3.8 TRANSPORTATION AND TRAFFIC

This section describes the existing transportation systems in South Pasadena, characterizes different modes of transportation, discusses the adopted transportation plan and policies pertinent to traffic and circulation in the area, and discusses the effects on transportation associated with the Mission Place Project (project). Mitigation measures to reduce or eliminate project impacts identified as significant are included where feasible and necessary. Discussion is also provided when mitigation measures are determined to be infeasible.

The analysis was prepared by Arch Beach Consulting and presents results of the traffic impact analysis (TIA) conducted for the project. The analysis was conducted to evaluate project impacts on the surrounding transportation system and to identify measures to mitigate any significant impacts. The TIA was prepared based on the City's General Plan Circulation and Accessibility Element, requirements of the City's Public Works Department, the Los Angeles County Congestion Management Program (CMP), and the California Environmental Quality Act (CEQA). **Appendix G** includes the full TIA and its appendices. This section refers the reader to TIA chapters, figures, tables, and appendices for more detailed discussion.

A summary of the impact conclusions related to transportation and traffic is provided below. As discussed in the project's Initial Study (**Appendix A**) and in Section 3.0, subsection 3.3, Impacts Found to Be Less Than Significant, of this Draft EIR, the project would have a less than significant impact, if any, related to Impacts 3.8.2, 3.8.3, 3.8.4, 3.8.5, and 3.8.7. Therefore, these topics will not be discussed further in this Draft EIR.

Impact Number	Impact Topic	Impact Significance
3.8.1	Conflict with an applicable plan, ordinance, or policy	Less than significant
3.8.2	Conflict with an applicable congestion management program	Less than significant
3.8.3	Air traffic pattern impacts under existing plus project conditions	No impact
3.8.4	Increased hazards due to a design feature	Less than significant
3.8.5	Emergency access impacts under existing plus project conditions	Less than significant
3.8.6	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities	Less than significant
3.8.7	Result in inadequate parking capacity	Less than significant
3.8.8	Cumulative traffic impacts	Less than cumulatively considerable

3.8.1 EXISTING SETTING

The circulation system serving South Pasadena consists of roadways, bicycle and pedestrian facilities, the public transit system, and railroad facilities. Travel characteristics, major transportation facilities, and existing travel conditions in the project area are described below.

EXISTING ROADWAY NETWORK

South Pasadena is traversed by a number of key regional and local transportation facilities. This extensive transportation network provides circulation and mobility that allow local and regional connectivity. Roadways with the highest average daily traffic (ADT) volumes are those that provide north–south and east–west connections across regional facilities (Interstate 110) and

railroads or serve as parallel routes to regional roadways. The overall condition of the local street system, as well as the standards to which the improvements were originally constructed, varies by location.

Local streets are designed for high accessibility (access to adjacent properties) and low mobility (throughput of traffic movement). Conversely, freeways are designed for low accessibility, with limited connections to other facilities provided by grade-separated interchanges, and high mobility. South Pasadena's street network comprises freeways, expressways, major and minor arterial streets, commercial/industrial collectors, residential collectors, local streets, interchanges, freeway connectors, and rail lines. The city's main vehicular roadway types are freeways, expressways, arterial streets, and local streets.

Freeways are facilities designed solely for traffic movement, providing no access to abutting properties, and designed to separate all conflicting traffic movements through the use of grade-separated interchanges. Expressways are facilities designed primarily for traffic movement and provide limited access to abutting properties. These facilities generally include median areas dividing traffic directions, some intersecting streets allowing only right-turn access, some grade-separated interchanges, and some signalized intersections allowing full access. Interstate 110 (I-110) traverses South Pasadena and provides regional access to the project area.

Arterial streets are roadways that accommodate major movements of traffic not served by freeways or multilane highways. They are designed mainly for the movement of through traffic; the provision of access to abutting properties is a secondary function. On-street parking and loading may be restricted or prohibited to improve the capacity for moving traffic. The number of lanes on this type of facility depends on its function, its location, and the volume of traffic it is expected to handle; however, arterials are generally planned to have four or more travel lanes (two or more in each direction) and/or serve traffic at speeds greater than 30 miles per hour (mph). Fair Oaks Avenue is an example of a major arterial, while minor arterials include Mission Street, Monterey Road, and Fremont Avenue.

Collector streets are facilities that serve internal traffic movements in a specific area or neighborhood and provide connections to the arterial street system. South Pasadena includes both commercial/industrial collectors and residential collectors. Collectors typically do not serve through trips but can provide access to abutting properties. El Centro Street is an example of a collector.

Local streets provide access to immediately adjacent properties. These low-speed streets may be subdivided into classes according to the type of land served, such as residential or industrial, or the slope of the roadway. The vast majority of streets in the city are local streets. Diamond Avenue and Fairview Avenue are two local streets located in the project area.

Regional access to the site is provided by I-110 to the north, via its interchanges with Orange Grove Avenue, Fair Oaks Avenue, and Pasadena Avenue. Local access is provided by Mission Street, Monterey Road, Meridian Avenue, and Diamond Avenue. Descriptions of the roadways are presented below. **Figure 3.8-1** shows the locations of these facilities in relation to the project site.

- *Interstate 110 (freeway)* is a six-lane divided north–south freeway, but it travels in an east–west direction through South Pasadena. I-110 originates in the north in Pasadena and terminates in the south at the Port of Long Beach.

T:_CS\Work\South Pasadena Unified School District\Mission Place\Figures

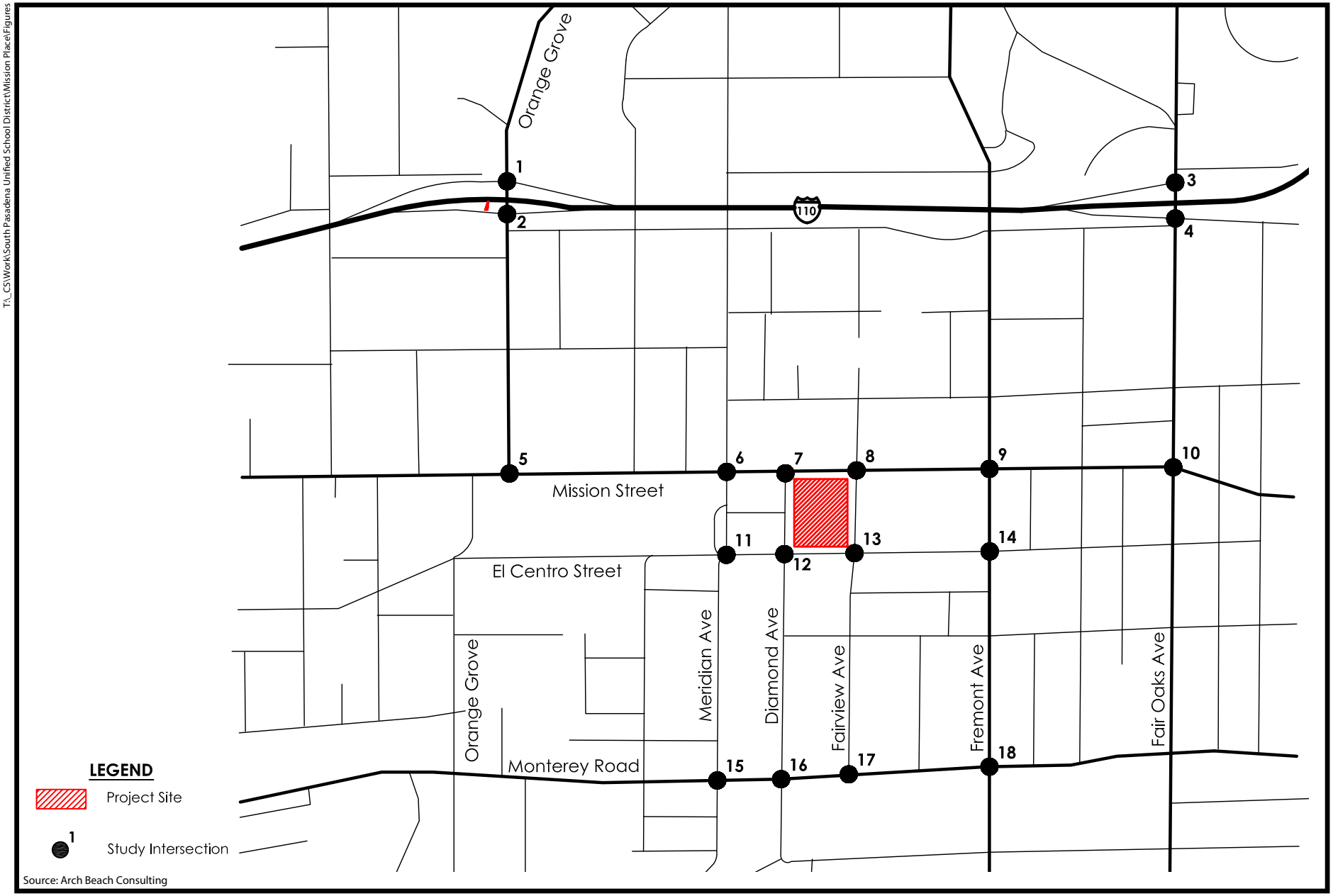

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Figure 3.8-1
Project Site Location and Study Area

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- *Mission Street (minor arterial)* is a four-lane undivided roadway trending in an east–west direction west of Fair Oaks Avenue. East of Fair Oaks Avenue, Mission Street is a two-lane undivided roadway. On-street parking is permitted. The posted speed limit on Mission Street is 30 mph. It is classified as a minor arterial street in the City's General Plan Circulation and Accessibility Element. In addition, on Meridian Avenue, between Mission Street and El Centro Street, a weekly farmers market occurs every Thursday from 4:00 p.m. to 8:00 p.m. This segment of Meridian Avenue is closed to vehicular traffic, and pedestrian/bicycle traffic arrives to the market via Mission Street and El Centro Street. Mission Street is a designated truck route from Pasadena Avenue to Fair Oaks Avenue.

- *Diamond Avenue (local)* is a two-lane undivided north–south street. However, between El Centro Street and Oxley Street, Diamond Avenue is one-way single-lane street that travels in a northbound direction. South of and adjacent to the project site, Diamond Avenue, Fairview Avenue, and Oxley Street form a one-way loop that travels in a clockwise direction around the South Pasadena Public Library. On-street parking is permitted on both sides of Diamond Avenue with a two-hour limit between 7:00 a.m. and 7:00 p.m. South of El Centro Street, the parking time limit is three hours between 7:00 a.m. and 7:00 p.m. Diamond Avenue is classified as a local street in the City's General Plan and is part of the City's Mission-Meridian Preferential Parking District.

- *Fairview Avenue (local)* is also a two-lane undivided north–south street. Between El Centro Street and Oxley Street, Fairview Avenue is a one-way single-lane street that travels in a southbound direction. South of and adjacent to the project site, Fairview Avenue, Diamond Avenue, and Oxley Street form a one-way loop that travels in a clockwise direction around the library. On-street parking is permitted on both sides of Fairview Avenue with a two-hour limit between 7:00 a.m. and 7:00 p.m. South of El Centro Street, the parking time limit is four hours between 7:00 a.m. and 7:00 p.m.

- *El Centro Street (collector)* is a two-lane undivided east–west street. On-street parking is permitted. The posted speed limit on El Centro Street is 25 mph.

- *Monterey Road (minor arterial)* is a four-lane undivided roadway trending in an east–west direction west of Fair Oaks Avenue. East of Fair Oaks Avenue, Monterey Road transitions to a two-lane undivided roadway. On-street parking is permitted. The posted speed limit on Monterey Road is 35 mph west of Fair Oaks Avenue, and 30 mph east of Fair Oaks Avenue.

- *Fair Oaks Avenue (major arterial)* is a four-lane divided roadway that travels in a north–south direction in the vicinity of the project site. South of Monterey Road, Fair Oaks Avenue is a six-lane divided roadway. On-street parking is permitted. Fair Oaks Avenue terminates to the south at Huntington Drive. The posted speed limit on Fair Oaks Avenue in the project vicinity ranges from 30 to 35 mph. Fair Oaks Avenue is classified as a major arterial street in the City's General Plan. It is a designated truck route from the northern city limits to Huntington Drive.

- *Fremont Avenue (minor arterial)* is a two-lane divided roadway with a continuous left turn lane trending in a north–south direction in the vicinity of the project site. North of Hope Street, Fremont Avenue transitions to a two-lane undivided roadway. On-street parking is permitted. The posted speed limit on Fremont Avenue in the project vicinity is 30 mph. It is classified as a minor arterial street in the City's General Plan.

PEDESTRIAN FACILITIES

Pedestrian facilities improve safety for pedestrians and can also encourage the use of active modes of transportation. These facilities include sidewalks, paths, pedestrian bridges, crosswalks, and pedestrian signals with crosswalks at signalized intersections to accommodate pedestrian circulation. In California, it is legal for pedestrians to cross any street, except at unmarked locations between immediately adjacent signalized crossings or where crossing is expressly prohibited. Marked crossings reinforce the location and legitimacy of a crossing. In pedestrian-friendly cities, crossing locations are treated as essential links in the pedestrian network.

The majority of city streets have pedestrian sidewalks on either one or both sides of the street. Signals are currently equipped with pedestrian signals and push buttons. Other pedestrian facilities such as signing and pavement marking, speed radar signs, flashing beacons, and in-road warning lights are also provided throughout the city, with special emphasis on school areas.

Currently, there are continuous sidewalks along both sides of all the streets that surround the project site: Mission Street, Diamond Avenue, Fairview Avenue, and El Centro Street. The sidewalks that surround the project site are within wide rights-of-way that either provide a wide paved sidewalk between property lines and the street curbs or a standard-width sidewalk with a landscaped buffer between the sidewalk and the street.

In November 2013, the California Department of Transportation (Caltrans) awarded a grant to the City for Cycle 6 of the Highway Safety Improvement Program to install pedestrian in-roadway warning lights (IRWL) at the intersections of Mission Street/Diamond Avenue, Mission Street/Fairview Avenue, and Fremont Avenue/Lyndon Street. In April 2015, the City received authorization to proceed with preliminary engineering for the IRWLs. In July 2015, the City adopted Resolution No. 7407 in which the City entered into an Administering Agency-State Agreement with Caltrans. Per recent discussions with City Public Works staff, the IRWLs are anticipated to be in operation sometime in 2016. The use of pedestrian-actuated IRWLs across Mission Street, at its intersections with Diamond Avenue and Fairview Avenue, would facilitate pedestrian safety by warning motorists on Mission Street of pedestrians crossing the roadway. It is anticipated that the IRWLs would be installed and operational prior to operation of the Mission Place Project.

BICYCLE FACILITIES

Bikeway planning and design in California typically rely on guidelines and design standards established by Caltrans in the *Highway Design Manual* (2015), specifically in Chapter 1000: Bikeway Planning and Design. The manual describes three distinct types of bikeway facilities, as listed below.

- *Class I Bikeways (Bike Paths)* provide a completely separate right-of-way and are designated for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian cross-flow minimized. In general, bike paths serve corridors not served by streets and highways or where sufficient right-of-way exists to allow such facilities to be constructed away from the influence of parallel streets and vehicle conflicts.

- *Class II Bikeways (Bike Lanes)* are lanes for bicyclists generally adjacent to the outer vehicle travel lanes. These lanes have special lane markings, pavement legends, and signage. Bicycle lanes are generally 5 feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.

- *Class III Bikeways (Bike Routes)* are designated by signs or pavement markings for shared use with pedestrians or motor vehicles, but have no separated bike right-of-way or lane striping. Bike routes serve either to provide continuity to other bicycle facilities or to designate preferred routes through high-demand corridors.

The City of South Pasadena currently has two bikeways, which are Class II bike lanes, totaling 1.3 miles (City of South Pasadena 2011). In its 2011 Bicycle Master Plan, the City proposed the addition of approximately 13.7 miles of Class I bikeways, 7.0 miles of Class II bikeways, and 2.7 miles of Class III bikeways. There are currently no bike facilities in the project area; however, per the City's Bicycle Master Plan, bike lane improvements are planned for Mission Street and El Centro Street in the project vicinity.

EXISTING TRANSIT SERVICE

Transit service in the project vicinity is provided by the Los Angeles County Metropolitan Transportation Authority (MTA or Metro). The following transit lines operate in the project area:

- *Metro Bus Line 260* – Altadena to Compton via Fair Oaks Avenue provides service to Altadena, Pasadena, South Pasadena, San Marino, Alhambra, Commerce, Maywood, North Long Beach, and Compton. Points along the route include several Metro bus/rail stations, including the South Pasadena Metro station (transfer to Metro Line 176), East LA College, and Atlantic Station. Weekday service starts at 4:03 a.m. and ends at 1:11 a.m. (next day). Saturday service starts at 4:58 a.m. and ends at 1:11 a.m. (next day). Sunday and holiday service starts at 5:58 a.m. and ends at 1:11 a.m. (next day).

- *Metro Rapid Bus Line 176* – Highland Park to Montebello, provides service to Highland Park, South Pasadena, San Gabriel, Rosemead, El Monte, South El Monte, and Montebello. Points of interest along the route include the Gold Line station in South Pasadena, stops along Mission Street (transfer to Metro Line 260 and 762), stops on Mission Drive in San Gabriel (transfer to Metro Line 378), and the Montebello Town Center. Weekday service starts at 5:43 a.m. and ends at 9:20 p.m. There is no service on weekends and holidays.

- *Metro Rapid Bus Line 762* – Pasadena to Compton via Fair Oaks Avenue, provides service to Pasadena, South Pasadena, San Marino, Monterey Park, Maywood, Lynwood, North Long Beach, and Compton. Points along the route include several Metro bus/rail stations, including the South Pasadena Metro station (transfer to Metro Line 176), East LA College, and Artesia Station. Weekday service starts at 4:48 a.m. and ends at 9:10 p.m. There is no service on weekends and holidays.

- *Metro Rail Line (Gold Line)* – Sierra Madre Villa to East Los Angeles via the South Pasadena Station, provides service to Pasadena, South Pasadena, Highland Park, Montecito Heights, Cypress Park, Downtown, Boyle Heights, and East LA. Points along the route include several Metro rail stations, including the following stations: Lake, Del Mar, South Pasadena, Highland Park, Union Station, Little Tokyo, and Mariachi Plaza. Weekday service starts at 4:21 a.m. and ends at 1:32 a.m. (next day). Weekend and holiday service also starts at 4:21 a.m. and ends at 1:32 a.m. (next day).

