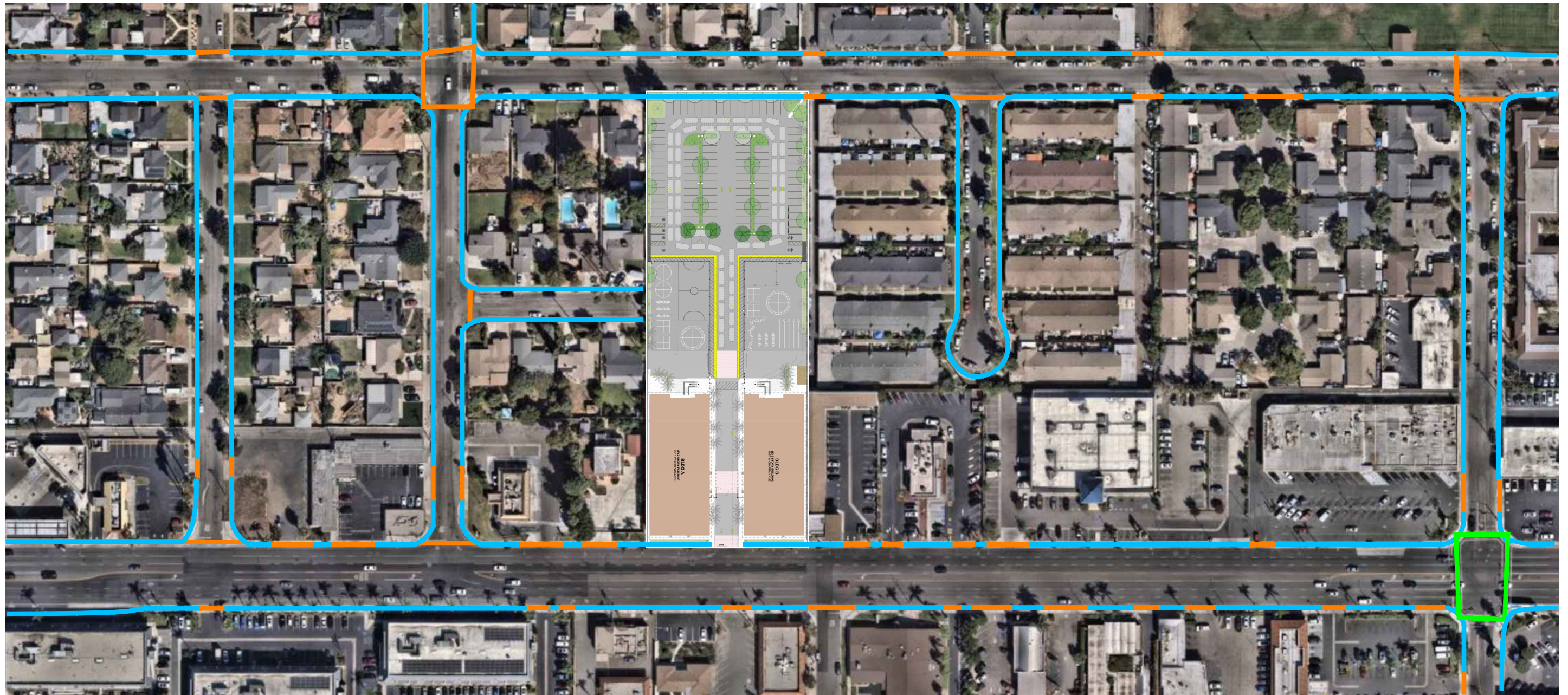
Pedestrian circulation will be provided via existing public sidewalks along Chapman Avenue, Eckhoff Street, Feldner Road, Maple Street, and Main Street within the vicinity of the Project. The signalized intersections of Flower Street at Chapman Avenue, Feldner Road at Chapman Avenue, and Main Street at Chapman Avenue currently provide protected crossings along all legs of these intersections, which will provide pedestrians safe and convenient access to and from the Project site.

