

## 5.7 TRAFFIC AND CIRCULATION

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### 1. INTRODUCTION

This section analyzes the potential effects of truck and worker trips to and from the site during implementation of the RAP. The primary focus is on the potential for haul truck and worker activity to impact intersection service levels compared to the City of Carson and Los Angeles County Congestion Management established standards. The traffic impact analysis is based on the analysis, conclusions, and recommendations of the *Traffic Study for the Kast Property* (“Traffic Study”) (Fehr & Peers, October, 2014), which is provided in Appendix G of this EIR.

### 2. ENVIRONMENTAL SETTING

#### Regulatory Framework

##### State

##### Congestion Management Program

The Congestion Management Program (CMP) is a state-mandated program enacted by the State legislature to address the increasing concern that urban congestion is affecting the economic vitality of the state and diminishing the quality of life in some communities. The 2010 CMP is the eighth CMP adopted for Los Angeles County since the requirement became effective with the passage of Proposition 111 in 1990. The hallmark of the CMP program is that it is intended to address the impact of local growth on the regional transportation system. Statutory requirements of the CMP include monitoring level of service (LOS) on the CMP Highway and Roadway network, measuring frequency and routing of public transit, implementing the Transportation Demand Management and Land Use Analysis Program and helping local jurisdictions meet their responsibilities under the CMP.

The Los Angeles County Metropolitan Transportation Authority (Metro), the local CMP agency, has established a countywide approach to implement the statutory requirements of the CMP in their governing 2010 CMP for Los Angeles County. The countywide approach includes designating a highway network that includes all state highways and principal arterials within the County and monitoring traffic conditions on the designated transportation network; performance measures to evaluate current and future system performance; promotion of alternative transportation methods; analysis of the impact of land use decisions on the transportation network; and mitigation to reduce impacts on the network. If LOS standards deteriorate, then local jurisdictions must prepare a deficiency plan to be in conformance with the countywide plan.

The CMP requires that, when an environmental impact report is prepared for a project, traffic and public transit impact analyses be conducted for select regional facilities based on the quantity of project traffic expected to use those facilities. The CMP guidelines state that areas selected for analysis should be those that include the following locations:

- All CMP arterial monitoring intersections where the proposed project will add 50 or more trips during either the A.M. or P.M. weekday peak hours of adjacent street traffic; and
- Mainline freeway monitoring locations where the project will add 150 or more trips, in either direction, during either the A.M. or P.M. weekday peak hours.

## Regional

### **Southern California Association of Governments Regional Transportation Plan**

The Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) is a long-range plan that provides a vision for transportation investments throughout the region. The RTP envisions a future multi-modal transportation system for the region and provides the basic framework for coordinated, long-term investment in the regional transportation system over the planning horizon of 2035. In compliance with state and federal requirements, SCAG prepares the Regional Transportation Improvement Program (RTIP) to implement projects and programs listed in the RTP. Updated every four years, the RTP contains a listing of transportation projects proposed for the region over a six-year period. Transportation projects proposed in the region are required to be consistent with the RTP and included within the RTIP to be eligible for state or federal funding. The 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) identifies mobility as an important component of a much larger picture with added emphasis on sustainability and integrated planning. In addition, the RTP/SCS includes goals and policies that pertain to mobility, accessibility, safety, productivity of the transportation system, protection of the environment and energy efficiency, and land use and growth patterns that complement the state and region's transportation investments. An integral component of the RTP/SCS is a commitment to reduce emissions from transportation sources, in compliance with Senate Bill 375; to improve public health; and to meet the National Ambient Air Quality Standards as set forth by the Clean Air Act. For further discussion of air quality and greenhouse gas emissions, see Sections 5.1, *Air Quality*, and 5.3, *Greenhouse Gas Emissions*, of this EIR, respectively.