EXISTING INTERSECTION VOLUMES AND LANE CONFIGURATIONS

Existing weekday daily AM and PM peak-hour peak hour traffic volumes were collected at the study area roadway segments and intersections in late September 2014 and mid November

2014 from 7:00 to 9:00 AM and from 4:00 to 6:00 PM. **Figure 3.8-2** illustrates the existing traffic controls and lane geometrics at the study area intersections. The study area intersections and roadway segments are as follows:

Intersections

Orange Grove Avenue/I-110 southbound ramps

Orange Grove Avenue/I-110 northbound ramps

Fair Oaks Avenue/I-110 southbound on-ramp

Fair Oaks Avenue/I-110 northbound off-ramp

Orange Grove Avenue/Mission Street

Meridian Avenue/Mission Street

Diamond Avenue/Mission Street

Fairview Avenue/Mission Street

Fremont Avenue/Mission Street

Fair Oaks Avenue/Mission Street

Meridian Avenue/El Centro Street

Diamond Avenue/El Centro Street

Fairview Avenue/El Centro Street

Fremont Avenue/El Centro Street

Meridian Avenue/Monterey Road

Diamond Avenue/Monterey Road

Fairview Avenue/Monterey Road

Fremont Avenue/Monterey Road

Roadway Segments

1. Mission Street, Diamond Avenue to Fairview Avenue
2. Diamond Avenue, Mission Street to El Centro Street
3. Fairview Avenue, Mission Street to El Centro Street

Figure 3.8-3 presents the existing AM and PM peak-hour turning movement volumes, lane configurations, and traffic control devices at the study intersections. The raw traffic volume count sheets are provided in **Appendix G.**

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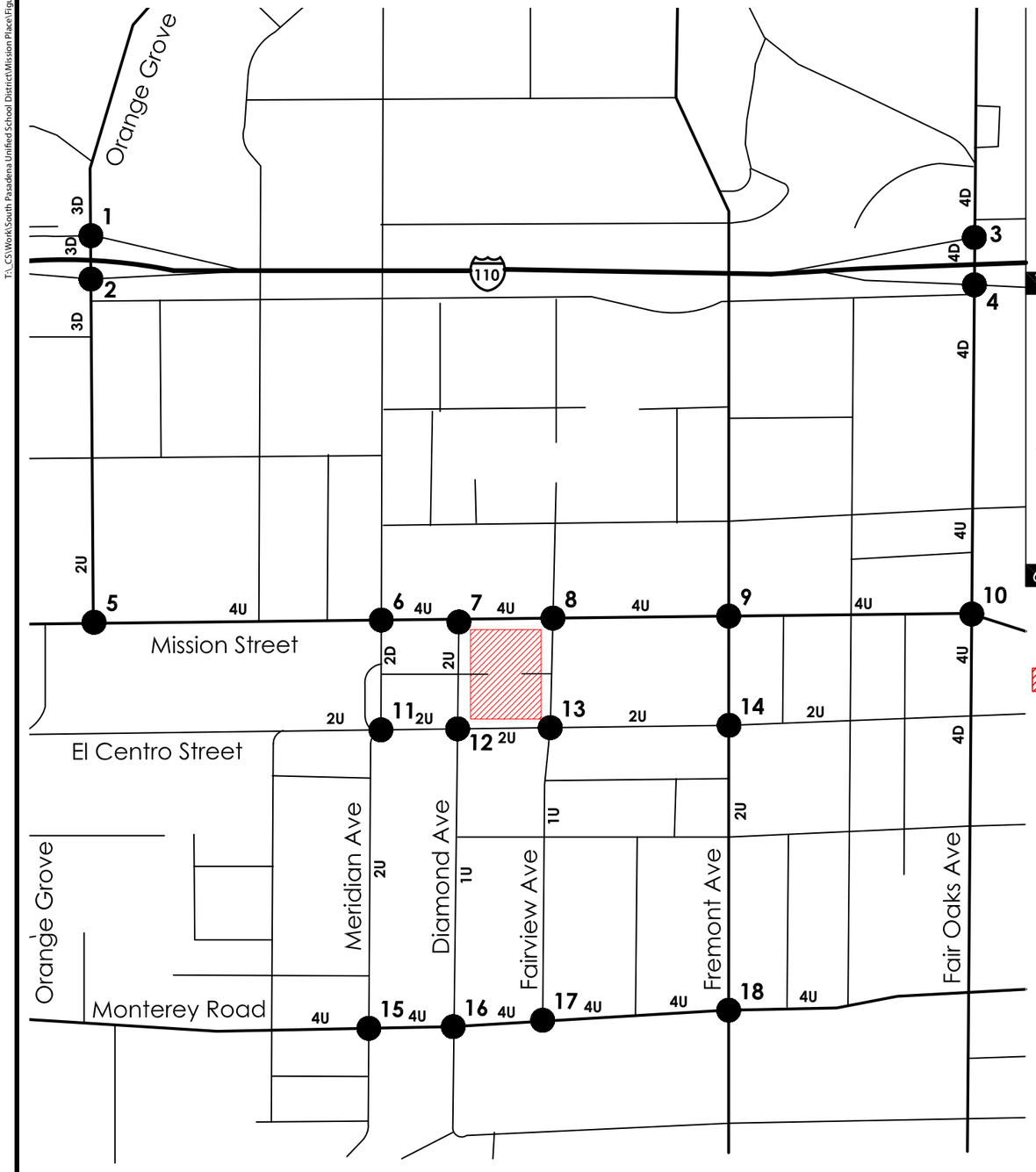

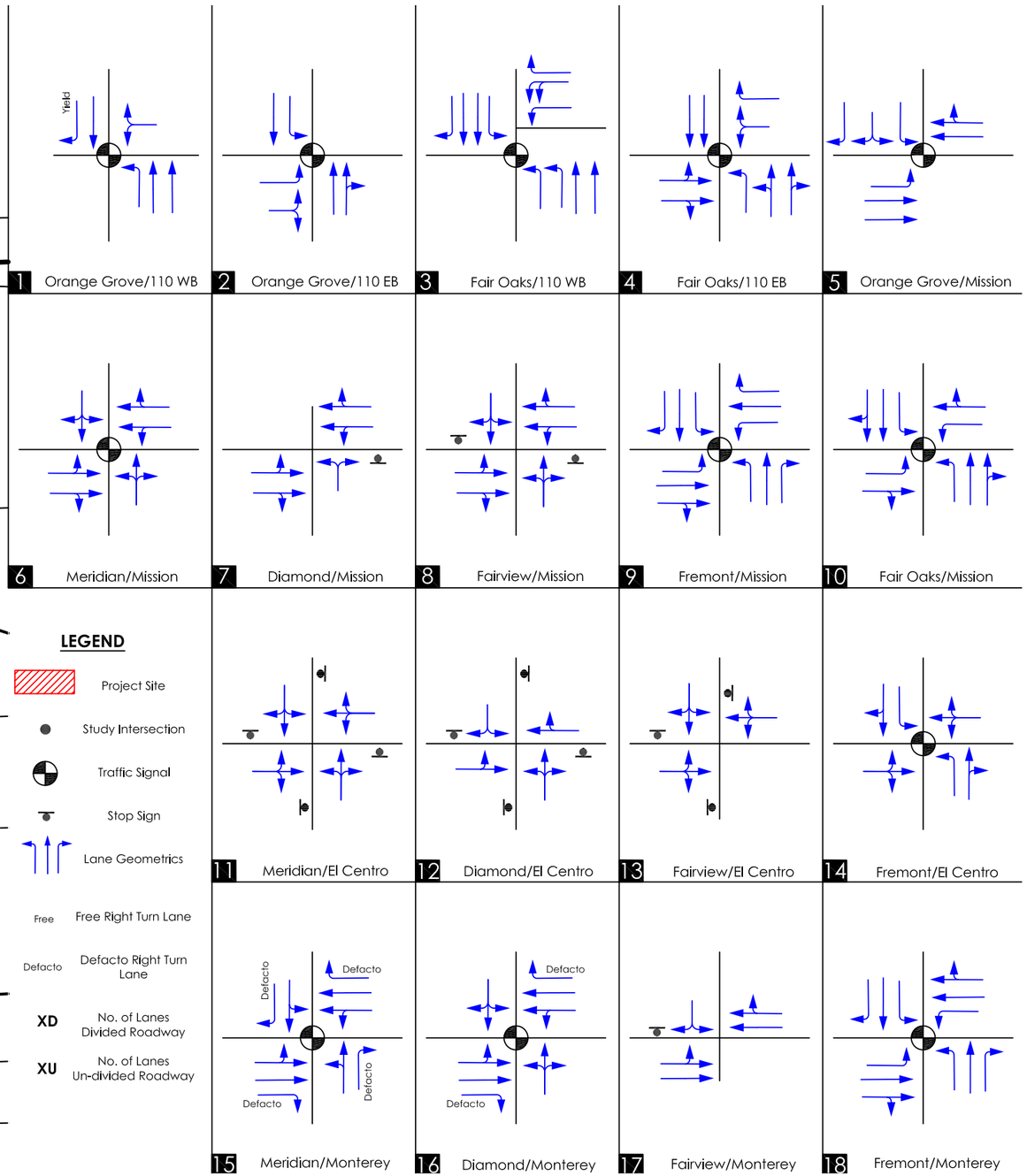

Source: Arch Beach Consulting

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Figure 3.8-2
Existing Traffic Control and Geometrics

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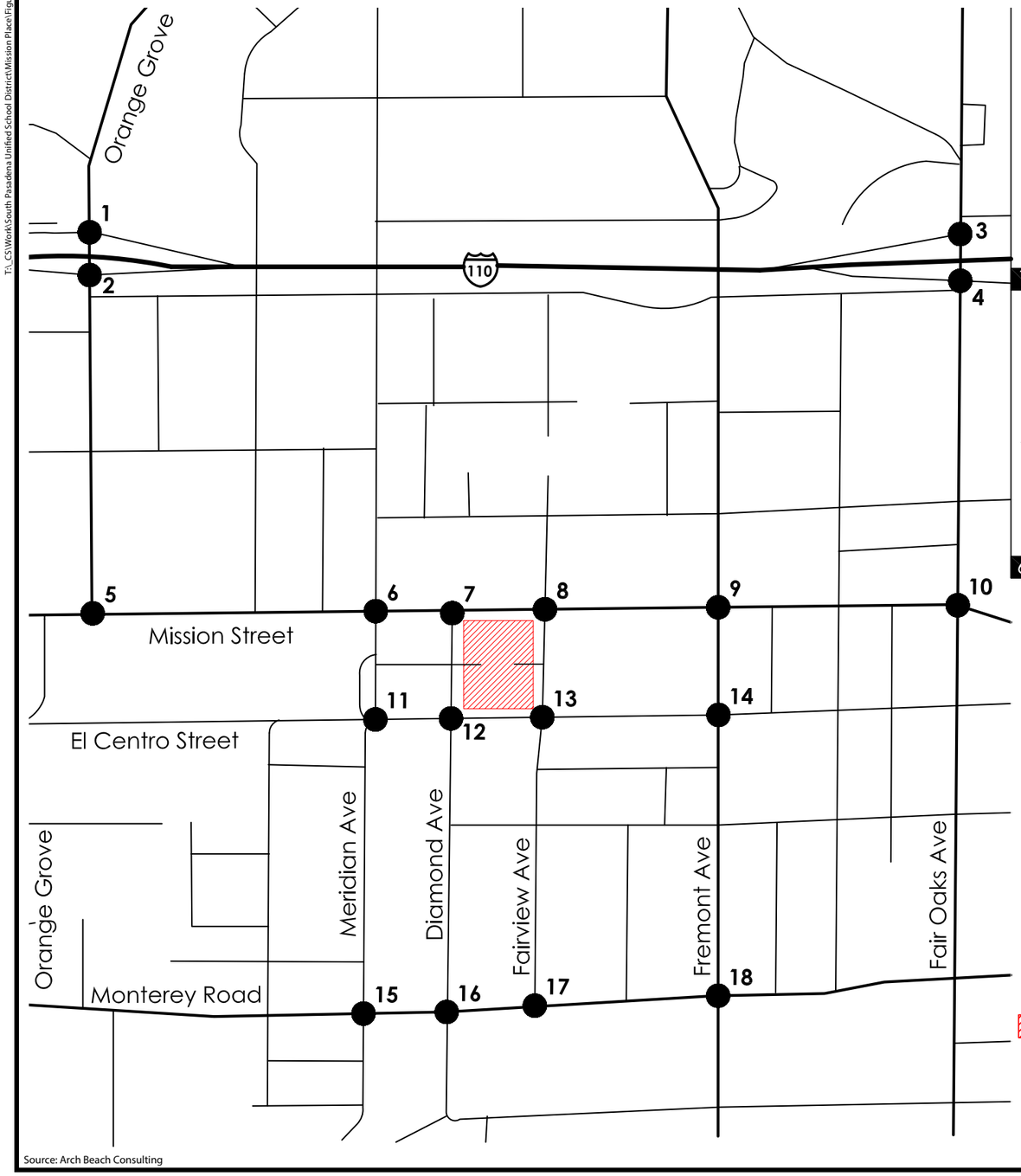

Source: Arch Beach Consulting

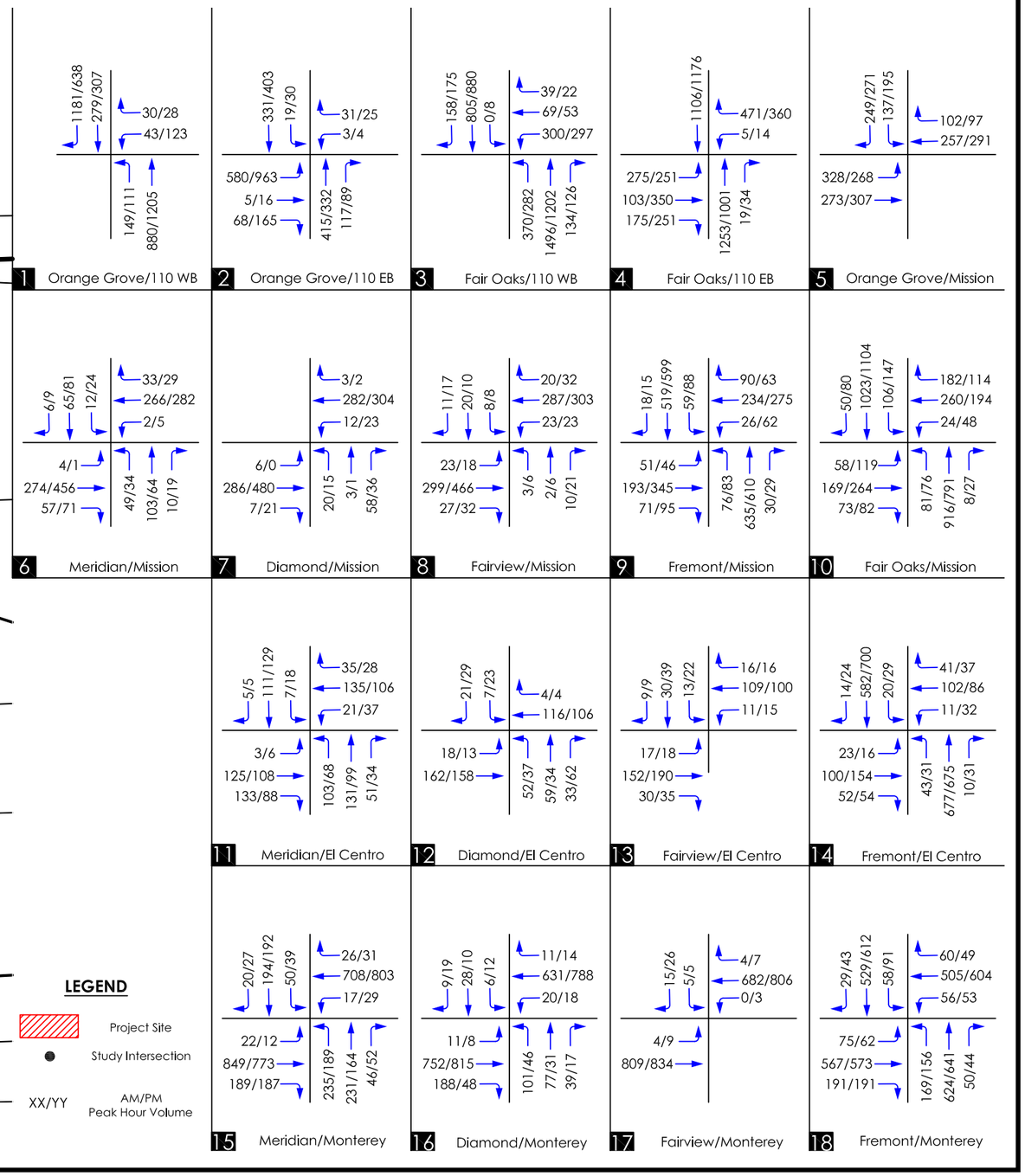

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Figure 3.8-3

Existing Weekday AM and PM Peak Hour Volumes

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EXISTING INTERSECTION LEVELS OF SERVICE

Based on the analysis methodology described in section 1.0 of the TIA, the existing weekday AM and PM peak-hour traffic volumes were input into the Traffix LOS software to determine the existing intersection volume-to-capacity (V/C) ratios and resulting level of service (LOS) values. **Table 3.8-1** presents the results of the existing intersection LOS analysis for the weekday AM and PM peak hours. The LOS calculation sheets are provided in **Appendix G**.

Based on the existing weekday AM and PM peak-hour LOS analysis, most of the study area intersections are currently operating with satisfactory level of service at LOS D or better in the AM and/or PM peak hours with the exception of the following:

- Orange Grove Avenue/I-110 southbound ramps (LOS F in AM peak hour)
- Fair Oaks Avenue/I-110 northbound off-ramp – Grevelia Street (LOS F in both peak hours)

TABLE 3.8-1
EXISTING INTERSECTION LEVELS OF SERVICE

	Intersection	Control	Existing Condition			
			AM Peak Hour		PM Peak Hour	
			V/C or Delay	LOS	V/C or Delay	LOS
1.	Orange Grove Ave/I-110 SB ramps	signal	**1.016**	**F**	0.711	C
	HCM LOS		*28.0*	*C*	*11.7*	*B*
2.	Orange Grove Ave/I-110 NB ramps	signal	0.562	A	0.771	C
	HCM LOS		*22.4*	*C*	*24.0*	*B*
3.	Fair Oaks Ave/I-110 NB off-ramp	signal	0.734	C	0.623	B
	HCM LOS		*16.4*	*B*	*16.1*	*B*
4.	Fair Oaks Ave/I-110 NB off-ramp	signal	**1.234**	**F**	**1.197**	**F**
	HCM LOS		***118.6***	***F***	***104.8***	***F***
5.	Orange Grove Avenue/Mission Street	signal	0.435	A	0.380	A
6.	Meridian Avenue/Mission Street	signal	0.371	A	0.378	A
7.	Diamond Avenue/Mission Street	1-way stop	11.1	B	20.2	C
8.	Fairview Avenue/Mission Street	2-way stop	15.0	C	15.1	C
9.	Fremont Avenue/Mission Street	signal	0.735	C	0.774	C
10.	Fair Oaks Avenue/Mission Street	signal	0.864	D	0.801	D
11.	Meridian Avenue/El Centro Street	2-way stop	12.4	B	9.9	A
12.	Diamond Avenue/El Centro Street	2-way stop	8.9	A	8.7	A
13.	Fairview Avenue/El Centro Street	2-way stop	8.4	A	8.6	A
14.	Fremont Avenue/El Centro Street	signal	0.678	B	0.808	D
15.	Meridian Avenue/Monterey Road	signal	0.808	D	0.654	B
16.	Diamond Avenue/Monterey Road	signal	0.608	B	0.438	A
17.	Fairview Avenue/Monterey Road	1-way stop	15.2	C	14.9	B
18.	Fremont Avenue/Monterey Road	signal	0.858	D	0.863	D
19.	Diamond Avenue/Residential Dwy	1-way stop	0.0	A	0.0	A
20.	Fairview Avenue/Commercial Dwy	1-way stop	7.5	A	9.4	A

Source: Arch Beach Consulting 2015

Notes: Signalized intersections analyzed in Intersection Capacity Utilization (ICU) methodology: unsignalized and Caltrans ramp intersections analyzed in Highway Capacity Manual (HCM) methodology. ICU LOS based on volume-to-capacity (V/C) ratio, and HCM LOS based on vehicle control delay.