Public Transit

Public transit bus service is provided in the Project area by the Orange County Transit Authority (OCTA). *Section 3.2* contains descriptions for the following transit routes:

- *Route 53*
- *Route 54*
- *Route 57*
- *Route 453*
- *Route 553*

The four closest bus stops nearest to the Project site are located on the northwest corner and southeast corner of Feldner Road at Chapman Avenue and Flower Street at Chapman Avenue.



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SOURCE: GOOGLE

KEY

- = SIDEWALKS
- = SIGNALIZED CROSSING
- = UNSIGNALIZED CROSSING
- = EXISTING
- = FUTURE TO BE CONSTRUCTED BY PROJECT



FIGURE 15-1

MULTIMODAL PLAN
CALIFORNIA REPUBLIC LEADERSHIP ACADEMY, ORANGE

16.0 CONGESTION MANAGEMENT PROGRAM (CMP)

This analysis is consistent with the requirements and procedures outlined in the current *Orange County Congestion Management Program (CMP)*. The CMP requires that a traffic impact analysis be conducted for any project generating 2,400 or more daily trips, or 1,600 or more daily trips for projects that directly access the CMP Highway System (HS). Per the CMP guidelines, this number is based on the desire to analyze any impacts that will be 3.0% or more of the existing CMP highway system facilities' capacity.

However, as noted in this traffic study, the proposed Project is expected to generate 1,598 daily trips, and thus does not meet the criteria required for a CMP traffic analysis. Therefore, it is concluded that the proposed Project will not cause any operational deficiencies on the Congestion Management Program Highway System.

17.0 SUMMARY OF FINDINGS AND CONCLUSIONS

- Project Description** – The project site is located at 1937 and 2011 W. Chapman Avenue in the City of Orange, California. The project site is currently occupied by two existing office buildings totaling 53,913.2 SF. The Project will consist of tenant improvements to the two existing buildings to provide a new charter school (TK through 8th grade) for a maximum enrollment of 864 students. A total of 45 classrooms will be provided between the two buildings. The proposed Project will have 45 staff members on site that will consist of 35 total teachers across all grades and 10 non-teaching/administrative staff. To accommodate the new play areas, the Applicant proposes to remove 111 parking spaces from the surface parking lot, leaving 100 parking spaces available. The drop-off/pick-up area will have an on-site queuing capacity of approximately 58 vehicles. The proposed Project is expected to be completed by the Year 2027 for the 2027- 2028 school year. Access to the proposed Project will be provided via an existing full access unsignalized driveway located along W. Chapman Avenue.

The proposed Project will also implement the following to help reduce its effect on local area traffic during the AM peak hour.

- Staggered Start and End Times:** The start and end times for the proposed Project will be staggered, with three primary morning start times (i.e. 8:00 AM, 8:30 AM and 9:00 AM) and three primary afternoon end times (i.e. 2:30 PM, 3:00 PM and 3:30 PM). The table below shows the start and end times by grade level and the approximate number of students.

Grade Levels	Start Time	End Time	Number of Students
TK – AM	8:30 AM	12:00 PM	40
TK – PM	11:30 AM	3:00 PM	20
K, 1 st , 2 nd	8:00 AM	2:30 PM	252
3 rd , 4 th , 5 th	8:30 AM	3:00 PM	276
6 th , 7 th , 8 th	9:00 AM	3:30 PM	276

- Traffic Control Coordinators and Valet Assistant Staff:** The school will have three (3) traffic control coordinators located within the parking lot and six (6) valet assistant staff located within the drop-off and pick-up areas to ensure the drop-off and pick-up procedures will function efficiently. All personnel will utilize two-way walkie talkies to communicate with one another.
- Study Scope** – The twelve (12) key study intersections, one (1) project driveway, and five (5) key roadway segments selected for evaluation were determined based on coordination with City of Orange Traffic Engineering staff and application of the “51 or more peak hour trip threshold” criteria outlined in the City of Orange Traffic Impact Analysis Guidelines for Vehicle Miles

Traveled and Level of Service Assessment, dated July 2025. The intersections and roadway segments listed below provide local access to the study area and define the extent of the boundaries for this traffic impact investigation. The jurisdiction where each key study intersection/roadway segment is located is also identified with the following nomenclature utilized; (O) = City of Orange and (C) = Caltrans.