## Local

### **City of Carson General Plan Transportation and Infrastructure Element**

The Transportation and Infrastructure Element of the Carson General Plan (adopted October 11, 2004), provides methods and results of the analysis of existing and projected future circulation conditions in the City of Carson. As part of the General Plan, the Transportation and Infrastructure Element outlines policies and describes the future circulation system needed to support the General Plan Land Use Element. The Transportation and Infrastructure Element identifies the existing circulation system, the relationship of the existing system to the regional roadway system, and existing daily traffic volume on the existing street network. It also provides a classification system, which includes local streets, collector streets, secondary highways, major highways, and state highways and freeways.

The Transportation and Infrastructure Element provides a description of designated truck routes. According to the Transportation and Infrastructure Element, the volume of trucks, due to the types of industrial and commercial uses in the City, and conflicts between trucks and other vehicles are major issues for the City.<sup>1</sup>

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<sup>1</sup> *City of Carson General Plan, Transportation and Infrastructure Element, October 11, 2004, page II-16.*

The City has designated and regulated truck routes and truck parking zones that provide access for large trucks on streets designed to accommodate them and to protect residential streets from unwanted truck traffic. The Transportation and Infrastructure Element also identifies public transit facilities in the City of Carson.

The Transportation and Infrastructure Element identifies desirable roadway capacities and service levels for each type of facility, based on volume-to-capacity ratio for the roadway level of service. The assumed capacities on roadway links are based on the standards used by the County of Los Angeles and modified for special conditions in Carson. All street intersections within the study area for the RP's Proposed Remedy are located within the jurisdictional control of the City of Carson, even if some street segments are within the City of Los Angeles boundary.

### **City of Carson Municipal Code**

The City of Carson has identified specific arterial roadways as truck routes in their Municipal Code (CMC 3260.2 and 3260.3). Commercial vehicles exceeding a maximum gross weight of six thousand pounds are only permitted to use truck routes identified in the City's Municipal Code. Lomita Boulevard, Main Street, Sepulveda Boulevard, and Avalon Boulevard within the project study area are all listed in CMC 3260.2 as designated truck routes.

## **Existing Conditions**

### **Existing Roadways**

The site is located in the southern portion of the City of Carson, and is generally bounded by Lomita Boulevard to the south, the Monterey Pines residential community and industrial property of the former Turco Products Facility to the west, Los Angeles County Metropolitan Transportation Authority (Metro) railroad tracks to the north, and single-family residential properties to the east. Primary regional access to the site is provided by the Harbor Freeway (I-110) and the San Diego Freeway (I-405). The I-110 runs in a north/south direction approximately one-half mile west of the site; the I-405 runs in a northwest/southeast direction north of the site. The municipal boundary between the cities of Carson and Los Angeles in the project area generally follows Lomita Boulevard. However, the area between Avalon Boulevard and Wilmington Avenue north of Lomita Avenue to the approximate location of Deloras Drive is located within the City of Los Angeles. The following is a brief description of the major streets serving the project site: with functional classifications from the Transportation and Infrastructure Element of the City of Carson General Plan and the Transportation Elements of the Los Angeles General Plan.

- **Lomita Boulevard**, which runs east/west south of the site, provides access to the site. Lomita Boulevard is classified as a Major Highway in the Carson Transportation and Infrastructure Element while the Wilmington Community Plan classifies it as a Secondary Highway. Lomita Boulevard provides two lanes in each direction and is divided by a two-way left-turn lane. Parking is generally permitted on both sides of the roadway and the posted speed limit is 40 MPH. There is a school zone between Main Street and Neptune Avenue, adjacent to Wilmington Middle School, where the speed limit is 25 MPH when children are present.
- **Sepulveda Boulevard**, which runs east/west north of the project site and provides access to I-110, is classified as a Major Highway in the Carson Transportation and Infrastructure Element. Near the

site, Sepulveda Boulevard has two lanes in each direction and is divided by a raised median. Parking is generally allowed on both sides of Sepulveda Boulevard and the posted speed limit is 40 MPH.