Bold = Intersection level of service calculated to be below City's standard of LOS D.

Roadway Segments

Based on the analysis methodology described in section 1.0 of the TIA, the existing daily levels of service at the study area roadway segments were determined. **Table 3.8-2** presents the results of the existing daily traffic LOS analysis for the study area roadway segments.

TABLE 3.8-2
EXISTING DAILY ROADWAY SEGMENT LEVEL OF SERVICE SUMMARY

Roadway Segment	LOS E Capacity	Existing Condition		
		ADT	V/C Ratio	LOS
Mission Street				
Diamond Avenue to Fairview Avenue	25,000	9,930	0.397	A
Diamond Avenue				
Mission Street to El Centro Street	5,000	1,190	0.238	A
Fairview Avenue				
Mission Street to El Centro Street	5,000	1,080	0.216	A

Source: Arch Beach Consulting 2015

All study area roadway segments are currently operating with satisfactory level of service with LOS A at all segments.

3.8.2 REGULATORY FRAMEWORK

FEDERAL

Americans with Disabilities Act of 1990

Titles I, II, III, and V of the Americans with Disabilities Act (ADA) have been codified in Title 42 of the United States Code, beginning at Section 12101. Title III prohibits discrimination on the basis of disability in places of public accommodation (businesses and nonprofit agencies that serve the public) and commercial facilities (other businesses). The regulation includes Appendix A to Part 36 (Standards for Accessible Design) establishing minimum standards for ensuring accessibility when designing and constructing a new facility or altering an existing facility. ADA regulations were updated and published in 2011 and amend the 1991 Title II regulation (state and local governments), 28 Code of Federal Regulations (CFR) Part 35, and the 1991 Title III regulation (public accommodations), 28 CFR Part 36.

Examples of key guidelines include detectable warnings for pedestrians entering traffic where there is no curb, a clear zone of 48 inches for the pedestrian travelway, and a vibration-free zone for pedestrians.

Federal Highway Administration

The Federal Highway Administration (FHWA) is a major agency of the US Department of Transportation. In partnership with state and local agencies, the FHWA carries out federal highway programs to meet the nation's transportation needs. The FHWA administers and oversees federal highway programs to ensure that federal funds are used efficiently.

STATE

California Department of Transportation

Caltrans has authority over the state highway system, including freeways, interchanges, and arterial state routes. Caltrans approves the planning, design, and construction of improvements for all state-controlled facilities, including Interstate 110 in the City of South Pasadena. The department's requirements are described in Caltrans (2001) *Guide for the Preparation of Traffic Impact Studies*, which covers the information needed for Caltrans to review the impacts on state highway facilities, including freeway segments.

Statewide Transportation Improvement Program

The California Transportation Commission administers transportation programming, the public decision-making process that sets priorities and funds projects envisioned in long-range transportation plans. It commits expected revenues over a multiyear period to transportation projects. The State Transportation Improvement Program (STIP) is a multiyear capital improvement program of transportation projects on and off the state highway system, funded with revenues from the State Highway Account and other funding sources.

Complete Streets (AB 1358)

Assembly Bill (AB) 1358, also known as the California Complete Streets Act of 2008, requires cities and counties to include complete streets policies in their general plans. These policies address the safe accommodation of all users, including bicyclists, pedestrians, motorists, public transit vehicles and riders, children, the elderly, and the disabled. These policies can apply to new streets as well as to the redesign of corridors such as streets in the project area.

REGIONAL

Southern California Association of Governments

Los Angeles County and South Pasadena are part of a six-county metropolitan region composed of Orange, Los Angeles, Ventura, Riverside, San Bernardino, and Imperial counties. The Southern California Association of Governments (SCAG) serves as the federally recognized metropolitan planning organization (MPO) for this Southern California region, which encompasses over 38,000 square miles. SCAG is a regional planning agency and serves as a forum for addressing regional issues concerning transportation, the economy, community development, and the environment. SCAG also serves as the regional clearinghouse for projects requiring environmental documentation under federal and state law. In this role, SCAG reviews proposed development and infrastructure projects to analyze their impacts on regional planning programs. As the Southern California region's MPO, SCAG cooperates with the South Coast Air Quality Management District (SCAQMD), Caltrans, and other agencies in preparing regional planning documents. The City of South Pasadena and 30 adjacent jurisdictions constitute the San Gabriel Valley Subregion in the SCAG region. This subregion is governed by the San Gabriel Valley Council of Governments (SGVCOG). SCAG has developed plans to achieve specific regional objectives. The plans most applicable to the proposed project are discussed below.

Regional Comprehensive Plan

The 2008 Regional Comprehensive Plan (RCP) is a major advisory plan prepared by SCAG that addresses important regional issues like housing, traffic/transportation, water, and air quality. The RCP serves as an advisory document to local agencies in the Southern California region for their information and voluntary use in preparing local plans and handling local issues of regional significance. The RCP presents a vision of how Southern California can balance resource conservation, economic vitality, and quality of life. The RCP identifies voluntary best practices to approach growth and infrastructure challenges in an integrated and comprehensive way. It also includes goals and outcomes to measure progress toward a more sustainable region.

2012–2035 Regional Transportation Plan/Sustainable Communities Strategy

On April 4, 2012, SCAG adopted the 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) to help coordinate development of the region's transportation improvements. The RTP is a long-range transportation plan that is developed and updated by SCAG every four years. The RTP provides a vision for transportation investments throughout the region. Using growth forecasts and economic trends that project out over a 20-year period, the RTP considers the role of transportation in the broader context of economic, environmental, and quality-of-life goals for the future, identifying regional transportation strategies to address mobility needs.

In 2008, California State Senate Bill (SB) 375 was enacted to reduce greenhouse gas (GHG) emissions from automobiles and light trucks through integrated transportation, land use, housing, and environmental planning. To achieve the goal of reduced GHG emissions, the legislation requires MPOs throughout the state to include a new element in their RTPs called a Sustainable Communities Strategy (SCS). SCAG is responsible for developing the SCS for the SCAG region. Consistent with SB 375, SCAG has included an SCS in its Regional Transportation Plan. The SCS integrates transportation, land use, housing, and environmental planning strategies with the goal of reducing regional GHG emissions.

SCAG is in the process of developing the 2016–2040 RTP, with a draft expected to be released in the fall of 2015.

Los Angeles County/MTA

As the Congestion Management Agency for Los Angeles County, the MTA is responsible for implementing the Congestion Management Program (CMP). State statute requires that a congestion management program be developed, adopted, and updated biennially for every county that includes an urbanized area and include every city and the county government within that county. Since the CMP became effective with the passage of Proposition 111 in 1990, it has forged new ground in linking transportation, land use, and air quality decisions for one of the most complex urban areas in the country. The CMP addresses the impact of local growth on the regional transportation system.

Statutory elements of the CMP include Highway and Roadway System monitoring, multimodal system performance analysis, the Transportation Demand Management Program, the Land Use Analysis Program, and local conformance for all of the county's jurisdictions. On October 28, 2010, the MTA Board adopted the 2010 CMP for Los Angeles County. The 2010 CMP summarizes the results of 18 years of highway and transit monitoring and 15 years of monitoring local growth. CMP implementation guidelines for local jurisdictions are also contained in the program (MTA 2015).

CMP statute requires the Congestion Management Program to be developed consistent with and incorporated into the RTP. The RTP assists in the development of the CMP by establishing the magnitude of congestion problems that face the region and the types of solutions that will be necessary to maintain mobility. The CMP, in turn, assists in revising the RTP by relating these long-term goals to specific actions at the county and local level, developing implementation strategies, and monitoring the effectiveness of transportation improvements.

Congestion Management Program

Jurisdictions are required to conform to local requirements of the CMP in order to continue receiving their portion of state gas tax money allocated by Section 2105 of the California Streets and Highways Code and to preserve their eligibility for state and federal funding for transportation projects (MTA 2010).

Transit

The MTA's 2014 Short Range Transportation Plan is a ten-year action plan that guides Metro's programs and projects through 2024. It is meant to support the long-term goals identified in the 2009 Long Range Transportation Plan, a 30-year vision for addressing growth and traffic in Los Angeles County. It was adopted by the MTA Board in July 2014. The plan identifies short-term challenges, provides an analysis of financial resources, proposes action plans for the public transportation and highway modes, and includes other project and program initiatives. In addition, it addresses sustainability and future funding strategies and measures the plan's performance.

LOCAL

City of South Pasadena General Plan

The City of South Pasadena General Plan (1998) provides a general, comprehensive, and long-range guide for community decision-making. The General Plan addresses a 15-year time period allowing for short-term, mid-range, and long-term objectives.

The General Plan comprises seven elements: Land Use and Community Design; Circulation and Accessibility; Economic Development and Revitalization; Historic Preservation; Housing; Open Space and Resource Conservation; and Safety and Noise. Each element of the General Plan is divided into six sections: (1) Introduction; (2) Existing Conditions; (3) Future Conditions; (4) Issues; (5) Goals and Policies; and (6) Strategies. The goals, policies, and strategies (implementation measures) guide the City in its growth and development.

The General Plan Land Use and Transportation Element includes the following transportation goal and accompanying policies (General Plan numbering):

GOAL 1: Provide convenient, efficient and safe mobility within the city.

GOAL 2: Encourage a full range of circulation strategies for overall reduction in vehicle trips.

GOAL 3: Encourage regional coordination of transportation improvement.

GOAL 4: Utilize effective land use planning to promote a balanced transportation system.

GOAL 5: Ensure a balance between parking supply and demand so that an adequate supply of parking is provided to meet the demands generated by the land use element.

POLICY 1: Provide convenient and efficient mobility within the city.

POLICY 2: Encourage a full range of transportation options throughout the city.

POLICY 3: Encourage regional coordination of transportation improvement programs.

POLICY 4: Utilize effective land use planning to promote a balanced transportation system.

POLICY 5: Ensure a balance between parking supply and demand so that an adequate supply of parking is provided to meet the demands generated by the land use element.

City of South Pasadena Bicycle Master Plan

The City of South Pasadena published its updated Bicycle Master Plan in 2011. The update is intended to serve as a blueprint for the implementation of citywide bicycle facilities and programs. Upon implementation, the bicycle network will allow people of varying bicycling abilities to reach their desired destinations throughout the community. These destinations include schools, local businesses, places of employment, parks, and government facilities such as City Hall, the public library, and the post office. To ensure that users can easily navigate to these destinations, a wayfinding signage network will be established. The Bicycle Master Plan incorporates multimodal bicycle linkages to transit at the Metro Gold Line station and along Metro Bus routes, and this will assist users to reach destinations throughout the region.

3.8.3 IMPACTS AND MITIGATION MEASURES

This subsection identifies potential impacts that would be associated with the proposed project and describes potential mitigation measures to eliminate or reduce the magnitude of significant impacts.

STUDY SCENARIOS

The operations of 20 regional study intersections were evaluated during the weekday morning (AM) and weekday evening (PM) peak hours to identify the pre- and post-project conditions. In addition to the existing conditions that have Diamond Avenue and Fairview Avenue as two-way streets, this section of the EIR examines the option of having Diamond Avenue and Fairview Avenue converted to one-way streets between Mission Street and El Centro Street. Under this scenario, Diamond Avenue would provide one northbound travel lane and Fairview Avenue would provide one southbound travel lane. A traffic analysis was prepared for the four affected intersections: 1) Diamond Avenue/Mission Street; 2) Fairview Avenue/Mission Street; 3) Diamond Avenue/El Centro Street; and 4) Fairview Avenue/El Centro Street. Refer to **Chapter 2 (Project Description)** of this EIR for additional detail of this option. In total, the following scenarios were analyzed (as presented in Chapters 2, 3, 4, and 5 of the TIA) and the results of the analyses are summarized below:

Scenario 1: *Existing Conditions* – Existing weekday daily AM and PM peak-hour traffic volumes were collected at the study area roadway segments and intersections in late September 2014 and mid November 2014 from 7:00 to 9:00 AM and from 4:00 to 6:00 PM.

Scenario 2: *Existing plus Project Conditions* – The Existing plus Project Condition traffic was developed by adding the proposed project traffic to the Existing Baseline Condition. This scenario is the basis for determining project-specific impacts and mitigation measures.

Scenario 2a: *Existing plus Project Conditions with Diamond Avenue and Fairview Avenue as One-way Streets* – This scenario adds the proposed project traffic to the Existing Baseline Condition with the option of Diamond Avenue providing one lane of northbound traffic and Fairview Avenue providing one lane of southbound traffic between El Centro Street and Mission Street.

Scenario 3: *Opening Year (2017) Baseline Condition* – The proposed project is anticipated to be built and fully operational by the third or fourth quarter of 2017. Therefore, short-term background traffic in this scenario was forecast for 2017 by applying a conservative annual ambient growth rate of 1 percent per year. Per the CMP, the average annual growth rate for the project's Regional Statistical Area (RSA) 25—La Cañada-Flintridge, Pasadena, Monterey Park, South El Monte, Duarte—is 0.82 percent. Therefore, the total ambient growth adjustment applied over a three-year period (from 2014 to 2017) is 3.0 percent. In addition, traffic from cumulative projects in the project vicinity was added to the existing and ambient traffic growth volumes.

Scenario 4: *Opening Year (2017) plus Project Condition* – The Opening Year (2017) plus Project Condition traffic was developed by adding the proposed project traffic to the Opening Year (2017) Baseline Condition. This scenario is also the basis for determining project-specific impacts and mitigation measures.

Scenario 4a *Opening Year (2017) plus Project Condition with Diamond Avenue and Fairview Avenue as One-way Streets* – This scenario adds the proposed project traffic to the Opening Year (2017) Baseline Condition with the option of Diamond Avenue providing one lane of northbound traffic and Fairview Avenue providing one lane of southbound traffic between El Centro Street and Mission Street.

STANDARDS OF SIGNIFICANCE

This subsection provides first the general CEQA criteria of significance and then more specific significance criteria against which the proposed project was evaluated. According to the CEQA Guidelines established by the City of South Pasadena, project implementation would have a significant impact if any of the following would result:

1) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

2) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures or other standards

established by the county congestion management agency for designated roads or highways.

3) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

4) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

5) Result in inadequate emergency access.

6) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

7) Result in inadequate parking.

The project would have a less than significant impact related to standards of significance 3, 4, 5, and 7. Therefore, these topics will not be discussed further in this Draft EIR.

The following level of service standards and impact criteria were applied to the intersection and freeway analysis and were developed in accordance with state, regional, and City regulations.

Intersections

Based on the Los Angeles County CMP, the City has established the following traffic thresholds of significance to determine whether a project traffic impact at a signalized study intersection is considered significant and thus requires mitigation:

- A significant project-related impact would occur at a signalized study intersection if the addition of project-generated trips reduces the peak-hour level of service of the study intersection from acceptable operation (LOS A, B, C, or D) to deficient operation (LOS E or F).

- A significant project-related impact would occur at a signalized study intersection already operating at a deficient level of service (LOS E or F) pre-project if the addition of project-generated trips increases traffic demand at the intersection by 2 percent of capacity (V/C ≥0.02).

To determine whether the addition of project-generated trips at an unsignalized study intersection results in a significant impact, the City has established the following thresholds of significance:

- A significant project-related impact would occur at an unsignalized study intersection if the addition of project-generated trips reduces the peak-hour level of service of the study intersection from acceptable operation (LOS A, B, C, or D) to deficient operation (LOS E or F), and the unsignalized intersection satisfies a Caltrans traffic signal warrant.

- A significant project-related impact would occur at an unsignalized study intersection if the addition of project-generated trips changes the delay of a baseline (i.e., without project) LOS E or F by ≥2.0 seconds, and the unsignalized intersection satisfies a Caltrans traffic signal warrant.

Roadway Segments

The study area roadway segments were analyzed using the V/C method based on the average daily traffic roadway capacities shown in **Table 3.8-3**.

TABLE 3.8-3
DAILY ROADWAY CAPACITY VOLUMES

Roadway Type	Daily Service Volumes (vehicles per day)				
	LOS A	LOS B	LOS C	LOS D	LOS E
6 lanes (divided)	33,900	39,400	45,000	50,600	56,300
4 lanes (divided)	22,500	26,300	30,000	33,800	37,500
4 lanes (undivided)	15,000	17,500	20,000	22,500	25,000
2 lanes (divided)	10,000	11,700	13,300	15,000	16,600
2 lanes (undivided)	7,500	8,800	10,000	11,300	12,500
Local road	3,000	3,500	4,000	4,500	5,000

Source: City of South Pasadena 1998

To determine whether the addition of project-generated trips at a study roadway segment results in a significant impact, the City has established the following thresholds of significance:

- A significant project-related impact would occur at a study roadway segment if the addition of project-generated trips reduces the roadway from acceptable operation (LOS A, B, or C) to deficient operation (LOS D, E, or F).

- A significant project-related impact would occur at a study roadway segment already operating at a deficient level of service (LOS D, E, or F) pre-project if the addition of project-generated trips increases the traffic demand at the roadway by 2 percent of capacity (V/C ≥0.02).

Pedestrian and Bicycle Impact Criteria

Pedestrian and bicycle impacts are considered significant if the proposed project would potentially disrupt existing pedestrian and bicycle facilities, eliminate existing pedestrian and/or bicycle facilities, interfere with planned pedestrian and bicycle facilities, increase conflicts between drivers, pedestrians, and/or bicyclists, or create inconsistencies or conflicts with adopted pedestrian and bicycle system plans, guidelines, policies, or standards. These impacts are discussed in TIA Chapter 5 (**Appendix G**) and in Impact 3.8.6.

Transit Impact Criteria

Transit impacts are considered significant if the proposed project conflicts with existing or planned transit facilities, generates potential transit trips in excess of available capacity, increases transit delay, or does not provide adequate facilities for pedestrians and bicyclists to access transit routes and stops. These impacts are discussed in TIA Chapter 7 (**Appendix G**) and Impact 3.8.6.

METHODOLOGY

Level of Service

Traffic operations are traditionally measured using a qualitative measure called level of service. LOS is a general measure of traffic operating conditions whereby a letter, from A (the best) to F (the worst), is assigned. These levels of service represent the perspective of drivers and are an indication of the comfort and convenience associated with driving, as well as speed, travel time, traffic interruptions, and freedom to maneuver.

The signalized study area intersections were analyzed using the Intersection Capacity Utilization (ICU) methodology for weekday peak-hour level of service. The ICU method determines the volume-to-capacity (V/C) ratio on a critical lane basis and determines LOS associated with each critical V/C ratio at the signalized intersection. The study area unsignalized intersections, Caltrans ramp intersections, and (unsignalized) project driveways were analyzed using the Highway Capacity Manual (HCM) Operations methodology. The HCM method determines level of service based on vehicle control delay for each approach movement of the intersection.

The degree of congestion at an intersection is described by the level of service, which ranges from LOS A to LOS F, with LOS A representing free-flow conditions with little delay and LOS F representing oversaturated traffic flow throughout the peak hour. A complete description of the meaning of level of service can be found in the Highway Research Board Special Report 209, *Highway Capacity Manual* (HCM 2000). Brief descriptions of the six levels of service for signalized intersections are shown in **Table 3.8-4**.