<u>Key Study Intersections</u>
1. The City Drive at Chapman Avenue (O)
2. I-5 SB Ramps at Chapman Avenue (O/C)
3. Rampart Street at Chapman Avenue (O)
4. Anita Drive/SR-57 SB Ramps at Chapman Avenue (O/C)
5. SR-57 NB Ramps at Chapman Avenue (O/C)
6. Flower Street at Chapman Avenue (O)
7. Eckhoff Street at Chapman Avenue (O)
8. Feldner Road at Chapman Avenue (O)
9. Main Street at Maple Avenue (O)
10. Main Street at Chapman Avenue (O)
11. Main Street at Almond Avenue (O)
12. Batavia Street at Chapman Avenue (O)
-- Project Driveway at Chapman Avenue (O)

<u>Key Roadway Segments</u>
A. Chapman Avenue between SR-57 NB Ramps and Flower Street (O)
B. Chapman Avenue between Flower Street and Eckhoff Street (O)
C. Chapman Avenue between Eckhoff Street and Feldner Road (O)
D. Chapman Avenue between Feldner Road and Main Street (O)
E. Chapman Avenue between Main Street and Batavia Street (O)

Detailed peak hour level of service analyses were prepared for Existing Traffic Conditions, Year 2027 Cumulative Traffic Conditions, Year 2027 Cumulative Plus Project Traffic Conditions, General Plan Buildout Traffic Conditions, and General Plan Buildout Plus Project Traffic Conditions at these locations.

- ***Existing Traffic Conditions*** – One (1) of the twelve (12) key study intersections currently operates at an unacceptable level of service during the AM and PM peak hour. The intersection of Main Street at Maple Avenue currently operates at unacceptable LOS F during the AM and PM peak hour. The remaining eleven (11) key study intersections currently operate at acceptable LOS D or better during the AM and PM peak hours. All five (5) key roadway segments currently operate at acceptable LOS B or better on a daily basis.
- ***Project Trip Generation*** – The proposed Project is forecast to generate approximately 1,598 daily trips, with 899 trips (467 inbound, 432 outbound) produced in the AM peak hour and 138 trips

(48 inbound, 90 outbound) produced in the PM peak hour on a “typical” weekday. The potential impact of these Project trips (i.e. 899 AM trips and 138 PM trips) have been assessed in the traffic study.

For informational purposes, the existing land use is forecast to generate approximately 422 daily trips, with 67 trips (59 inbound, 8 outbound) produced in the AM peak hour and 64 trips (10 inbound, 54 outbound) produced in the PM peak hour on a “typical” weekday. Comparison of the trips generated by the existing land use to the trips generated by the proposed Project shows that the proposed Project will generate 1,176 greater daily trips, 832 greater AM peak hour trips, and 74 greater PM peak hour trips.

- **Cumulative Projects Traffic Characteristics** – The fifteen (15) cumulative projects are forecast to generate a total of 35,991 daily trips, with 2,038 trips (934 inbound and 1,104 outbound) forecast during the AM peak hour and 3,053 trips (1,781 inbound and 1,272 outbound) forecast during the PM peak hour.
- **Year 2027 Cumulative Plus Project Traffic Conditions** – One (1) of the twelve (12) key study intersections will continue to operate at an operational deficiency with the addition of project traffic, when compared to the LOS criteria specified in this report. The remaining eleven (11) key study intersections currently operate and are forecast to continue to operate at an acceptable LOS D or better during the AM and PM peak hours with the addition of Project generated traffic to Year 2027 cumulative traffic. The location forecast to operate at an adverse LOS is as follows:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>HCM</u>	<u>LOS</u>	<u>HCM</u>	<u>LOS</u>
9. Main Street at Maple Avenue	265.6 s/v	F	406.1 s/v	F

The proposed Project ***will not*** cause an operational deficiency at any of the five (5) key roadway segments. The five (5) key roadway segments are forecast to continue to operate at acceptable service levels on a daily basis with the addition of project generated traffic in the Year 2027 traffic conditions.