- **223<sup>rd</sup> Street** is classified as a Major Highway and runs east/west north of the project site. It provides two lanes in each direction and is divided by a two-way left-turn lane. Parking is generally allowed on both sides of 223<sup>rd</sup> Street and the posted speed limit is 40 MPH.
- **Figueroa Street** runs north/south west of the site. North of Lomita Boulevard, in Carson, it is classified as a Major Highway. South of Lomita Boulevard, in Los Angeles, it is classified as a Major Highway Class II. It provides two lanes in each direction and is generally divided by a raised median. Parking is allowed and the posted speed limit is 40 MPH.
- **Main Street** runs north/south just west of the project site. North of Lomita Boulevard, in Carson, it is classified as a Major Highway. South of Lomita Boulevard in Los Angeles, it is named Wilmington Boulevard and, although it is classified as a Secondary Highway, trucks are prohibited from the City limit south towards the Port area.. It provides two lanes in each direction and is divided by raised medians. Parking is generally permitted on both sides of Main Street and the posted speed limit is 40 MPH.
- **Avalon Boulevard** runs north/south east of the site. North of Lomita Boulevard, in Carson, Avalon Boulevard is classified as a Major Highway and is a designated truck route. In Los Angeles, although designated a Major Highway Class II, trucks are prohibited from the city limit south towards the Port area. Avalon Boulevard provides two lanes in each direction and is divided by a raised median. Parking is permitted on both sides of Avalon Boulevard and the posted speed limit is 40 MPH.
- **Wilmington Avenue** runs north/south east of the site and provides access to I-405. Wilmington Avenue north of Lomita Boulevard is classified as a Major Highway and generally provides two travel lanes in each direction and is divided by a raised median north of the railroad crossing. On-street parking is generally allowed on Wilmington Avenue and the posted speed limit is 40 MPH.
- **Neptune Avenue** is a local street and runs north/south within the Carousel Tract. It provides one travel lane in each direction. On-street parking is allowed on Neptune Avenue.
- **Lagoon Street** is a short local street and runs north/south between Lomita Boulevard and 249<sup>th</sup> Street within the Carousel Tract. It provides one travel lane in each direction. On street parking is allowed on Lagoon Street.

## Existing Traffic Conditions

### Study Area Intersections

The study area was established in accordance with the City of Carson and covers the area adjacent to the site that would be utilized by project-generated traffic. **Figure 5.7-1, Project Site and Study Intersections**, shows the study area and the 14 study intersections, which are as follows:

1. I-110 SB Off-Ramp & Sepulveda Boulevard
2. I-110 NB Off-Ramp & Sepulveda Boulevard
3. Figueroa Street & Sepulveda Boulevard
4. Main Street & Sepulveda Boulevard



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5. Main Street & Lomita Boulevard
6. Neptune Avenue & Lomita Boulevard
7. Lagoon Avenue & Lomita Boulevard (unsignalized)
8. Avalon Boulevard & Sepulveda Boulevard
9. Avalon Boulevard & Lomita Boulevard
10. Wilmington Avenue & I-405 NB Ramps
11. Wilmington Avenue & I-405 SB Ramps
12. Wilmington Avenue & E 223<sup>rd</sup> Street
13. Wilmington Avenue & Sepulveda Boulevard
14. Wilmington Avenue & Lomita Boulevard (unsignalized)

### Existing Traffic Volumes and Service Levels

The following sections describe the peak hour traffic volumes, the methodology used to analyze the intersection operating conditions, and the resulting levels of service (LOS) for the study intersections under existing conditions. Lane configurations at the study intersections are illustrated in Figure 4 of the Traffic Study, which is contained in Appendix G of this EIR.