TABLE 3.8-4
LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Average Control Delay per Vehicle (seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	≤10.0
B+	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 12.0
B		12.1 to 18.0
B-		18.1 to 20.0
C+	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 23.0
C		23.1 to 32.0
C-		32.1 to 35.0
D+	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 39.0
D		39.1 to 51.0
D-		51.1 to 55.0
E+	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	55.1 to 60.0
E		60.1 to 75.0
E-		75.1 to 80.0
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	>80.0

Source: Transportation Research Board 2000

Table 3.8-5 describes the characteristics of each level of service designation for motor vehicle traffic.

TABLE 3.8-5
QUALITATIVE DESCRIPTION OF LEVEL OF SERVICE

Level of Service	Driver's Perception
A/B	Levels of service A/B are characterized by light congestion. Motorists are generally able to maintain desired speeds on two- and four-lane roads and make lane changes on four-lane roads. Motorists are still able to pass through traffic-controlled intersections in one green phase. Stop-controlled approach motorists begin to notice absence of available gaps.
C	LOS C represents moderate traffic congestion. Average vehicle speeds continue to be near the motorist's desired speed for two- and four-lane roads. Lane change maneuvers on four-lane roads increase to maintain desired speed. Turning traffic and slow vehicles begin to have an adverse impact on traffic flows. Occasionally, motorists do not clear the intersection on the first green phase.
D	LOS D is characterized by congestion with average vehicle speeds decreasing below the motorist's desired level for two- and four-lane roads. Lane change maneuvers on four-lane roads are difficult to make and adversely affect traffic flow like turning traffic and slow vehicles. Multiple cars must wait through more than one green phase at a traffic signal. Stop-controlled approach motorists experience queuing due to a reduction in available gaps.
E	LOS E is the lowest grade possible without stop-and-go operations. Driving speeds are substantially reduced, brief periods of stop-and-go conditions can occur on two- and four-lane roads, and lane changes are minimal. At signalized intersections, long vehicle queues can form waiting to be served by the signal's green phase. Insufficient gaps on the major streets cause extensive queuing on the stop-controlled approaches.
F	LOS F represents stop-and-go conditions for two- and four-lane roads. Traffic flow is constrained and lane changes minimal. Drivers at signalized intersections may wait several green phases prior to being served. Motorists on stop-controlled approaches experience insufficient gaps of suitable size to cross safely through a major traffic stream.

Source: Transportation Research Board 2000

Project Traffic Estimates

The amount of traffic added to the roadway system by the proposed project is estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. The first step estimates the amount of traffic added to the roadway network. The second estimates the direction of travel to and from the project site. The new trips are assigned to specific street segments and intersection turning movements during the third step. The results of the process for the proposed project are described in the following paragraphs.

Project Trip Generation

Weekday daily AM and PM peak-hour trip generation estimates for the project were developed using trip rates provided in the Institute of Transportation Engineers (ITE) *Trip Generation, 9th Edition.* Summaries of the trip generation rates and resulting vehicle trips for the proposed project are presented in **Table 3.8-6.**

TABLE 3.8-6
PROPOSED PROJECT TRIP GENERATION ESTIMATES

Land Use	Size/Units	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Trip Rates								
Apartment (ITE 220)	per DU	6.65	0.10	0.41	0.51	0.40	0.22	0.62
Shopping Center (ITE 820)	per TSF	ITE						
Quality Restaurant (ITE 931)	per TSF	89.95	0.41	0.41	0.81	5.02	2.47	7.49
Trip Generation								
Garret units/townhomes/flats/lofts	91 DUs	605	9	37	46	37	20	56
Retail/commercial uses (west building)	3.637 TSF	788	13	8	21	31	34	65
Quality restaurant (east building)	3.797 TSF	342	2	2	3	19	9	28
Total Trip Generation		**1,735**	**24**	**47**	**71**	**87**	**63**	**150**

Source: Arch Beach Consulting 2015
DU = dwelling unit; TSF = thousand square feet
Notes: Trip rates based on Trip Generation, 9th Edition (Institute of Transportation Engineers 2012).

Based on the table, the proposed project would generate approximately 1,735 daily trips, 71 AM peak-hour trips (24 inbound and 47 outbound), and 150 PM peak-hour trips (87 inbound and 63 outbound). To provide a conservative estimate of project trip generation and traffic analysis, no trip reductions for pass-by trip making, internal trip capture, and transit usage (of adjacent Metro Gold Line) were made in the evaluation of traffic impacts.

Trip Distribution and Assignment

Two specific trip distributions were developed for the residential and retail/restaurant uses of the proposed project. A majority of residential traffic would be oriented to and from I-110 via the adjacent Pasadena Avenue and Orange Grove Avenue interchanges; downtown Pasadena via Fair Oaks Avenue; and Interstate 710 via Fair Oaks Avenue and Fremont Avenue. A majority of retail/restaurant traffic would draw from the surrounding areas and neighborhoods that would patronize the project's retail uses. **Figure 3.8-4** illustrates the project's residential trip distribution, and **Figure 3.8-5** illustrates the project's retail/restaurant trip distribution. **Figure 3.8-6** presents the total trip assignment of the proposed project (i.e., total trips generated by all project components).

In addition, the existing traffic generated by the South Pasadena Unified School District (SPUSD) offices and traffic generated by the adjacent existing retail uses were rerouted based on the proposed commercial and District parking lot driveway on Fairview Avenue.

Existing plus Project Intersection Levels of Service

Traffic generated by the proposed project was added to the Existing Baseline scenario and the project impacts on the circulation system were analyzed. This scenario would determine project-specific impacts and mitigation measures (if required).

Traffic Volumes

The proposed project trip assignment for the weekday AM and PM peak hours, noted in **Figure 3.8-6**, was added to the Existing Baseline weekday AM and PM peak-hour traffic volumes in **Figure 3.8-3**, which resulted in the Existing plus Project traffic volumes**. Figure 3.8-7** illustrates the Existing plus Project weekday AM and PM peak hour traffic volumes at the study intersections.

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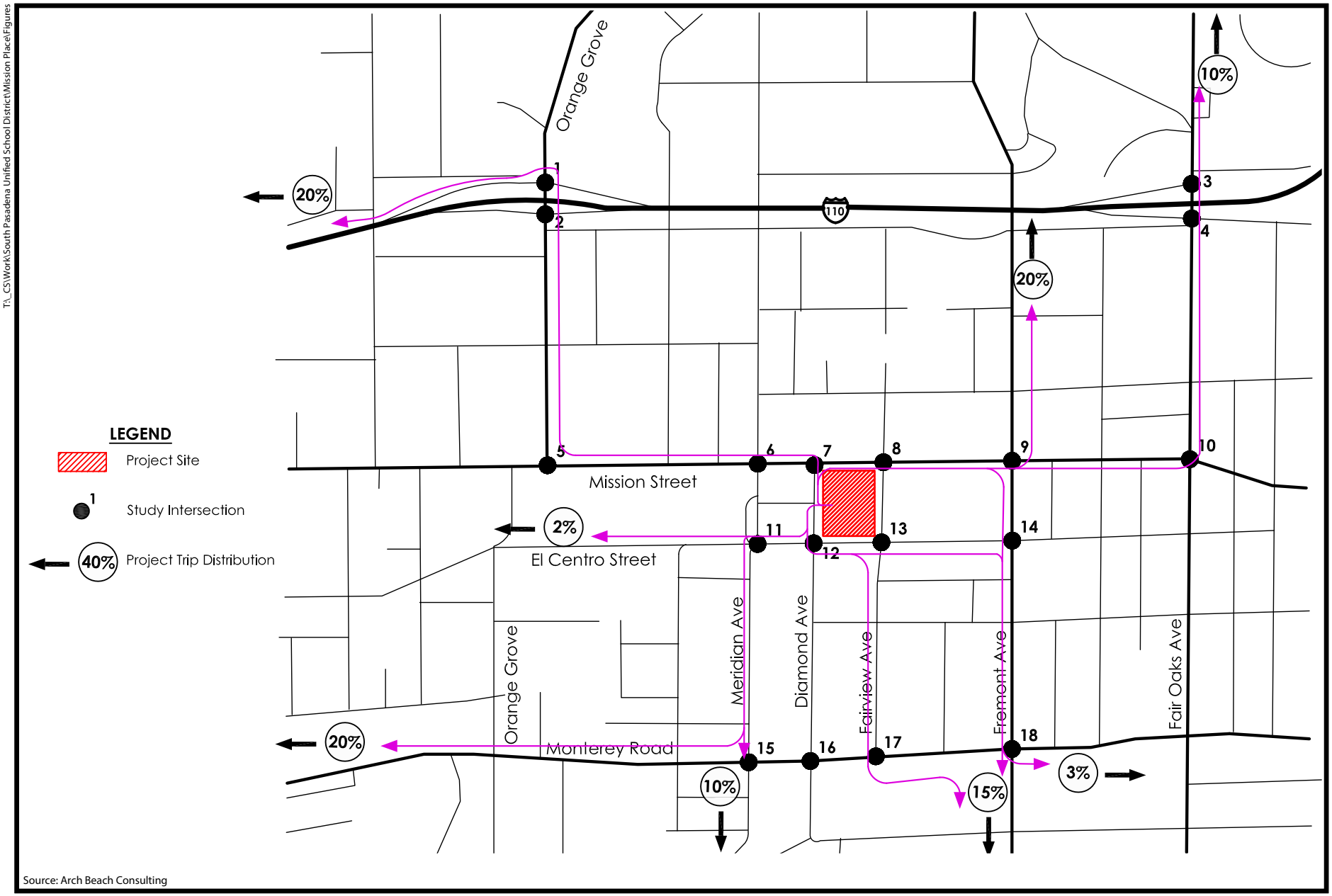

Source: Arch Beach Consulting

Not To Scale

Figure 3.8-4
Residential Component Trip Distribution

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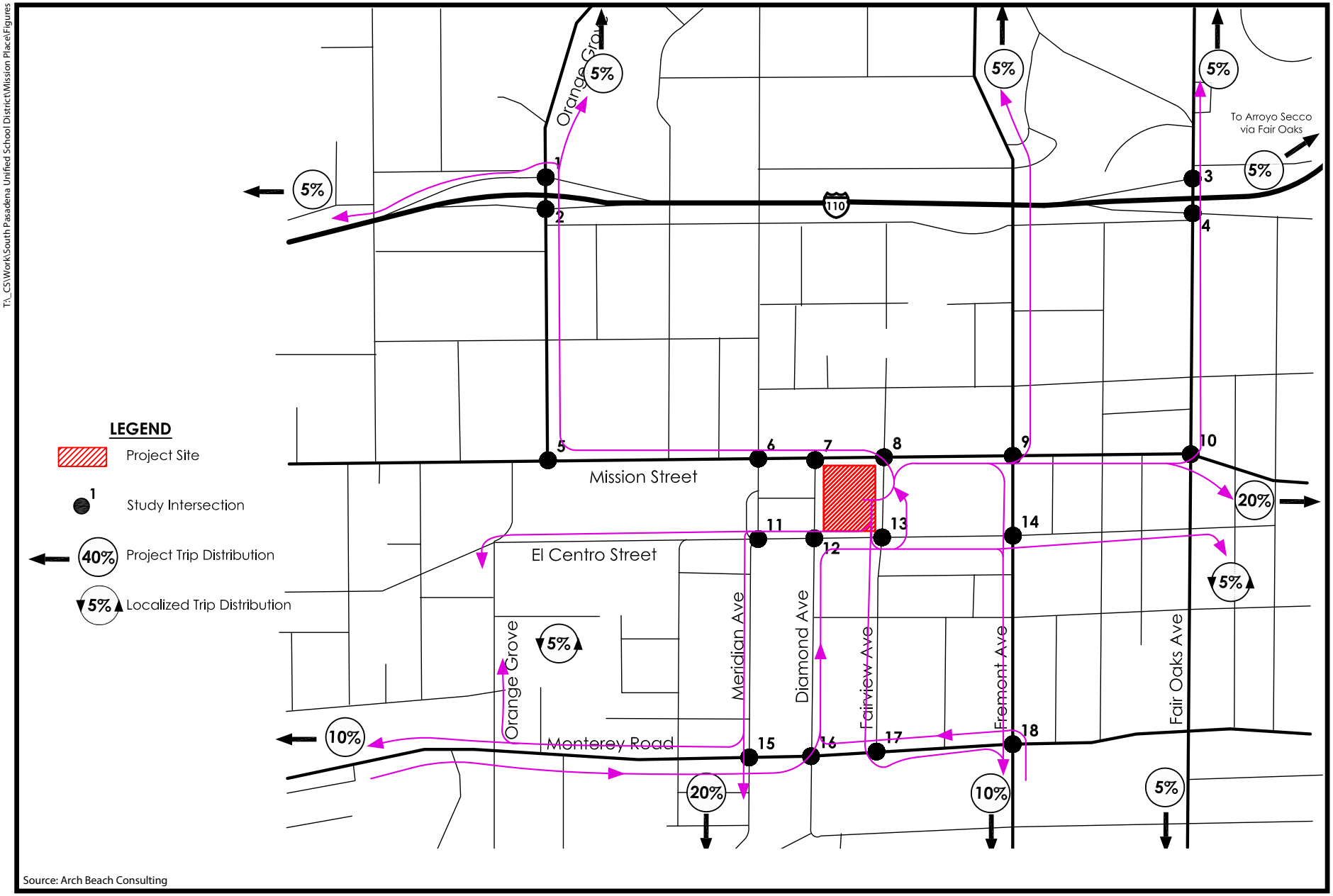

Source: Arch Beach Consulting

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Figure 3.8-5
Retail-Commercial Component Trip Distribution

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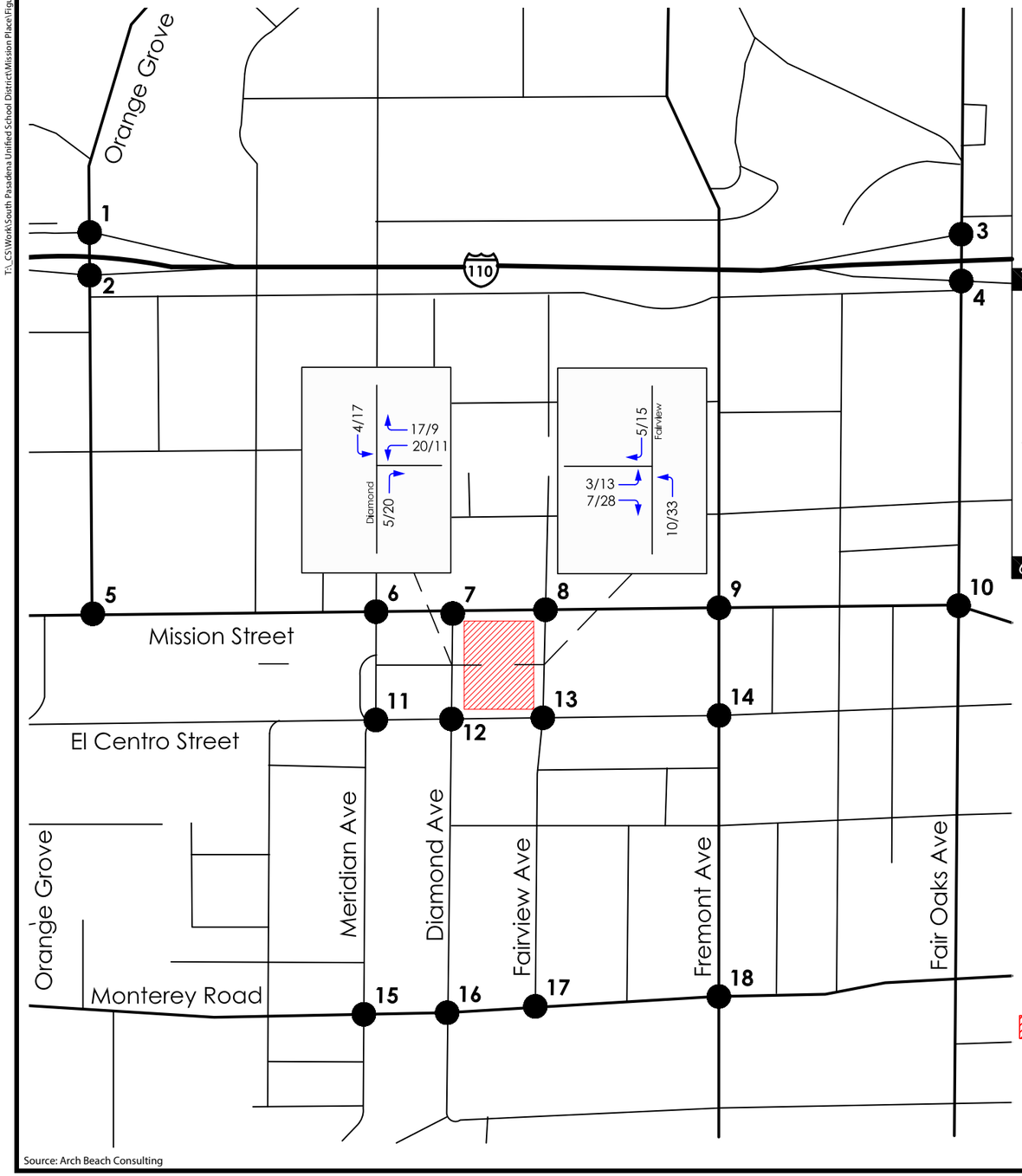

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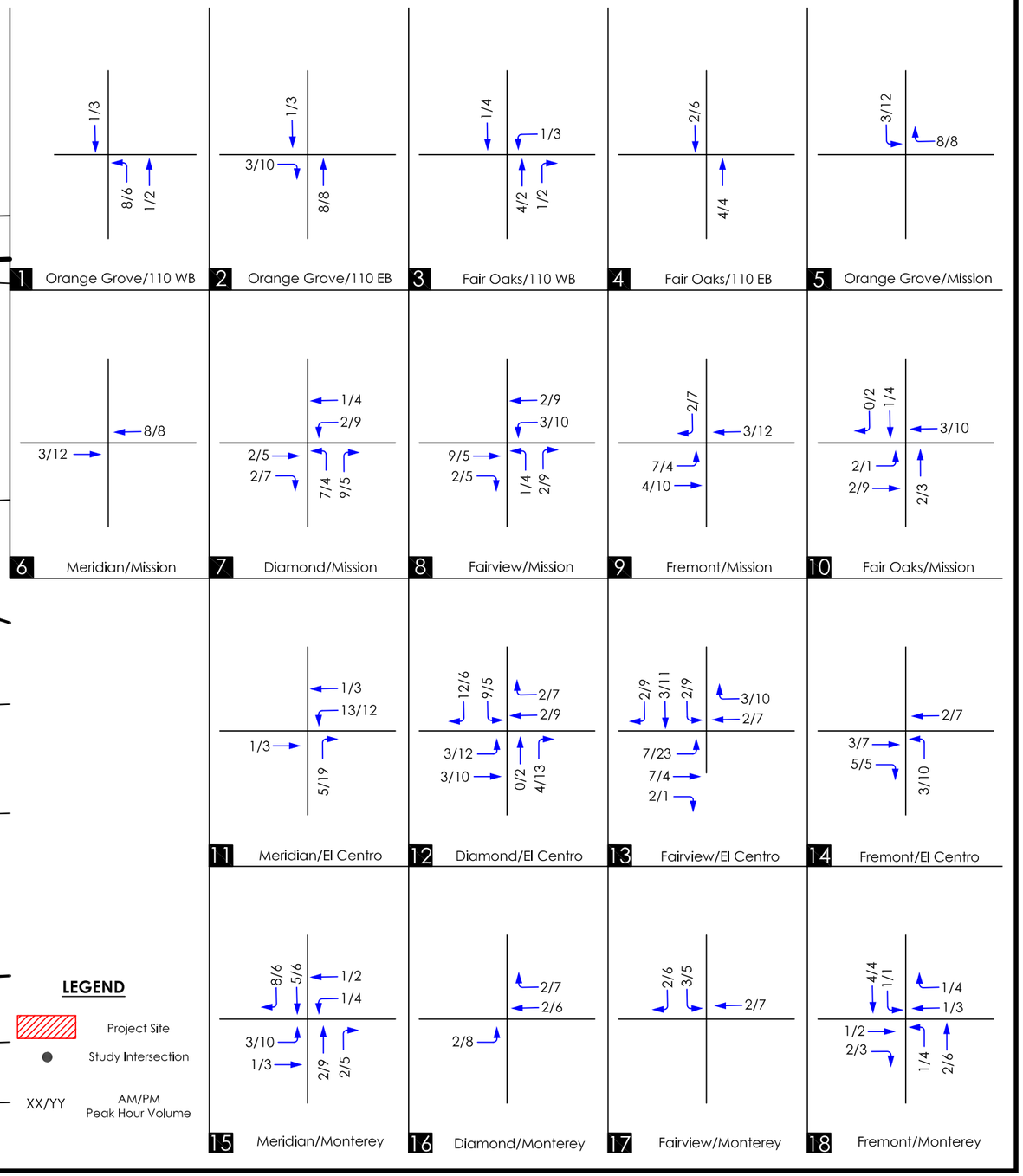