- **General Plan Buildout Plus Project Traffic Conditions** – One (1) of the twelve (12) key study intersections will continue to operate at an operational deficiency with the addition of project traffic, when compared to the LOS criteria specified in this report. The remaining eleven (11) key study intersections are forecast to continue to operate at an acceptable LOS with the addition of project generated traffic to General Plan Buildout traffic conditions. The location forecast to operate at an adverse LOS is as follows:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>HCM</u>	<u>LOS</u>	<u>HCM</u>	<u>LOS</u>
9. Main Street at Maple Avenue	301.7 s/v	F	502.5 s/v	F

The proposed Project ***will not*** cause an operational deficiency at any of the five (5) key roadway segments. The five (5) key roadway segments are forecast to continue to operate at acceptable service levels on a daily basis with the addition of project generated traffic in the General Plan Buildout traffic conditions.

- ***State of California (Caltrans) Methodology*** –The proposed Project is expected to neither cause nor contribute towards vehicle queuing which extends back into the I-5 and SR-57 Freeway mainline travel lanes for Year 2027 Cumulative Plus Project and General Plan Buildout Plus Project traffic conditions. Therefore, the proposed Project is not anticipated to negatively influence safety on the State Highway System.
- ***Site Access Evaluation*** – The Project Driveway at Chapman Avenue is forecast to operate in the Year 2027 Plus Project and General Plan Buildout Plus Project traffic conditions at an unacceptable LOS F during the AM and PM peak hours, resulting in an operational deficiency. However, with recommended improvements, the Project Driveway at Chapman Avenue is forecast to operate at acceptable LOS D or better during the AM and PM peak hours. As such, project access will be adequate.

The following improvements are recommended to offset the proposed Project’s operational deficiency at the intersection of Project Driveway at Chapman Avenue.

- **Project Driveway at Chapman Avenue**: Utilizing appropriate signage, to be confirmed by City of Orange staff, restrict the egress to southbound right-turns out only during the weekday AM peak period (7:00 AM – 9:00 AM) and weekday PM peak period (4:00 PM – 6:00 PM). With this restriction, vehicles wanting to travel eastbound on Chapman Avenue will be required to make a southbound right-turn at the intersection of Project Driveway at Chapman Avenue and either a westbound right-turn movement at the intersection of Eckhoff Street at Chapman Avenue or a westbound U-turn movement at the intersection of Flower Street at Chapman Avenue to continue back to their intended destination east of the project site. It should be noted that the school will also provide pick-up and drop-off procedures to parents indicating this peak hour turning restriction and it will be monitored by school staff.

It should be noted that in addition to the peak period turning restrictions, the level of service results shown in column (3) of *Tables 11-1* and *11-2*, also include an adjustment to the project traffic volumes to account for the proposed staggered start times during the AM peak hour. Based on the staggered start times, only 592 students out of the 864 students would arrive to the project site during the same hour (i.e. AM peak hour), and the LOS results shown in column (3) of the tables reflect that number of students.

It should be further noted that no trip adjustments for staggered start times were made to the primary intersection level of service analysis results shown in *Tables 8-1* and *9-1*, thus resulting in a conservative analysis at the twelve (12) key study intersections.

- ***School Drop-Off and Pick-Up Evaluation*** – The proposed school will have a maximum enrollment of 864 students and will have staggered start and end times. The proposed Project will have three primary morning start times (i.e. 8:00 AM, 8:30 AM and 9:00 AM) and three primary afternoon end times (i.e. 2:30 PM, 3:00 PM and 3:30 PM). The staggered start times will result in only 592 students out of the 864 students arriving during the same hour. Application of the 9% factor to the 592 students results in a “maximum queue” of 54 vehicles. The proposed Project can accommodate a maximum queue of approximately 58 vehicles on-site. Therefore, we conclude that the on-site storage for the drop-off/pick-up area is adequate and vehicles are not anticipated to queue back onto Chapman Avenue.