### Level of Service Methodology

Traffic operations of roadway facilities are described using the term Level of Service (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS "A", representing completely free-flow conditions, to LOS "F", representing breakdown in flow resulting in stop-and-go conditions. LOS "E" represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow. Based on the City of Carson's guidelines, the Intersection Capacity Utilization (ICU) methodology was used to determine the intersection volume-to-capacity (V/C) ratio and corresponding LOS for the 12 signalized study intersections. The City of Carson utilizes the 2000 Highway Capacity Manual (HCM 2000) methodology for unsignalized intersections and, for those which are found to operate at LOS E or F, the ICU methodology is also used in order to obtain a V/C ratio for impact assessment purposes.

The ranges of V/C ratios or delay values and corresponding LOS for signalized and unsignalized intersections are included in **Table 5.7-1**, *Level of Service for Signalized Intersections – ICU methodology*, and **Table 5.7-2**, *Level of Service Definitions for Stop-Controlled Intersections*.

Table 5.7-1

**Level of Service Standards for  
Signalized Intersections Intersection Capacity Utilization (ICU) Methodology**

Level of Service	Description	Volume/Capacity Ratio
A	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.	0.000 - 0.600
B	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat what restricted within groups of vehicles.	>0.600 - 0.700
C	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.	>0.700 - 0.800
D	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.	>0.800 - 0.900
E	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.	>0.900 - 1.000
F	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths	> 1.000

Source: *Highway Capacity Manual Special Report 209, Transportation Research Board, 1994.*

Table 5.7-2

**Level Of Service Definitions For Stop-Controlled Intersections**

Level of Service	Average Control Delay (Seconds/Vehicle)
A	≤10.0
B	>10.0 to 15.0
C	>15.0 to 25.0
D	>25.0 to 35.0
E	>35.0 to 50.0
F	>50.0

Source: *Highway Capacity Manual (HCM), Transportation Research Board, 2000.*

### Existing Traffic Volumes

Traffic volumes at the 14 study intersections were collected during the morning and afternoon peak periods (from 7:00 AM to 9:00 A.M. and 4:00 PM to 6:00 P.M., respectively) in April 2014 and are included in Appendix A of the Traffic Study contained in Appendix G of this EIR. Vehicle classifications are included in the baseline traffic count data. Existing peak hour traffic volumes with passenger-car equivalent (PCE) adjustments are illustrated in Figure 4 of the Traffic Study (Appendix G). The Highway Capacity Manual, 2000 edition (HCM 2000) identifies a 2.0 passenger-car unit equivalent for heavy trucks (within the 10-wheel category) to

account for the additional space occupied by these vehicles and the difference in operating capabilities compared with passenger cars.<sup>2</sup>

### Existing Intersection Levels of Service

An assessment of the existing operating conditions at the 14 intersections, including the V/C ratio and corresponding LOS at each of the study intersections during the morning and afternoon peak hours is summarized in **Table 5.7-3, Existing Service Levels – Existing (2014) Conditions**. As shown in Table 5.7-3, all 14 study intersections are currently operating at acceptable levels of service (LOS D or better) during both peak hours under ICU methodology shown in Table 5.7-1. The unsignalized intersections, however, operate at LOS E or F using HCM methodology shown in Table 5.7-2. This means that stop-sign-controlled approaches have a higher delay under existing conditions than considered satisfactory. Detailed LOS calculations for existing intersections are provided in Appendix B of the Traffic Study (Appendix G of this EIR).

### Existing Transit Services

Public transit services operating in the project area are operated by Metro, City of Los Angeles Department of Transportation (LADOT) Commuter Express, City of Carson, and City of Torrance transit systems. Bus routes and their frequencies during the weekday morning (7:00 to 10:00 A.M.) and weekday afternoon (3:00 to 6:00 PM.) peak periods are detailed in the Traffic Study, Figure 2, contained in Appendix G of this EIR. A bus stop is located on the north side of Lomita Boulevard at its intersection with Neptune Avenue. There are no bus stops at the intersection of Lomita Boulevard and Lagoon Street. Public transit lines serving the project area include the following:

- Metro Line 205 travels north/south from San Pedro to Willowbrook with stops in Lomita, Harbor City, Carson, Harbor Gateway, Rancho Dominguez, and Carson. Near the project site, Line 205 travels along Vermont Avenue. Line 205 has 30-minute headways during the weekday peak periods, and 50-minute headways on weekends.
- Metro Line 246 travels north/south from San Pedro to Gardena with stops in Wilmington and Carson. Near the project site, Line 246 travels along Avalon Boulevard. Line 246 has 20- to 25-minute headways during the weekday peak periods, and 40-minute headways on weekends.
- Metro Line 450 travels north/south from San Pedro to downtown Los Angeles along I-110 through Wilmington, Carson, Harbor Gateway, and Gardena. Near the project site, Line 450 travels along Sepulveda Boulevard. Line 45 has 20- to 30-minute headways during the weekday peak periods, 40-minute headways on Saturdays, and 60-minute headways on Sundays.
- Metro Line 550 travels north/south from San Pedro to downtown Los Angeles with stops in Harbor City, Harbor Gateway, and Wilmington. Near the project site, Line 550 travels along Vermont Avenue. Line 550 has 30- to 40-minute headways during the weekday peak periods, and 50-minute headways on weekends.

<sup>2</sup> *In addition, the use of a 2.0 PCE is consistent with previous studies in this area, in which PCE factors of 1.0, 1.5, and 2.0 are used for passenger vehicles, bobtail trucks and buses, and heavy trucks, respectively, to account for the influence of heavy vehicles in the traffic stream.*

Table 5.7-3

## Intersection Service Levels – Existing (2014) Conditions

NO.	INTERSECTION	PEAK HOUR	EXISTING	
			V/C or Delay	LOS
1	I-110 SB Off-Ramp & Sepulveda Boulevard	AM	0.795	C
		PM	0.830	D
2	I-110 NB Off-Ramp & Sepulveda Boulevard	AM	0.717	C
		PM	0.615	B
3	Figueroa St & Sepulveda Boulevard	AM	0.704	C
		PM	0.630	B
4	Main St & Sepulveda Boulevard	AM	0.682	B
		PM	0.751	C
5	Main St & Lomita Boulevard	AM	0.734	C
		PM	0.771	C
6	Neptune Ave & Lomita Boulevard	AM	0.547	A
		PM	0.479	A
7	Lagoon Ave & Lomita Boulevard <sup>a</sup>	AM	0.751	C
		PM	0.662	B
		AM	80.0s	F
		PM	46.0s	E
8	Avalon Boulevard & Sepulveda Boulevard	AM	0.684	B
		PM	0.776	C
9	Avalon Boulevard & Lomita Boulevard	AM	0.653	B
		PM	0.641	B
10	Wilmington Ave & I-405 NB Ramps	AM	0.656	B
		PM	0.652	B
11	Wilmington Ave & I-405 SB Ramps	AM	0.720	C
		PM	0.822	D
12	Wilmington Ave & E 223rd St	AM	0.623	B
		PM	0.740	C
13	Wilmington Ave & Sepulveda Boulevard	AM	0.666	B
		PM	0.625	B
14	Wilmington Ave & Lomita Boulevard <sup>a</sup>	AM	0.448	A
		PM	0.422	A
		AM	50.6s	F
		PM	54.8s	F

<sup>a</sup> Unsignalized intersection operating at LOS E or F per the HCM methodology were also analyzed per the ICU methodology to calculate a V/C ratio, as per City of Carson practices.

Source: Fehr & Peers, 2014.

- LADOT Commuter Express Line 448 travels north/south from Rancho Palos Verdes to downtown Los Angeles, with stops in Lomita, Harbor City, and Wilmington. Near the project site, Line 448 travels along I-110. Line 448 operates on weekdays only, with 15-minute headways during the peak hours.
- Carson Circuit Route B is a circuitous route through the City of Carson, traveling along Carson Street, Figueroa Street, 234<sup>th</sup> Street, and Main Street. In the project study area, this line travels along Main Street. Route B operates at 40-minute headways daily.