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Figure 3.8-6
Total Project Trip Assignment

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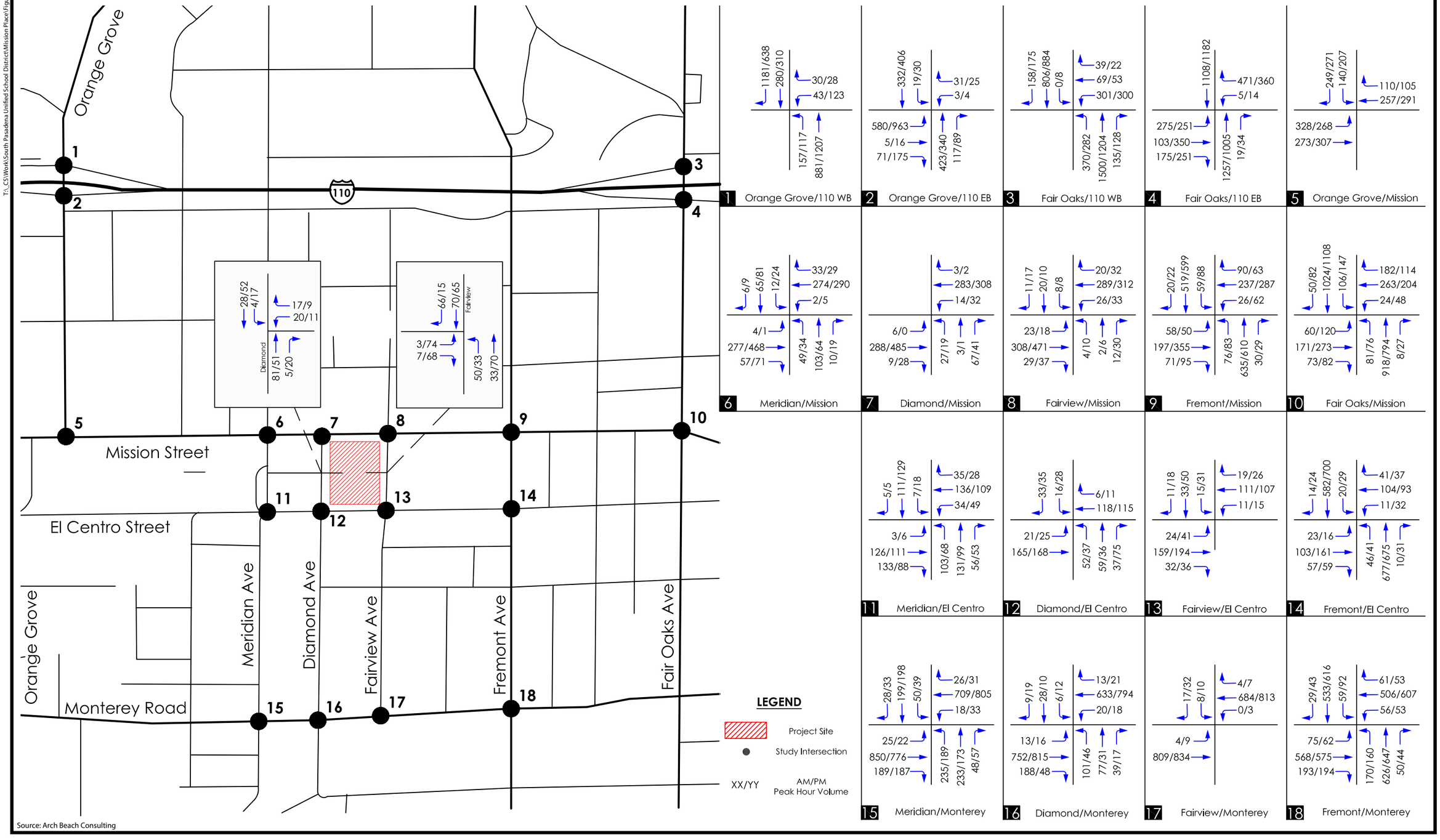

Source: Arch Beach Consulting

1 Orange Grove/110 WB: 1181/638, 280/310, 30/28, 43/123, 157/117, 881/1207

2 Orange Grove/110 EB: 332/406, 19/30, 31/25, 3/4, 580/963, 5/16, 71/175, 423/340, 117/89

3 Fair Oaks/110 WB: 158/175, 806/884, 0/8, 39/22, 69/53, 301/300, 370/282, 1500/1204, 135/128

4 Fair Oaks/110 EB: 1108/1182, 471/360, 5/14, 275/251, 103/350, 175/251, 1257/1005, 19/34

5 Orange Grove/Mission: 249/271, 140/207, 110/105, 257/291, 328/268, 273/307

6 Meridian/Mission: 6/9, 65/81, 12/24, 33/29, 274/290, 2/5, 4/1, 277/468, 57/71, 49/34, 103/64, 10/19

7 Diamond/Mission: 3/2, 283/308, 14/32, 6/0, 288/485, 9/28, 27/19, 3/1, 67/41

8 Fairview/Mission: 11/17, 20/10, 8/8, 20/32, 289/312, 26/33, 23/18, 308/471, 29/37, 4/10, 2/6, 12/30

9 Fremont/Mission: 20/22, 519/599, 59/88, 90/63, 237/287, 26/62, 58/50, 197/355, 71/95, 76/83, 635/610, 30/29

10 Fair Oaks/Mission: 50/82, 1024/1108, 106/147, 182/114, 263/204, 24/48, 60/120, 171/273, 73/82, 81/76, 918/794, 8/27

11 Meridian/El Centro: 5/5, 111/129, 7/18, 35/28, 136/109, 34/49, 3/6, 126/111, 133/88, 103/68, 131/99, 56/53

12 Diamond/El Centro: 33/35, 16/28, 6/11, 118/115, 21/25, 165/168, 52/37, 59/36, 37/75

13 Fairview/El Centro: 11/18, 33/50, 15/31, 19/26, 111/107, 11/15, 24/41, 159/194, 32/36

14 Fremont/El Centro: 14/24, 582/700, 20/29, 41/37, 104/93, 11/32, 23/16, 103/161, 57/59, 46/41, 677/675, 10/31

15 Meridian/Monterey: 28/33, 199/198, 50/39, 26/31, 709/805, 18/33, 25/22, 850/776, 189/187, 235/189, 233/173, 48/57

16 Diamond/Monterey: 9/19, 28/10, 6/12, 13/21, 633/794, 20/18, 13/16, 752/815, 188/48, 101/46, 77/31, 39/17

17 Fairview/Monterey: 17/32, 8/10, 4/7, 684/813, 0/3, 4/9, 809/834

18 Fremont/Monterey: 29/43, 533/616, 59/92, 61/53, 506/607, 56/53, 75/62, 568/575, 193/194, 170/160, 626/647, 50/44

Not To Scale

Figure 3.8-7

Existing plus Project Weekday AM and PM Peak Hour Volumes

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Future Year (2017) Analysis

Appendix G contains the traffic data provided by the City for the cumulative projects, which was used in the cumulative traffic scenario.

Planned Bicycle Improvements

According to the City's 2011 Bicycle Master Plan, bike lane improvements are planned for Mission Street and El Centro Street in the project vicinity. The improvements are a Class III bike segment on Mission Street between Grand Avenue and Fair Oaks Avenue. The planned improvements by the City include "sharrow" pavement markings on the outer travel lane along with other bicycle infrastructure enhancements which may include signage, bicycle loop detectors, and bicycle (storage) boxes. In addition, a bicycle corral will be located on Mission Street, adjacent to the proposed project, between Diamond Avenue and Fairview Avenue. On El Centro Street between Orange Grove and Mound Avenue, the City has also designated this segment as a Class III bike lane. The planned improvement includes the painting of sharrows (Class III lane designation) on the pavement.

IMPACTS AND MITIGATION MEASURES

Conflict with an Applicable Plan, Ordinance, or Policy (Standard of Significance 1) or with an Applicable Congestion Management Program (Standard of Significance 2)

Impact 3.8.1 Based on project site circulation patterns and potential conflicts, the project would have a **less than significant impact** on applicable plans, ordinances, or policies establishing measures of effectiveness for the performance of the circulation system, including other modes of transportation like transit, bicycling, and walking. Since the level of service calculations indicate that all study intersections operate at acceptable service levels based on the established criteria, the project would have a **less than significant** impact at all study intersections under the Existing plus Project scenario and thus would not conflict with applicable congestion management programs.

Project Construction

Project construction would take approximately 18 months. Construction activities would consist of site preparation, including removal of existing vegetation and asphalt, and would last for approximately one month. Grading and excavation would last approximately three months. During construction, streets would not be closed and materials would be hauled in and out of the project area using city streets. The project would generate an estimated 52 daily round trips for material hauling and deliveries (materials brought to the site or hauled off-site) over the construction period. This would be a small addition to existing traffic and would be short in duration.

Project construction would require the use of off-road equipment, such as haul trucks and small bulldozers, as well as graders and pavers, and all construction traffic would take place on City-approved truck routes. Further, project construction would require up to 182 crew workers, depending on the timing and potential overlap of various construction activities. All crew members would park in designated areas and are not anticipated to all be working at the same time. Crew members would be encouraged to carpool to the project site; the number would vary at different times of construction. Because construction traffic would take place on City-approved routes and it would be short in duration and temporary, construction would have a **less than significant** impact on circulation systems in the project area.

Project Operation

Existing Plus Project Level of Service Analysis

Intersections

Based on the analysis methodology described in section 1.0 of the TIA, the Existing plus Project weekday AM and PM peak-hour traffic volumes were input into the Traffix LOS software to determine the intersection ICU, delay, and level of service values. **Table 3.8-7** presents the results of the Existing plus Project intersection level of service analysis, while the level of service calculation sheets are provided in **Appendix G**.

Based on the Existing plus Project peak-hour LOS analysis, most of the study area intersections are forecast to continue to operate with satisfactory level of service at LOS D or better in the AM and/or PM peak hours with the addition of project traffic with the exception of the following:

- Orange Grove Avenue/I-110 southbound ramps (LOS F in AM peak hour with 0.005 V/C increase)
- Fair Oaks Avenue/I-110 northbound off-ramp – Grevelia Street (LOS F in both peak hours with a 0.002 V/C and 0.7-second increase in the AM peak hour, and 0.003 V/C and 1.2-second increase in the PM peak hour)

Per the City's significance criteria, the addition of project traffic to these intersections forecast to continue to operate at LOS F would not be a significant impact, as the increase to capacity is less than 0.020 V/C. At Orange Grove Avenue/I-110 southbound ramps, the project would increase the impacted AM peak hour (at LOS F) V/C by 0.005; however, the increase is less than the significance criteria of 0.020 V/C.

In addition, at Fair Oaks Avenue/I-110 northbound off-ramp-Grevelia Avenue, where the HCM delays and level of service are forecast to continue to be at LOS F in both peak hours, the proposed project would not create a significant impact since the increase in delay (0.7 and 1.2 seconds in the AM and PM peak hours, respectively) would be less than 10.0 seconds in both peak hours. The minimum increase in delay to change from LOS A to LOS B is approximately 10 seconds (maximum increase is approximately 25 seconds, from LOS E to LOS F). Since the project's delay increase is less than 10 seconds, there would be no noticeable change in vehicle delay at the intersection.

Optional Diamond Avenue-Fairview Avenue as One-Way Streets

With the option of converting Diamond Avenue and Fairview Avenue to one-way streets (as discussed in the Project Description), the four intersections surrounding the project site are forecast to continue to operate with satisfactory LOS at LOS C or better in both peak hours.

- Diamond Avenue/Mission Street: LOS B in a.m. peak hour, and LOS C in p.m. peak hour.
- Fairview Avenue/Mission Street: LOS C in both peak hours.
- Diamond Avenue/El Centro Street: LOS A in both peak hours.
- Fairview Avenue/El Centro Street: LOS A in both peak hours.

The LOS calculation sheets are provided in **Appendix B**.

Therefore, the proposed project would have a **less than significant** impact on the intersections listed above.

Roadway Segments

The Existing plus Project daily levels of service at the study area roadway segments were determined based on the analysis methodology described in section 1.0 of the TIA. **Table 3.8-8** presents the results of the Existing plus Project daily traffic level of service analysis for the study area roadway segments.

TABLE 3.8-7
EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Control	Existing Condition				Existing + Project					
		AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
		V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS	Difference	V/C or Delay	LOS	Difference
1 . Orange Grove Ave/I-110 SB ramps	signal	**1.016**	**F**	0.711	C	**1.021**	**F**	0.005	0.715	C	0.004
HCM LOS		*28.0*	*C*	*11.7*	*B*	*29.1*	*C*	*1.1*	*11.8*	*B*	*0.1*
2 . Orange Grove Ave/I-110 NB ramps	signal	0.562	A	0.771	C	0.563	A	0.001	0.776	C	0.005
HCM LOS		*22.4*	*C*	*24.0*	*C*	*22.4*	*C*	*0.0*	*24.2*	*C*	*0.2*
3 . Fair Oaks Ave/I-110 SB on-ramp	signal	0.734	C	0.623	B	0.736	C	0.002	0.626	B	0.003
HCM LOS		*16.4*	*B*	*16.1*	*B*	*16.4*	*B*	*0.0*	*16.1*	*B*	*0.0*
4 . Fair Oaks Ave/110 NB off-ramp	signal	**1.234**	**F**	**1.197**	**F**	**1.236**	**F**	0.002	**1.200**	**F**	0.003
HCM LOS		***118.6***	***F***	***104.8***	***F***	***119.3***	***F***	*0.7*	***106.0***	***F***	*1.2*
5 . Orange Grove Avenue/Mission St	signal	0.435	A	0.380	A	0.436	A	0.001	0.383	A	0.003
6 . Meridian Avenue/Mission Street	signal	0.371	A	0.378	A	0.372	A	0.001	0.382	A	0.004
7 . Diamond Avenue/Mission Street	1-waystop	11.1	B	20.2	C	11.4	B	0.3	21.2	C	1.0
8 . Fairview Avenue/Mission Street	2-waystop	15.0	C	15.1	C	15.6	C	0.6	16.1	C	1.0
9 . Fremont Avenue/Mission Street	signal	0.735	C	0.774	C	0.742	C	0.007	0.785	C	0.011
10 . Fair Oaks Avenue/Mission Street	signal	0.864	D	0.801	D	0.868	D	0.004	0.810	D	0.009
11 . Meridian Avenue/El Centro Street	2-waystop	12.4	B	9.9	A	12.7	B	0.3	10.2	B	0.3
12 . Diamond Avenue/El Centro Street	2-waystop	8.9	A	8.7	A	9.1	A	0.2	9.1	A	0.4
13 . Fairview Avenue/El Centro Street	2-waystop	8.4	A	8.6	A	8.5	A	0.1	9.1	A	0.5
14 . Fremont Avenue/El Centro Street	signal	0.678	B	0.808	D	0.689	B	0.011	0.824	D	0.016
15 . Meridian Avenue/Monterey Road	signal	0.808	D	0.654	B	0.812	D	0.004	0.671	B	0.017
16 . Diamond Avenue/Monterey Road	signal	0.608	B	0.438	A	0.609	B	0.001	0.443	A	0.005
17 . Fairview Avenue/Monterey Road	1-waystop	15.2	C	14.9	B	16.7	C	1.5	17.1	C	2.2
18 . Fremont Avenue/Monterey Road	signal	0.858	D	0.863	D	0.863	D	0.005	0.870	D	0.007
19 . Diamond Avenue/Residential Dwy	1-waystop	0.0	A	0.0	A	9.2	A	9.2	9.2	A	9.2
20 . Fairview Avenue/Commercial Dwy	1-waystop	7.5	A	9.4	A	9.3	A	1.8	10.2	B	0.8

Notes: Signalized intersections analyzed in *Intersection Capacity Utilization* (ICU) methodology; unsignalized and Caltrans ramp intersections analyzed in *Highway Capacity Manual* (HCM) methodology. ICU LOS based on volume-to-capacity (V/C) ratio, and HCM LOS based on vehicle control delay.

XX Intersection LOS calculated to be below City's standard of LOS D.

XX Intersection significantly impacted by project per City's Significance Criteria.

Source: Arch Beach Consulting 2015

TABLE 3.8-8
EXISTING PLUS PROJECT ROADWAY SEGMENT LEVEL OF SERVICE SUMMARY

Roadway Segment	LOS E Capacity	Existing Condition ADT	Existing Condition V/C Ratio	Existing Condition LOS	Existing plus Project ADT	Existing plus Project V/C Ratio	Existing plus Project LOS	Difference
Mission Street								
Diamond Avenue to Fairview Avenue	25,000	9,930	0.397	A	10,165	0.407	A	0.009
Diamond Avenue								
Mission Street ot El Centro Street	5,000	1,190	0.238	A	1,432	0.286	A	0.048
Fairview Avenue								
Mission Street ot El Centro Street	5,000	1,080	0.216	A	1,420	0.284	A	0.068

Notes: **XX** Intersection LOS calculated to be below City's standard of LOS C.
XX Intersection significantly impacted by project per City's Significance Criteria.

Source: Arch Beach Consulting 2015

Per the City's significance criteria, the addition of project traffic to the study area roadway segments would not result in a significant project impact, as all study roadway segments are forecast to continue to operate at LOS A.

Impacts at Meridian Avenue/Mission Street Metro Crossing

A Metro Gold Line station is located at the southwest corner of the intersection of Meridian Avenue and Mission Street. The trains and gate-down times at the intersection were observed during the AM and PM peak periods (7:00 to 9:00 AM and 4:00 to 6:00 PM) on a typical weekday in October 2015.