- ***Recommended Safe Route to School Evaluation*** – It is recommended that students located north of the school site make their way to the project site by heading south to Chapman Avenue via Maple Avenue to Eckhoff Street, Feldner Road, Main Street, or Batavia Street. In addition, it is recommended that students located west and east of the school site make their way to the project site via Chapman Avenue. Lastly, it is recommended that students located south of the school site make their way to the project site by heading north to Chapman Avenue via Almond Avenue to Flower Street, Feldner Road, Main Street or Batavia Street. It is then recommended that these students cross the street within the crosswalks at either the signalized intersection of Flower Street/Chapman Avenue or the signalized intersection of Feldner Road/Chapman Avenue and travel along the north side of Chapman Avenue to the project site.

Based on the recommended safe route to school paths of travel, all crossings in the vicinity were evaluated and no locations were identified for additional traffic control. The existing pedestrian facilities in the area are generally adequate for students in the vicinity to walk to school. Furthermore, the north leg of the side-street stop-controlled intersection of Eckhoff Street at Chapman Avenue could be considered for yellow crosswalk striping

- ***Internal Circulation Evaluation*** – The on-site circulation layout of the proposed Project on an overall basis is adequate. Curb return radii have been confirmed and are generally adequate for small service/delivery (FedEx, UPS) trucks and trash trucks.

- ***Parking Analysis*** – Application of the City parking code ratio to the development totals results in a City-code parking requirement of 81 spaces. With a proposed on-site parking supply of 100 spaces, the City’s parking requirements are satisfied and there will be a surplus of 19 spaces. Given these results, we conclude that there will be adequate parking on site to accommodate the proposed Project.

- ***Recommended Improvements (Intersections)*** – The results of the intersection capacity analysis presented previously in *Tables 8-1* and *9-1* indicate that the proposed Project will cumulatively cause unacceptable operational LOS conditions at the intersection of Main Street at Maple Avenue. The following improvements are recommended for Year 2027 Plus Project and General Plan Buildout Plus Project traffic conditions:

- **Intersection 9. Main Street at Maple Avenue:** Install a traffic signal with two-phase operation. It should be noted that a traffic signal is warranted at this location under existing traffic conditions.

- ***Recommended Improvements (Roadway Segments)*** – The results of the daily roadway segment analysis presented previously in *Tables 8-2 and 9-2* shows that the proposed Project ***will not*** cause operational deficiencies at any of the five (5) key roadway segments under the “Year 2027 Plus Project” and “General Plan Buildout Plus Project” traffic scenarios. As such, no improvements are recommended under this traffic scenario.

- ***Year 2027 Project Fair Share Analysis*** – The Project fair share percentages (most adverse time period) for the one intersection forecast to have operational deficiencies for Year 2027 Plus Project traffic conditions that require physical improvements are shown below:
 - 9. Main Street at Maple Avenue 6.43%

- ***General Plan Buildout Project Fair Share Analysis*** – The Project fair share percentages (most adverse time period) for the one intersection forecast to have operational deficiencies for General Plan Buildout Plus Project traffic conditions that require physical improvements are shown below:
 - 9. Main Street at Maple Avenue 5.88%

- ***Multimodal Circulation*** – The on-site circulation layout of the proposed Project on an overall basis is adequate for drivers, pedestrians, bicyclists, and public transit users. Pedestrian circulation would be provided via existing public sidewalks along Chapman Avenue, Eckhoff Street, Feldner Road, Maple Street, and Main Street within the vicinity of the Project. The signalized intersections of Flower Street at Chapman Avenue, Feldner Road at Chapman Avenue, and Main Street at Chapman Avenue currently provide protected crossings along all legs of these intersections, which will provide pedestrians safe and convenient access to and from the Project site. Public transit bus service is provided in the Project area by the Orange County Transit Authority (OCTA) via Routes 53, 54, 57, 453 and 553. The four closest bus stops nearest to the Project site are located on the northwest corner and southeast corner of Feldner Road at Chapman Avenue and Flower Street at Chapman Avenue.

- ***Congestion Management Program (CMP)*** – The proposed Project will not cause any operational deficiencies on the Congestion Management Program Highway System.