Currently, the Foothill Gold Line originates at Union Station in downtown Los Angeles and terminates at the Sierra Madre Villa station in Pasadena. Train headways during the peak commute periods are six minutes. The extended segment of the Gold Line from the Sierra Madre Villa station to the Azusa Pacific University/Citrus College station in Azusa is complete and service is anticipated to begin in March 2016. The next segment from Glendora to Montclair is currently going through advanced conceptual engineering, which will result in design-build procurement. With the proposed extension of the Gold Line eastward, the current six-minute headways during the peak commute periods are anticipated to remain the same; however, more trains may be added during the off-peak hours.

At the Meridian Avenue/Mission Street intersection, adjacent to the South Pasadena station, during the AM peak hour, there were 10 trains crossing in the eastbound direction and 8 trains in the westbound direction. During the PM peak hour, there were 10 trains each in the eastbound and westbound directions. Most of the eastbound and westbound trains were observed arriving concurrently at the station so that there was usually an eastbound and a westbound train stopped at the same time. The train tracks cross the intersection diagonally, and there are gate arms on all four corners of the intersection. While trains are in the station, the gate arms are down. Observations of the gate-down time indicates that the gates are down and no traffic can use the intersection for approximately 17 minutes over the course of the entire AM peak hour and 18 minutes during the entire PM peak hour. A maximum queue of approximately 13 vehicles (approximately 260 feet) in any direction was observed during the peak periods. The gate-down time and queuing observations are provided in **Appendix G**.

The intersection analysis studied the level of service at Mission Street/Meridian Avenue. However, the Intersection Capacity Utilization (ICU) methodology does not account for queues due to the

gate-down times. To quantify the queuing that could be expected in the various analysis scenarios, a queuing analysis was prepared using Synchro (version 9) analysis software. To simulate the effect of the rail crossing gates, a "hold" phase of approximately 90 seconds was added to each signal cycle. During the hold phase, the signal indication would be a "red" (light) in each direction, which is the signal indication that would be present at the intersection when the rail crossing gates are down. The 175-second cycle length corresponds to approximately 20 cycles per hour, consistent with the maximum number of trains observed. It should be noted that the existing queues noted in **Table 3.8-9** are slightly different from those observed in the field. This is because the volumes used to prepare the queuing analysis were collected on a different day than the queuing observations. **Table 3.8-9** shows the results of the queuing analysis based on the current and continued six-minute train headways during the peak commute periods.

As shown in **Table 3.8-9**, when project traffic is added, the intersection queues would increase by a nominal amount (6 feet or less in most cases). In the Opening Year PM peak-hour scenario, the project would cause the queue to increase by 10 feet, which is approximately one-half of a car length. The increase in queuing is not significant and would be less noticeable to motorists than the variation in queue length throughout the peak hour and from day to day.

TABLE 3.8-9
QUEUING AT MISSION STREET/MERIDIAN AVENUE

Scenario	Eastbound	Westbound	Northbound	Southbound
AM Peak Hour				
Existing AM	219 feet	196 feet	228 feet	120 feet
Existing + Project AM	221 feet	201 feet	229 feet	121 feet
Increase with Project	**2 feet**	**5 feet**	**1 foot**	**1 foot**
Opening Year AM	233 feet	210 feet	239 feet	124 feet
Opening Year + Project AM	235 feet	215 feet	239 feet	124 feet
Increase with Project	**2 feet (1 car)**	**5 feet (1 car)**	**0 feet**	**0 feet**
PM Peak Hour				
Existing PM	342 feet	191 feet	191 feet	183 feet
Existing + Project PM	342 feet	191 feet	191 feet	183 feet
Increase with Project	**0 feet**	**0 feet**	**0 feet**	**0 feet**
Opening Year PM	355 feet	197 feet	195 feet	188 feet
Opening Year + Project PM	365 feet	203 feet	195 feet	188 feet
Increase with Project	**10 feet (1 car)**	**6 feet (1 car)**	**0 feet**	**0 feet**

Source: Arch Beach Consulting 2015

**Queues shown are 95th percentile queues.*

On-Site Vehicle Access and Circulation

Project Access

Vehicular access to the proposed project would be provided via two full-access driveways into the proposed three-level subterranean parking garage: (1) a resident parking driveway on Diamond Avenue and (2) a commercial and District parking driveway on Fairview Avenue. **Table 3.8-10** summarizes the level of service analysis for each of the project driveways as also reported in the Opening Year 2017 plus Project intersection analysis above.

TABLE 3.8-10
OPENING YEAR 2017 PEAK-HOUR DRIVEWAY LEVEL OF SERVICE SUMMARY

Intersection	Unsignalized Access	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
Diamond Avenue/Residential Dwy	full access	9.2 sec	A	9.2 sec	A
Fairview Avenue/Commercial Dwy	full access	9.8 sec	A	10.3 sec	B

Source: Arch Beach Consulting 2015

Notes: Level of service determined using HCM for unsignalized driveway intersections.

Based on the driveway LOS analysis, both driveways are forecast to operate with satisfactory level of service at LOS B or better in both peak hours. Therefore, no significant impacts associated with the driveway operations are anticipated.

The Diamond Avenue/Residential Driveway intersection is assumed to be gated and will be solely used by residents of the proposed project. Residents would be given access key cards or transponders to enter this driveway. Since no transactions (i.e., payment for parking) would be occurring at this driveway, there would be no significant delays to vehicles entering and exiting this driveway.

The Fairview Avenue/Commercial Driveway intersection is also assumed to be gated, but will be used only by the retail patrons of the proposed project (to access 28 parking spaces), School District staff (to access 60 parking spaces), and the general public (to access 41 parking spaces). Since three different users would share this parking lot (retail patrons, District staff, and the general public), all parking stalls would be specifically marked for the appropriate use, and the retail and public spaces may have time limits during business hours. Retail patrons and the public would pay for parking either by prepayment as a vending machine or by a lot attendant at a booth at the gate. School District staff would be given access key cards or transponders to access the lot directly. Since Fairview Avenue is not a major thoroughfare and has relatively low traffic volumes, it is anticipated that vehicles traveling on this roadway would not be impacted by the gate operations.

Project Circulation

Vehicular circulation in the subterranean parking structure proposed on the project site would occur on drive aisles that would be designed consistent with the City's Development Code or Standards.

Pedestrian access to the proposed project would be provided via existing sidewalks along Mission Street, Diamond Avenue, and Fairview Avenue. Commercial uses would have direct

pedestrian access from Mission Street, and some of the proposed townhomes would have direct pedestrian access from Diamond Avenue. Pedestrian walkways would be provided from adjacent sidewalks to resident lobbies for the proposed indoor-entry residential units, and a walkway is proposed to maintain the existing pedestrian access to the north elevation of the District's Administration Building and the south and west elevations of the Boardroom Building. The proposed paseo would provide additional pedestrian circulation on-site.

The project site plan will be required to adhere to the City's Development Code or Standards for vehicle and pedestrian circulation. Therefore, no significant impacts to the on-site circulation are anticipated. All project-related vehicular circulation (noted above) would occur on-site and would not impact any public streets and/or pedestrian/bicycle facilities.

Therefore, the project would have a **less than significant** impact.

Mitigation Measures

None required.

Conflict with Adopted Policies, Plans, or Programs Regarding Public Transit, Bicycle, or Pedestrian Facilities (Standard of Significance 6)

Impact 3.8.6 Project implementation would increase motor vehicle traffic and congestion on roadways used by transit, bicyclists, and pedestrians. The project would increase biking and pedestrian usage in the project area, while at the same time increasing the volume of motor vehicles. However, the project would not lead to a substantial decrease in performance or safety of such facilities and would not conflict with adopted policies or plans. This impact would be **less than significant**.

Pedestrian Facility Impacts Under Existing plus Project Conditions

The following discusses the existing pedestrian conditions and analyzes the existing and future pedestrian volumes, walkability, and possible pedestrian improvements for the proposed project. The analysis focuses on the pedestrian movements at three key locations adjacent to the project site:

- Mission Street Crosswalk at Diamond Avenue
- Mission Street Crosswalk at Fairview Avenue
- Sidewalk on the south side of Mission Street between Diamond Avenue and Fairview Avenue (along project's frontage)

Existing Conditions

The intersection of Diamond Avenue/Mission Street has the following pedestrian amenities:

- Marked crosswalks with ladder-type markings on the west and south legs of the intersection.
- Pedestrian ramps with truncated domes on the northwest, southwest, and southeast corners.

- Pedestrian crossing signs on the east and west sides of the crosswalk on Mission Street.
- Stop signs for vehicles traveling in the northbound direction.
- Bulb-out safety enhancements to improve pedestrian circulation and to shorten exposure time.
- A one-way driveway on the north leg of the intersection.

The intersection of Fairview Avenue/Mission Street has the following pedestrian amenities:

- Marked crosswalks with ladder type markings on the north, south, and west legs of the intersection.
- Pedestrian ramps with truncated domes on all four corners.
- Pedestrian crossing signs on the east and west sides of the crosswalk on Mission Street.
- A yield to pedestrian sign in the middle of the intersection.
- Bulb-outs for vehicles parking on the street.

There are no existing flashing warning beacons/lights along the street or embedded in the crosswalks, nor are there other warning lights to warn drivers of pedestrians crossing Mission Street.

The sidewalk on the south side of Mission Street, between Diamond Avenue and Fairview Avenue, is currently 10 feet in width and has 4 feet of landscaping (tree wells), spaced approximately every 20 feet. Streetlights are spaced approximately 25 to 50 feet apart. In the study area, Mission Street is a four-lane roadway with a posted speed limit of 30 mph in both directions.

Programmed Improvements

In November 2013, Caltrans awarded a grant to the City for Cycle 6 of the Highway Safety Improvement Program to install pedestrian in-roadway warning lights (IRWL) at the intersections of Mission Street/Diamond Avenue, Mission Street/Fairview Avenue, and Fremont Avenue/Lyndon Street. In April 2015, the City received authorization to proceed with preliminary engineering for the IRWLs. In July 2015, the City adopted Resolution No. 7407 in which the City entered into an Administering Agency-State Agreement with Caltrans. Per recent discussions with City Public Works staff, the IRWLs are anticipated to be in operation sometime in 2016. The use of pedestrian-actuated IRWLs across Mission Street, at its intersections with Diamond Avenue and Fairview Avenue, would facilitate pedestrian safety by warning motorists on Mission Street of pedestrians crossing the roadway.

Pedestrian Volumes

Arch Beach Consulting contracted with a qualified data collection firm to collect pedestrian volumes at the study area locations during typical peak commute periods (7:00 to 9:00 AM and 4:00 to 6:00 PM) in October 2015. The raw data is attached in **Appendix G**. A summary of the data is illustrated in **Table 3.8-11**.

TABLE 3.8-11
EXISTING PEDESTRIAN VOLUMES

Location	Morning		Afternoon	
	Peak Hour[1]	Peak Period[2]	Peak Hour[1]	Peak Period[2]
Mission Street/Diamond Avenue– West Leg	18	33	23	37
Mission Street/Fairview Avenue – West Leg	10	19	33	56

Source: Arch Beach Consulting 2015

Notes:

1. *8–9 a.m. for morning peak hour, 5–6 p.m. for afternoon peak hour at Diamond Street crossing. 7:30–8:30 a.m. for morning peak hour, 5–6 p.m. for afternoon peak hour at Fairview Street crossing*
2. *Peak period 7–9 a.m. for the morning and 4–6 p.m. for the afternoon.*

As illustrated in the table, the existing peak-hour pedestrian volumes are generally under 35 pedestrians for the morning and afternoon peak hours for both locations. During the 2-hour peak periods, there are generally less than 60 pedestrians at both locations.

Forecast Pedestrian Volumes

Arch Beach Consulting analyzed the potential impacts to the existing pedestrian facilities adjacent to the proposed project by forecasting the future peak-hour pedestrian volumes in the area for the following scenarios:

- Existing plus Project
- Opening Year 2017 Baseline
- Opening Year 2017 plus Project

Pedestrian trip generation estimates for pedestrians were estimated using the following method:

Vehicle Trips (from ITE Trip Rates) x Average Vehicle Occupancy (NCHRP) = Person Trips

The person trips were split into three different modes according to US Census data for Census Tract 4807.04 (the proposed project is in this tract). The different modes were auto, transit, and one more category that included walking, bicycling, and other person trips. **Table 3.8-12** shows the pedestrian trip generation estimates for the proposed project. Detailed calculation worksheets on person trips are provided in **Appendix G.**

As shown in **Table 3.8-12**, the proposed project would generate approximately 1,140 daily pedestrian trips, 29 AM peak-hour pedestrian trips (16 inbound and 13 outbound), and 95 PM peak-hour pedestrian trips (47 inbound and 48 outbound).

These trips were distributed through the two study area intersections at Diamond Avenue/Mission Street and Fairview Avenue/Mission Street. In general, 50 percent of pedestrian trips are expected to travel westbound toward the Metro Gold Line station; 30 percent are anticipated to travel northbound, across Mission Street; 10 percent are expected to travel eastbound; and 10 percent are anticipated to travel southbound toward the library.

TABLE 3.8-12
MISSION PLACE PROJECT PERSON TRIPS BY MODE OF TRAVEL

Mode	Percentage by Mode1	Daily Person Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Residential								
Walk, Bike, Other Trips	9%	60	1	4	5	4	2	6
Transit Trips	8%	50	1	3	4	3	2	5
Person Trips by Vehicle	83%	519	8	31	39	31	17	48
Subtotal	**100%**	**629**	**10**	**38**	**48**	**38**	**21**	**59**
Shopping Center (retail)								
Walk, Bike, Other Trips	70%	820	14	8	22	32	35	67
Transit Trips	0%	0	0	0	0	0	0	0
Person Trips by Vehicle	30%	346	5	4	9	14	15	29
Subtotal	**100%**	**1,166**	**19**	**12**	**31**	**46**	**50**	**96**
Quality Restaurant								
Walk, Bike, Other Trips	45%	260	1	1	2	11	11	22
Transit Trips	5%	30	0	0	0	1	1	2
Person Trips by Vehicle	50%	287	2	1	3	11	13	24
Subtotal	**100%**	**577**	**3**	**2**	**5**	**23**	**25**	**48**
Totals								
Walk, Bike, Other Trips		***1,140***	***16***	***13***	***29***	***47***	***48***	***95***
Transit Trips		80	1	3	4	4	3	7
Person Trips by Vehicle		1,152	15	36	51	56	45	101
Total		**2,372**	**32**	**52**	**84**	**107**	**96**	**203**

Source: Arch Beach Consulting 2015

1. Person trip mode splits based on 2009–2013 American Community Survey 5-Year Estimates for Census Tract 4807.04.

This distribution was applied to the trip generation estimates for a pedestrian trip assignment. This assignment was added to the existing pedestrian counts to derive the Existing plus Project pedestrian volumes.

For the Opening Year 2017 scenario, a growth rate of 1 percent per year (same as used in the vehicular growth) was applied to the existing pedestrian volumes. It should be noted that the growth for pedestrian volumes was calculated between 2015 and 2017, as pedestrian data was collected in 2015. In addition, a similar trip generation estimate and distribution was applied to obtain a pedestrian volume assignment for the two cumulative projects listed in **Table 3.8-13**. This assignment and growth was added to existing pedestrian volumes to derive the Opening Year 2017 Baseline scenario. Then, the project-only trip assignment was added to the Opening Year 2017 Baseline scenario to derive the Opening Year 2017 plus Project scenario.

Pedestrian Analysis

The peak-hour pedestrian and vehicle volumes generated for the Existing plus Project, Opening Year 2017 Baseline, and Opening Year 2017 plus Project conditions were evaluated with the

guidelines for a traffic signal or flashing pedestrian beacons based on the current edition of the *California Manual on Uniform Traffic Control Devices* (CAMUTCD).

Traffic Signal Installation

Section 4C of the CAMUTCD presents traffic signal warrants for the installation of a traffic signal. These warrants can help justify a traffic signal installation based on certain criteria. However, a traffic signal should not be justified based solely on the warrants. For the proposed project, the peak hour warrant (Warrant 3) and the pedestrian volume warrant (Warrant 4) were evaluated.

The vehicle traffic volumes presented in the TIA were analyzed for Warrant 3 (Figure 4C-3) of the CAMUTCD. For the lane configurations at the Diamond Avenue/Mission Street and Fairview Avenue/Mission Street intersections (two or more lanes on the major street, and one lane on the minor street), Warrant 3 would not meet the minimum vehicle volume for a traffic signal for any scenarios. Therefore, based on the vehicle volumes at both intersections, a traffic signal is not warranted for pedestrians.

The pedestrian volumes were evaluated against Warrant 4 (Figure 4C-7) of the CAMUTCD. This warrant is based on vehicle traffic and pedestrian volumes. No lane configuration information is needed for this warrant. Based on the pedestrian data collected and the projections of future pedestrian volumes, this warrant would also not be met. A minimum of 133 pedestrians per hour would be needed to justify a traffic signal at either of the intersections. Both existing and future estimates place the pedestrian volume under the minimum 133 pedestrians per hour. Therefore, a traffic signal is not justified with Warrant 4.

In-Roadway Lights

Per Section 4N of the CAMUTCD, in-roadway lights, or IRWLs, are special types of highway traffic signals installed in the roadway surface to warn road users that they are approaching a condition on or adjacent to the roadway that might not be readily apparent and might require the road users to slow down and/or come to a stop. This includes situations warning of marked school crosswalks, marked midblock crosswalks, marked crosswalks on uncontrolled approaches, marked crosswalks in advance of roundabouts, and other roadway situations involving pedestrian crossings. The following should be considered when evaluating the need for IRWLs:

a. Whether the crossing is controlled or uncontrolled.
b. An engineering traffic study to determine if IRWLs are compatible with the safety and operation of nearby intersections, which may or may not be controlled by traffic signals or STOP/YIELD signs.
c. Whether standard traffic signs for crossings and crosswalk pavement markings are provided.
d. If at least 40 pedestrians regularly use the crossing during each of any two hours (not necessarily consecutive) during a 24-hour period.
e. If the vehicular volume through the crossing exceeds 200 vehicles per hour in urban areas or 140 vehicles per hour in rural areas during peak-hour pedestrian usage.
f. If the critical approach speed (85th percentile) is 45 MPH or less.
g. If IRWLs would be visible to drivers at the minimum stopping sight distance for the posted speed limit.
h. Public education on IRWLs is conducted for new installations.

As previously mentioned, Caltrans awarded a grant to the City to install pedestrian IRWLs at the intersections of Mission Street/Diamond Avenue and Mission Street/Fairview Avenue. Detailed studies on the installation of IRWLs at these locations were conducted in 2013[1]. Per recent discussions with City Public Works staff, the IRWLs are anticipated to be in operation sometime in 2016.

With additional pedestrians added to the study area by the proposed project by 2017, and utilizing the crosswalks on Mission Street at Diamond Avenue and Fairview Avenue, the IRWLs installed by the City (in 2016 prior to the Opening Year of the proposed project) would adequately accommodate the added pedestrian volumes and effectively warn drivers on Mission Street of pedestrians crossing the roadway.

PEQI and Pedestrian Amenities

According to the Pedestrian Environmental Quality Index (PEQI), several existing and project-specific amenities would enhance both walkability and the pedestrian experience. The PEQI is a number system that evaluates both intersections and walkways. A comprehensive list is provided in the Pedestrian Environmental Quality Index: Street Auditors Training Manual (October 2012). Some items from the PEQI most relevant to the proposed project are listed below.

Crosswalk

Traffic control devices

Crossing distance

Curb ramps

Pedestrian engineering counter measures

Number of vehicle lanes

Posted speed limits

Traffic volumes

Continuous sidewalk

Width of sidewalk

Retail use and public spaces

Street lighting

Perceived walkability

[1] Minagar & Associates. 2013. "In-Roadway Warning Lights (IRWL) Study for Mission Street at Diamond Avenue" and "In-Roadway Warning Lights (IRWL) Study for Mission Street at Fairview Avenue".

The following items are existing facilities or features that are already in place:

Existing crosswalks

Existing traffic control devices

Curb ramps

Width of sidewalk

Number of vehicle lanes

Existing posted speed limit of 30 mph

Street lighting

According to the project applicant, the project would keep the existing sidewalk conditions "as is." The existing landscaped area would be cleared for the adjacent building.

The project would add restaurants and retail uses. Some of these businesses may feature sidewalk dining or sidewalk sales. Adding these businesses would enhance the walkability by providing more pedestrian activity along Mission Street. At night, the extra light from these businesses may enhance the area by making the area brighter during nighttime hours and provide a more visually interesting landscape.

As previously indicated, no warrants would be met for a full traffic signal on Mission Street, at its intersections with Diamond Avenue and at Fairview Avenue. However, the additional pedestrians generated by the proposed project crossing Mission Street would be adequately served by the IRWLs to be installed by the City in 2016. These IRWLs would accommodate the added pedestrian volumes and effectively warn drivers on Mission Street of pedestrians crossing the roadway. The IRWLs would also improve visibility for pedestrians and generally increase the perceived walkability according to the PEQI. Impacts to pedestrian safety would be less than significant.

Mitigation Measures

None required.

3.8.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for the project is comprised of the project's Regional Statistical Area (RSA) 25: City of La Cañada-Flintridge, City of Pasadena, City of Monterey Park, City of South El Monte, and City of Duarte. Additional to projected growth in the RSA, a list of cumulative projects as shown in **Table 3.8-13**, was provided by the City of South Pasadena to Arch Beach Consulting for inclusion in the cumulative scenario calculations.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Traffic Impacts

Impact 3.8.8 Under cumulative traffic conditions, the project would not increase traffic congestion to a significant level. Therefore, the project would have a not cumulatively considerable impact due to cumulative traffic.

This section describes the future traffic conditions related to the following traffic scenarios:

Opening Year 2017 Baseline

Opening Year 2017 plus Project

Opening Year 2017 plus Project with Diamond Avenue-Fairview Avenue as One-Way Streets

Opening Year 2017 Condition

The proposed project is anticipated to be built and fully operational by the third or fourth quarter of 2017. Therefore, short-term background traffic in this scenario was forecast for 2017 by applying a conservative annual ambient growth rate of 1 percent per year. In addition, traffic volumes from cumulative projects in the project vicinity were added to the existing and ambient traffic growth volumes.

Traffic Controls and Intersection Geometrics

No improvements are planned for the study area roadways and intersection through the 2017 short-term horizon year. Therefore, the existing intersection traffic controls and geometrics were assumed for those intersections and roadway segments in the 2017 level of service analysis.

Traffic Volumes

As discussed above, Opening Year 2017 baseline traffic volumes were forecast by applying a conservative annual growth rate of 1 percent per year, plus the addition of traffic from cumulative development. Per the CMP, the average annual growth rate for the project's Regional Statistical Area (RSA) 25 is 0.82 percent. Therefore, the total ambient growth adjustment applied over a three-year period (from 2014 to 2017) is 3.0 percent. **Table 3.8-13** presents the list of cumulative developments that would generate traffic in the study area and their anticipated trip generation estimates, while **Figure 3.8-8** illustrates the locations of the cumulative projects relative to the proposed project site. **Appendix G** contains the traffic data provided by the City for the cumulative projects.

According to **Table 3.8-13**, the cumulative projects would generate a total of approximately 2,674 daily trips, 115 AM peak-hour trips (68 inbound and 47 outbound), and 185 PM peak-hour trips (89 inbound and 96 outbound). **Figure 3.8-9** illustrates the Opening Year 2017 Baseline AM and PM peak-hour traffic volumes.

Level of Service Analysis

Intersections

The Opening Year 2017 Baseline weekday AM and PM peak-hour traffic volumes were input into the Traffix LOS software to determine the ICU, delay, and resulting level of service values. **Table 3.8-14** presents the results of the Opening Year 2017 Baseline intersection LOS analysis, while the LOS calculation sheets are provided in **Appendix G**.

Based on the Opening Year baseline weekday AM and PM peak-hour LOS analysis, most of the study area intersections are forecast to continue to operate with satisfactory level of service at LOS D or better in the AM and/or PM peak hours with the exception of the following:

- Orange Grove Avenue/I-110 southbound ramps (LOS F in AM peak hour)
- Fair Oaks Avenue/I-110 northbound off-ramp-Grevelia Street (LOS F in both peak hours)
- Fair Oaks Avenue/Mission Street (LOS E in AM peak hour)

TABLE 3.8-13
CUMULATIVE PROJECTS TRIP GENERATION ESTIMATES

Land Use	Size/Units		Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
TRIP GENERATION									
1. 820 Mission Street									
Multi-Family Housing	38	DUs	304	19	2	21	10	18	28
General Office	3.585	TSF	39	5	1	6	1	4	5
subtotal			**343**	**24**	**3**	**27**	**11**	**22**	**33**
2. South Pasadena Downtown Revitilization Project [2]									
Condominiums	45	DUs	264	3	17	20	16	8	24
Senior Housing	12	DUs	42	0	0	0	1	0	1
Bowling Alley	6	lanes	200	11	8	19	7	14	21
General Office	8.943	TSF	98	12	2	14	2	11	13
Specialty Retail	14.279	TSF	633	0	0	0	17	22	39
Quality Restaurant	8.390	TSF	755	0	0	0	42	21	63
pass-by trips			-27	0	0	0	-18	-9	-27
High-Turnover Sit-Down Restaurant	3.000	TSF	381	18	17	35	20	13	33
pass-by trips			-15	0	0	0	-9	-6	-15
subtotal			**2,331**	**44**	**44**	**88**	**78**	**74**	**152**
Total Trip Generation			**2,674**	**68**	**47**	**115**	**89**	**96**	**185**

Notes:

[1] Trip generation data obtained from *Trip Generation and Parking Assessment for 820 Mission Street, South Pasadena, California* , Gibson Transportation Consulting, Inc., May 9, 2011.

[2] Trip generation data obtained from *South Pasadena Downtown Revitilization Project Traffic Impact Analysis* , RBF Consulting, May 22, 2007,

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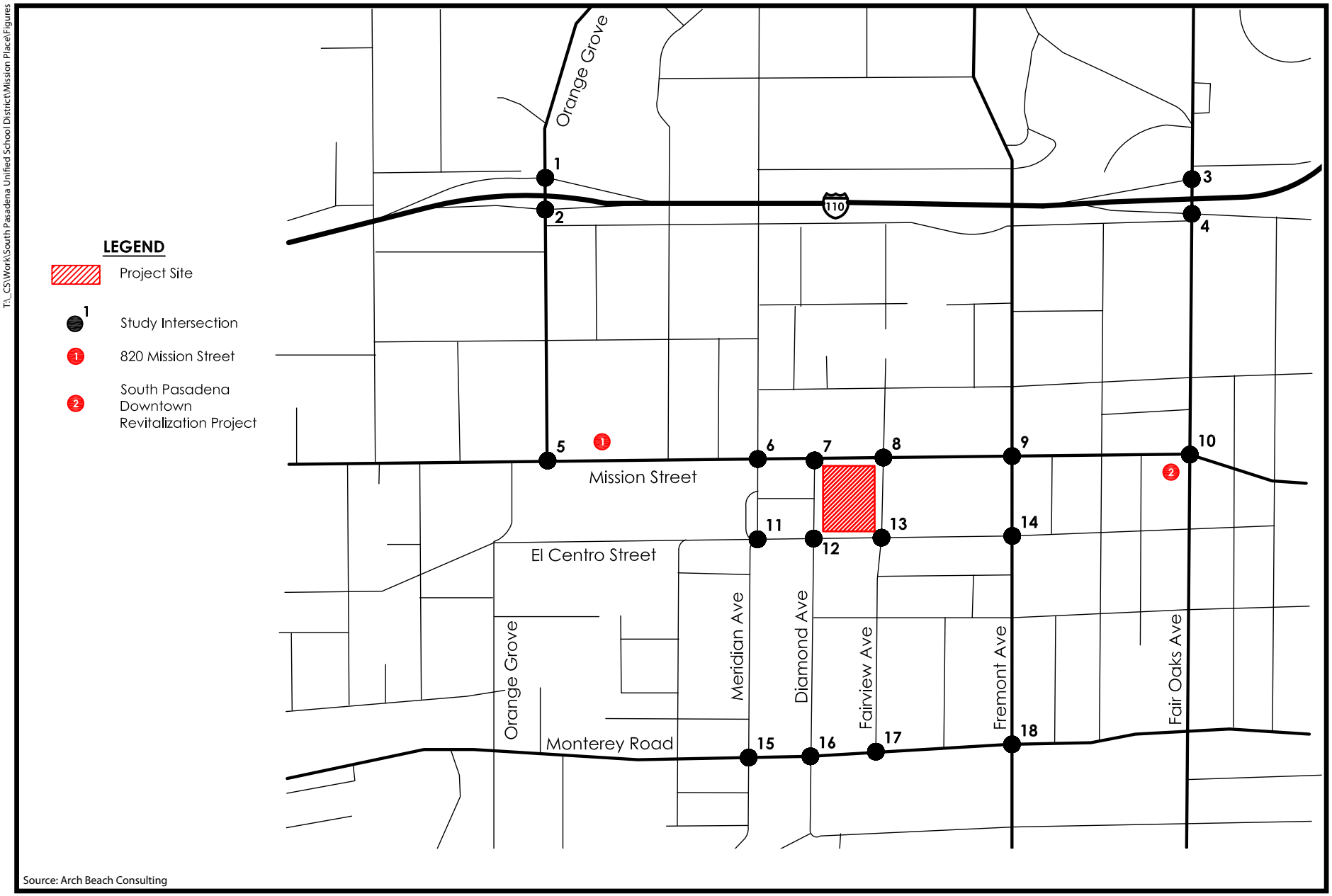

Source: Arch Beach Consulting

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Figure 3.8-8
Cumulative Projects Location Map

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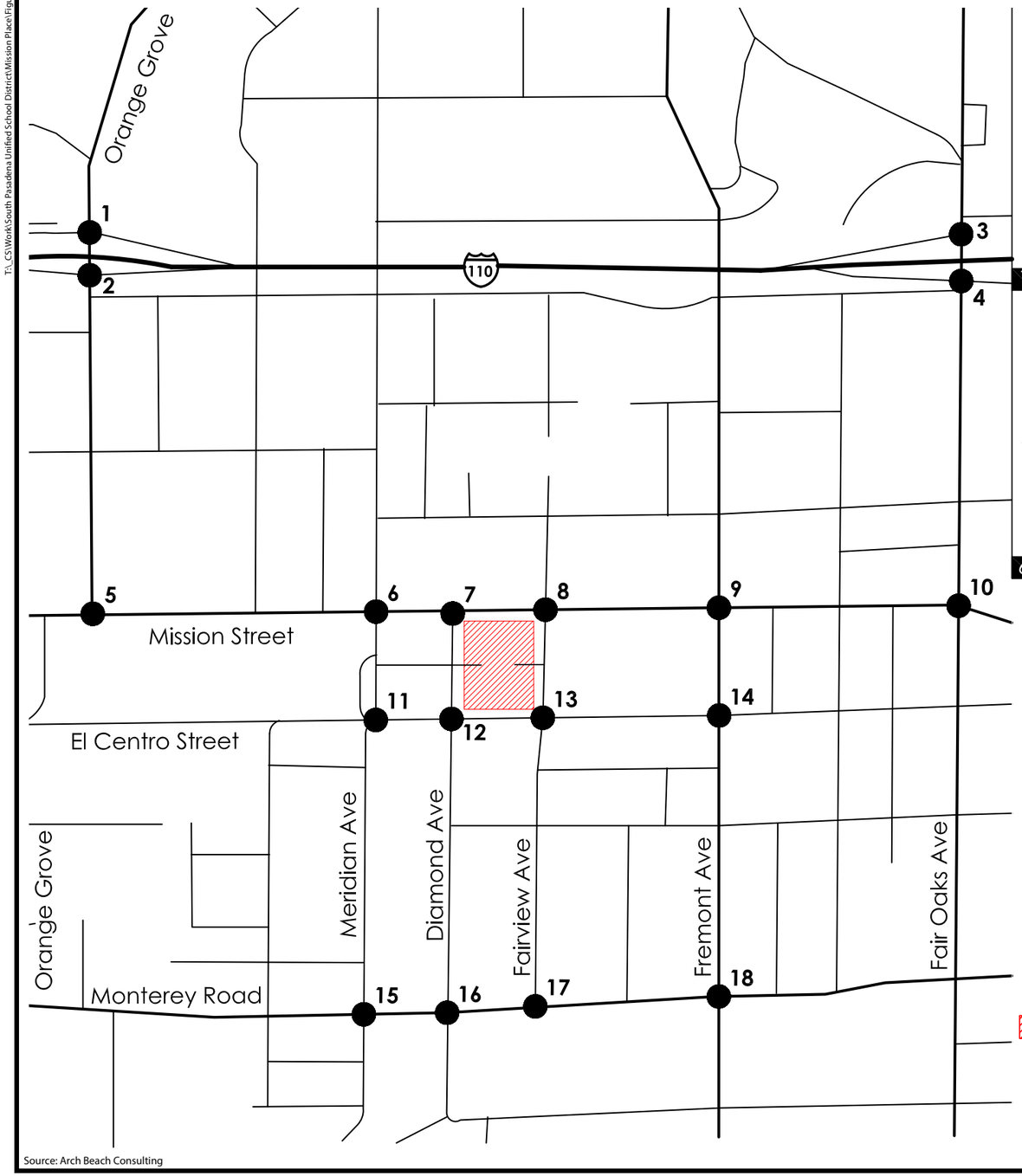

Source: Arch Beach Consulting

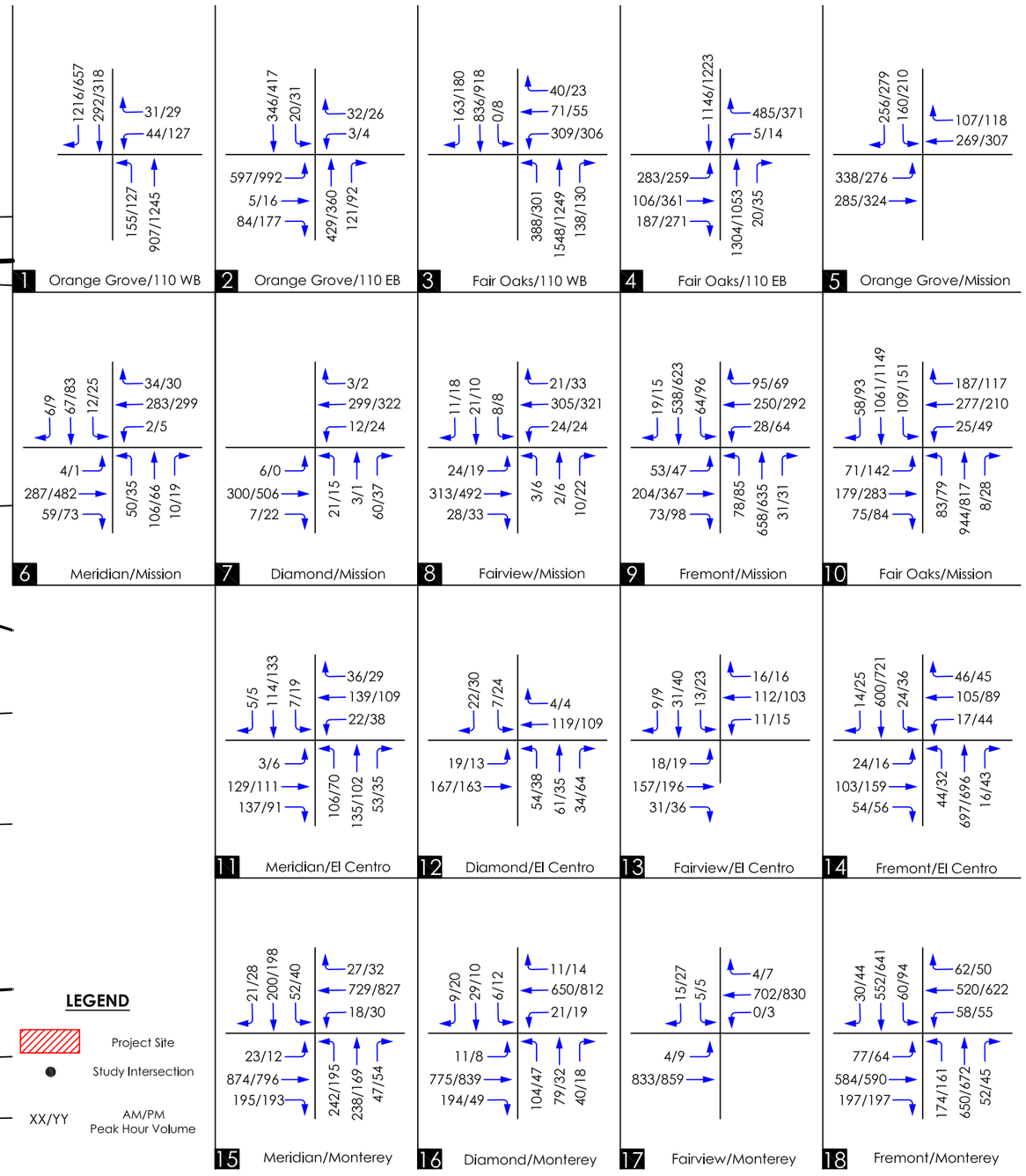

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Figure 3.8-9

Opening Year 2017 Baseline Weekday AM and PM Peak Hour Volumes

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TABLE 3.8-14
OPENING YEAR 2017 PEAK-HOUR INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection		Control	Opening Year 2017 Baseline			
			AM Peak Hour		PM Peak Hour	
			V/C or Delay	LOS	V/C or Delay	LOS
1.	Orange Grove Ave/I-110 SB ramps	signal	**1.045**	**F**	0.738	C
		HCM LOS	*32.6*	*C*	*12.4*	*B*
2.	Orange Grove Ave/I-110 NB ramps	signal	0.584	A	0.795	C
		HCM LOS	*22.6*	*C*	*24.6*	*C*
3.	Fair Oaks Ave/I-110 NB off-ramp	signal	0.756	C	0.795	C
		HCM LOS	*16.7*	*B*	*16.3*	*B*
4.	Fair Oaks Ave/I-110 NB off-ramp	signal	**1.277**	**F**	**1.245**	**F**
		HCM LOS	***136.3***	***F***	***123.6***	***F***
5.	Orange Grove Avenue/Mission Street	signal	0.450	A	0.390	A
6.	Meridian Avenue/Mission Street	signal	0.381	A	0.391	A
7.	Diamond Avenue/Mission Street	1-way stop	11.3	B	21.4	C
8.	Fairview Avenue/Mission Street	2-way stop	15.6	C	15.8	C
9.	Fremont Avenue/Mission Street	signal	0.765	C	0.808	C
10.	Fair Oaks Avenue/Mission Street	signal	**0.905**	**E**	0.849	D
11.	Meridian Avenue/El Centro Street	2-way stop	12.5	B	10.4	B
12.	Diamond Avenue/El Centro Street	2-way stop	9.0	A	8.8	A
13.	Fairview Avenue/El Centro Street	2-way stop	8.4	A	8.7	A
14.	Fremont Avenue/El Centro Street	signal	0.708	C	0.836	D
15.	Meridian Avenue/Monterey Road	signal	0.829	D	0.671	B
16.	Diamond Avenue/Monterey Road	signal	0.623	B	0.448	A
17.	Fairview Avenue/Monterey Road	1-way stop	15.7	C	15.3	C
18.	Fremont Avenue/Monterey Road	signal	0.886	D	0.893	D
19.	Diamond Avenue/Residential Dwy	1-way stop	0.0	A	0.0	A
20.	Fairview Avenue/Commercial Dwy	1-way stop	7.5	A	9.4	A

Source: Arch Beach Consulting 2015

Notes: Signalized intersections analyzed in Intersection Capacity Utilization (ICU) methodology: unsignalized and Caltrans ramp intersections analyzed in HCM methodology. ICU LOS based on volume-to-capacity (V/C) ratio, and HCM LOS based on vehicle control delay.

Bold = Intersection level of service calculated to be below City's standard of LOS D.

Roadway Segments

Based on the analysis methodology described in section 1.0 of the TIA, the Opening Year Baseline daily level of service at the study area roadway segments were determined. **Table 3.8-15** presents the results of the Opening Year Baseline daily traffic LOS analysis for the study area roadway segments.

TABLE 3.8-15
OPENING YEAR 2017 BASELINE DAILY ROADWAY SEGMENT LEVEL OF SERVICE SUMMARY

Roadway Segment	LOS E Capacity	Opening Year Baseline		
		ADT	V/C Ratio	LOS
Mission Street Diamond Avenue to Fairview Avenue	25,000	10,430	0.417	A
Diamond Avenue Mission Street to El Centro Street	5,000	1,210	0.242	A
Fairview Avenue Mission Street to El Centro Street	5,000	1,100	0.220	A

Source: Arch Beach Consulting 2015

Based on the table, all study area roadway segments are forecast to continue to operate with satisfactory level of service with LOS A at all segments.

Opening Year 2017 plus Project Condition

Traffic generated by the proposed project was added to the Opening Year 2017 Baseline scenario and the project impacts on the circulation system were analyzed.

Traffic Volumes

The proposed project trip assignment noted in **Figure 3.8-7** was added to the Opening Year 2017 Baseline weekday AM and PM peak-hour traffic volumes shown in **Figure 3.8-9**. This resulted in the Opening Year 2017 plus Project traffic volumes. **Figure 3.8-10** illustrates the Opening Year 2017 plus Project weekday AM and PM peak-hour traffic volumes.

Level of Service Analysis

Intersections

Based on the analysis methodology described in section 1.0 of the TIA, the Opening Year 2017 plus Project weekday AM and PM peak-hour traffic volumes were input into the Traffix LOS software to determine the intersection ICU, delay, and level of service values. **Table 3.8-16** presents the results of the Opening Year 2017 plus Project intersection LOS analysis, while the LOS calculation sheets are provided in **Appendix G**.

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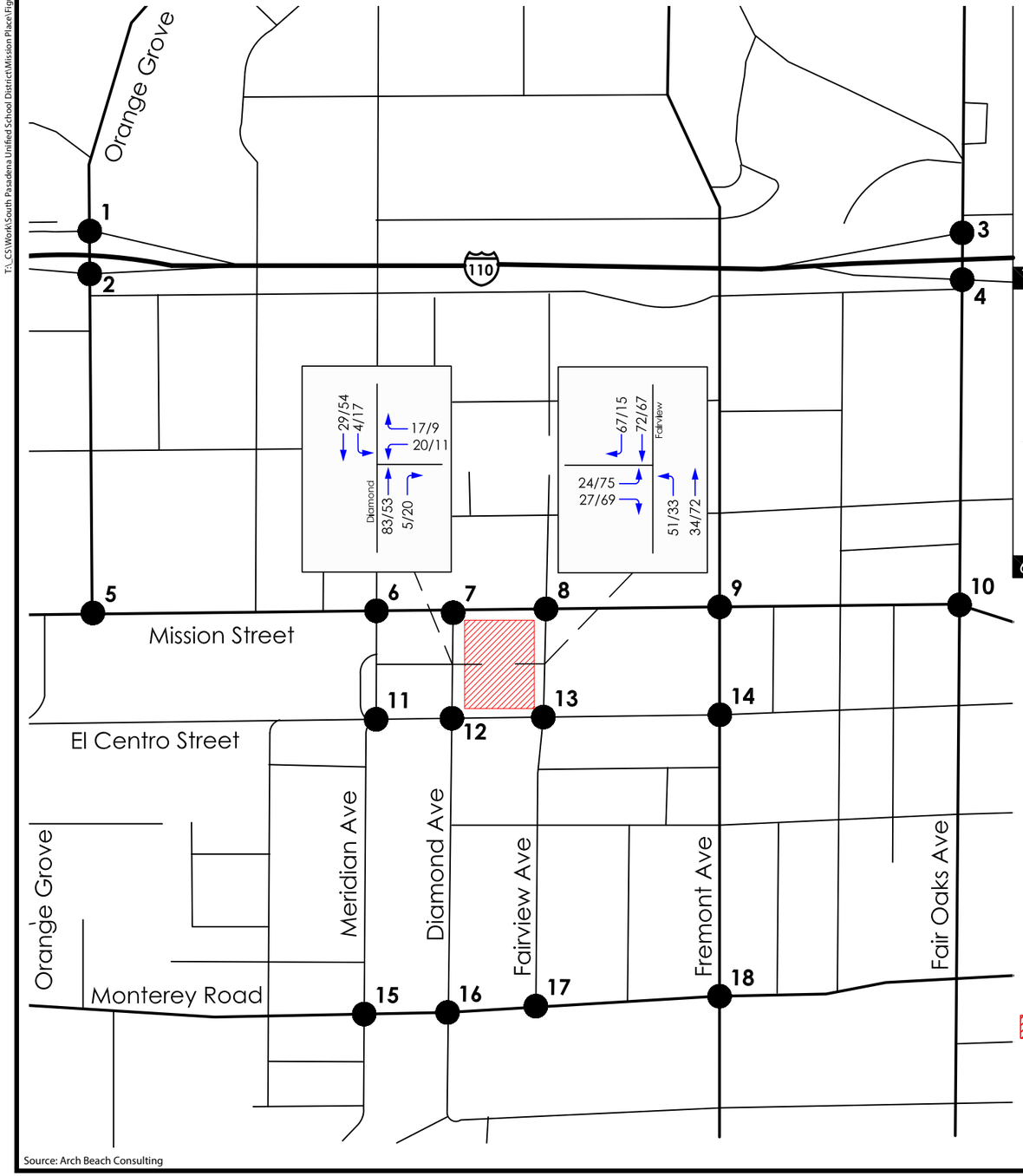

Source: Arch Beach Consulting

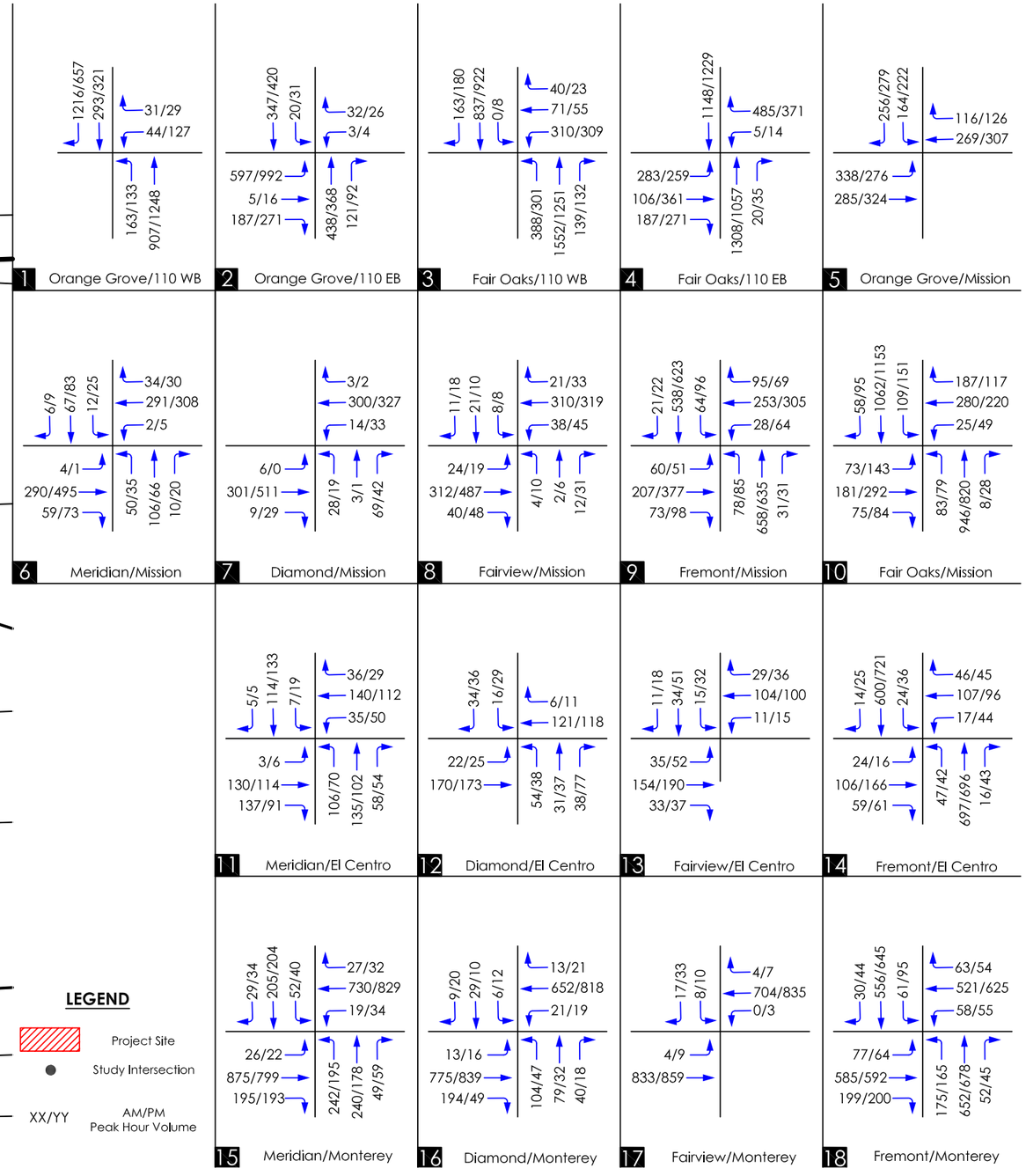

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Figure 3.8-10

Opening Year 2017 plus Project Weekday AM and PM Peak Hour Volumes

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Based on the Opening Year 2017 plus Project peak-hour LOS analysis, most of the study area intersections are forecast to continue to operate with satisfactory level of service at LOS D or better in the AM and/or PM peak hours with the addition of project traffic with the exception of the following:

- Orange Grove Avenue/I-110 southbound ramps (LOS F in AM peak hour with 0.005 V/C increase)
- Fair Oaks Avenue/I-110 northbound off-ramp – Grevelia Street (LOS F in both peak hours with a 0.002 V/C and 0.8-second increase in the AM peak hour, and 0.003 V/C and 1.2 second increase in the PM peak hour)
- Fair Oaks Avenue/Mission Street (LOS E in AM peak hour with a 0.004 V/C increase)

Per the City's significance criteria, the addition of project traffic to these intersections forecast to continue to operate at LOS F would not be a significant impact, as their increase to capacity is less than 0.020 V/C. At Orange Grove Avenue/I-110 southbound ramps, the project would increase the impacted AM peak hour (at LOS F) V/C by 0.005; however, the increase is less than the significance criteria of 0.020 V/C. Also, at Fair Oaks Avenue/Mission Street, the project would also increase the impacted AM peak hour (at LOS E) V/C by 0.004; however; this increase is also less than the significance criteria of 0.020 V/C.

In addition, at Fair Oaks Avenue/I-110 northbound off-ramp-Grevelia Avenue, where the HCM delays and levels of service are forecast to continue to be LOS F in both peak hours, the proposed project would not create a significant impact since the increase in delay (0.8 seconds and 1.2 seconds in the AM and PM peak hours, respectively) would be less than 10.0 seconds in both peak hours. The minimum increase in delay to change from LOS A to LOS B is approximately 10 seconds (maximum increase is approximately 25 seconds, from LOS E to LOS F). Since the project's delay increase is less than 10 seconds, there would be no noticeable change in vehicle delay at the intersection.

Optional Diamond Avenue-Fairview Avenue as One-Way Streets

With the option of converting Diamond Avenue and Fairview Avenue to one-way streets (as discussed in the Project Description), the four intersections surrounding the project site are forecast to continue to operate with satisfactory LOS at LOS C or better in both peak hours.

- Diamond Avenue/Mission Street: LOS B in a.m. peak hour, and LOS C in p.m. peak hour.
- Fairview Avenue/Mission Street: LOS C in both peak hours.
- Diamond Avenue/El Centro Street: LOS A in both peak hours.
- Fairview Avenue/El Centro Street: LOS A in both peak hours.

Therefore, the proposed project would not significantly impact the intersections listed above and the project's impact would be **not cumulatively considerable**.

Roadway Segments

Based on the analysis methodology described in section 1.0 of the TIA, the Opening Year plus Project levels of service at the study area roadway segments were determined. **Table 3.8-17** presents the results of the Opening Year plus Project daily traffic LOS analysis for the study area roadway segments.

TABLE 3.8-16
OPENING YEAR PLUS PROJECT INTERSECTION LEVEL OF SERVICE SUMMARY

		Opening Year 2017 Baseline				Opening Year 2017 plus Project					
		AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
Intersection	Control	V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS	Difference	V/C or Delay	LOS	Difference
1 . Orange Grove Ave/I-110 SB ramps	signal	**1.045**	**F**	0.738	C	**1.050**	**F**	0.005	0.742	C	0.004
HCM LOS		*32.6*	*C*	*12.4*	*B*	*33.7*	*C*	*1.1*	*12.5*	*B*	*0.1*
2 . Orange Grove Ave/I-110 NB ramps	signal	0.584	A	0.795	C	0.585	A	0.001	0.800	D	0.005
HCM LOS		*22.6*	*C*	*24.6*	*C*	*22.7*	*C*	*0.1*	*24.8*	*C*	*0.2*
3 . Fair Oaks Ave/I-110 SB on-ramp	signal	0.756	C	0.642	B	0.757	C	0.001	0.645	B	0.003
HCM LOS		*16.7*	*B*	*16.3*	*B*	*16.7*	*B*	*0.0*	*16.4*	*B*	*0.1*
4 . Fair Oaks Ave/110 NB off-ramp	signal	**1.277**	**F**	**1.245**	**F**	**1.279**	**F**	0.002	**1.248**	**F**	0.003
HCM LOS		***136.3***	***F***	***123.6***	***F***	***137.1***	***F***	*0.8*	***124.8***	***F***	*1.2*
5 . Orange Grove Avenue/Mission St	signal	0.450	A	0.390	A	0.451	A	0.001	0.393	A	0.003
6 . Meridian Avenue/Mission Street	signal	0.381	A	0.391	A	0.382	A	0.001	0.395	A	0.004
7 . Diamond Avenue/Mission Street	1-waystop	11.3	B	21.4	C	11.6	B	0.3	22.5	C	1.1
8 . Fairview Avenue/Mission Street	2-waystop	15.6	C	15.8	C	16.5	C	0.9	16.9	C	1.1
9 . Fremont Avenue/Mission Street	signal	0.765	C	0.808	D	0.771	C	0.006	0.819	D	0.011
10 . Fair Oaks Avenue/Mission Street	signal	**0.905**	**E**	0.849	D	**0.909**	**E**	0.004	0.858	D	0.009
11 . Meridian Avenue/El Centro Street	2-waystop	12.5	B	10.1	B	13.2	B	0.7	10.4	B	0.3
12 . Diamond Avenue/El Centro Street	2-waystop	9.0	A	8.8	A	9.2	A	0.2	9.2	A	0.4
13 . Fairview Avenue/El Centro Street	2-waystop	8.4	A	8.7	A	8.6	A	0.2	9.2	A	0.5
14 . Fremont Avenue/El Centro Street	signal	0.708	C	0.836	D	0.709	C	0.001	0.853	D	0.017
15 . Meridian Avenue/Monterey Road	signal	0.829	D	0.671	B	0.833	D	0.004	0.682	B	0.011
16 . Diamond Avenue/Monterey Road	signal	0.623	B	0.448	A	0.624	B	0.001	0.451	A	0.003
17 . Fairview Avenue/Monterey Road	1-waystop	15.7	C	15.3	C	17.2	C	1.5	17.7	C	2.4
18 . Fremont Avenue/Monterey Road	signal	0.886	D	0.893	D	0.890	D	0.004	0.900	D	0.007
19 . Diamond Avenue/Residential Dwy	1-waystop	0.0	A	0.0	A	9.2	A	9.2	9.2	A	9.2
20 . Fairview Avenue/Commercial Dwy	1-waystop	7.5	A	9.4	A	9.8	A	2.3	10.3	B	0.9

Notes: Signalized intersections analyzed in *Intersection Capacity Utilization* (ICU) methodology; unsignalized and Caltrans ramp intersections analyzed in *Highway Capacity Manual* (HCM) methodology. ICU LOS based on volume-to-capacity (V/C) ratio, and HCM LOS based on vehicle control delay.

XX Intersection LOS calculated to be below City's standard of LOS D.

XX Intersection significantly impacted by project per City's Significance Criteria.

Source: Arch Beach Consulting 2015

TABLE 3.8-17
OPENING YEAR PLUS PROJECT ROADWAY SEGMENT LEVEL OF SERVICE SUMMARY

Roadway Segment	LOS E Capacity	Opening Year Baseline ADT	Opening Year Baseline V/C Ratio	Opening Year Baseline LOS	Opening Year plus Project ADT	Opening Year plus Project V/C Ratio	Opening Year plus Project LOS	Difference
Mission Street								
Diamond Avenue to Fairview Avenue	25,000	10,430	0.417	A	10,430	0.417	A	0.000
Diamond Avenue								
Mission Street ot El Centro Street	5,000	1,210	0.242	A	1,210	0.242	A	0.000
Fairview Avenue								
Mission Street ot El Centro Street	5,000	1,100	0.220	A	1,100	0.220	A	0.000

Notes: **XX** Intersection LOS calculated to be below City's standard of LOS C.
XX Intersection significantly impacted by project per City's Significance Criteria.

Per the City's significance criteria, the addition of project traffic to the study area roadway segments would not result in a significant project impact as all study roadway segments are forecast to continue to operate at LOS A. Therefore, the project would have a **not cumulatively considerable** impact.

Mitigation Measures

None required.

3.8.5 REFERENCES

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