- Carson Circuit Route C is a circuitous route through the City of Carson, traveling along Avalon Boulevard, 223<sup>rd</sup> Street, Dolores Street, and Sepulveda Boulevard. In the study area, this line travels along Avalon Boulevard. Route C operates at 40-minute headways daily.
- Carson North/South Shuttle travels north and south through the City of Carson. In the study area, the shuttle travels along Main Street, Sepulveda Boulevard, and Lomita Boulevard. The North/South Shuttle operates twice during the morning peak hour and once during the afternoon peak hour on weekdays only. There is a stop at the intersection of Lomita Boulevard and Neptune Avenue.
- Torrance Transit Line 3/Rapid 3 travels from the South Bay Galleria Transit Center in Torrance to the Metro Blue Line station in Long Beach. Near the project site, Line 3 travels along Avalon Boulevard. Line 3 has 20- to 25-minute headways during the weekday peak periods and Saturdays, and 30-minute headways on Sundays.
- Torrance Transit Line 7 travels between the cities of Redondo Beach and Carson. Near the project site, Line 7 travels along Sepulveda Boulevard. Line 7 has a 1-hour headway daily.
- Torrance Transit Line 9 travels from the Del Amo Mall in Torrance to Carson. Near the project site, Line 9 travels along Lomita Boulevard. Line 9 operates Monday through Saturday with approximately 50-minute headways. The bus stops nearest to the project site are at Lomita Boulevard & Main Street.

### 3. METHODOLOGY AND THRESHOLDS

#### Methodology

The Traffic Study evaluates the potential for construction traffic impacts on the street system surrounding the project site. Due to the nature of the RP's Proposed Remedy, a minimal number of trips would occur after the implementation of the RAP for monitoring and any necessary maintenance. The following traffic scenarios are evaluated to assess temporary construction-period impacts:

- Existing Conditions (Year 2014)
- Existing plus Project (Year 2014)
- Existing plus Expedited Implementation Option (Year 2014)
- Cumulative Base (Year 2021)
- Cumulative plus Project (Year 2021)
- Cumulative Base (Year 2019) for Expedited Implementation Project
- Cumulative plus Expedited Implementation Option (Year 2019)

#### Level of Service Methodology

The existing level of service methodology is described above under Existing Conditions. The following provides the methodology for the other scenarios that are evaluated.

## Future Traffic Projections

Potential project impacts are assessed against existing conditions as well as cumulative conditions to evaluate the potential impacts of the RP's Proposed Remedy and Expedited Implementation Option on the surrounding street system. Under cumulative conditions, estimates of future traffic conditions in the study area are estimated with and without the project's traffic. Estimates of traffic growth are developed to forecast future conditions without the project. These forecasts included traffic increases as a result of both regional ambient traffic growth and traffic generated by specific developments in the vicinity of the project (related projects). Traffic expected to be generated by related projects within, or with the potential to affect, the study area is considered in addition to the ambient area wide traffic growth. For this study, related projects within two miles of the project site were identified by the City of Carson and LADOT in Spring 2014.

These projected construction-period traffic volumes (the cumulative base conditions) represent the future study year conditions without the project. The traffic generated by the RP's Proposed Remedy and Expedited Implementation Option is estimated and assigned to the surrounding street system. The project traffic is added to the cumulative base to form the cumulative plus project traffic conditions, which is analyzed to determine the incremental traffic impacts attributable to the project itself.

Implementation of the RP's Proposed Remedy is estimated to be complete in 2021 and under the Expedited Implementation Option it is estimated to be complete in 2019. Project-generated traffic volumes are based on the trip generation estimates and trip distribution patterns described below.

## Trip Generation

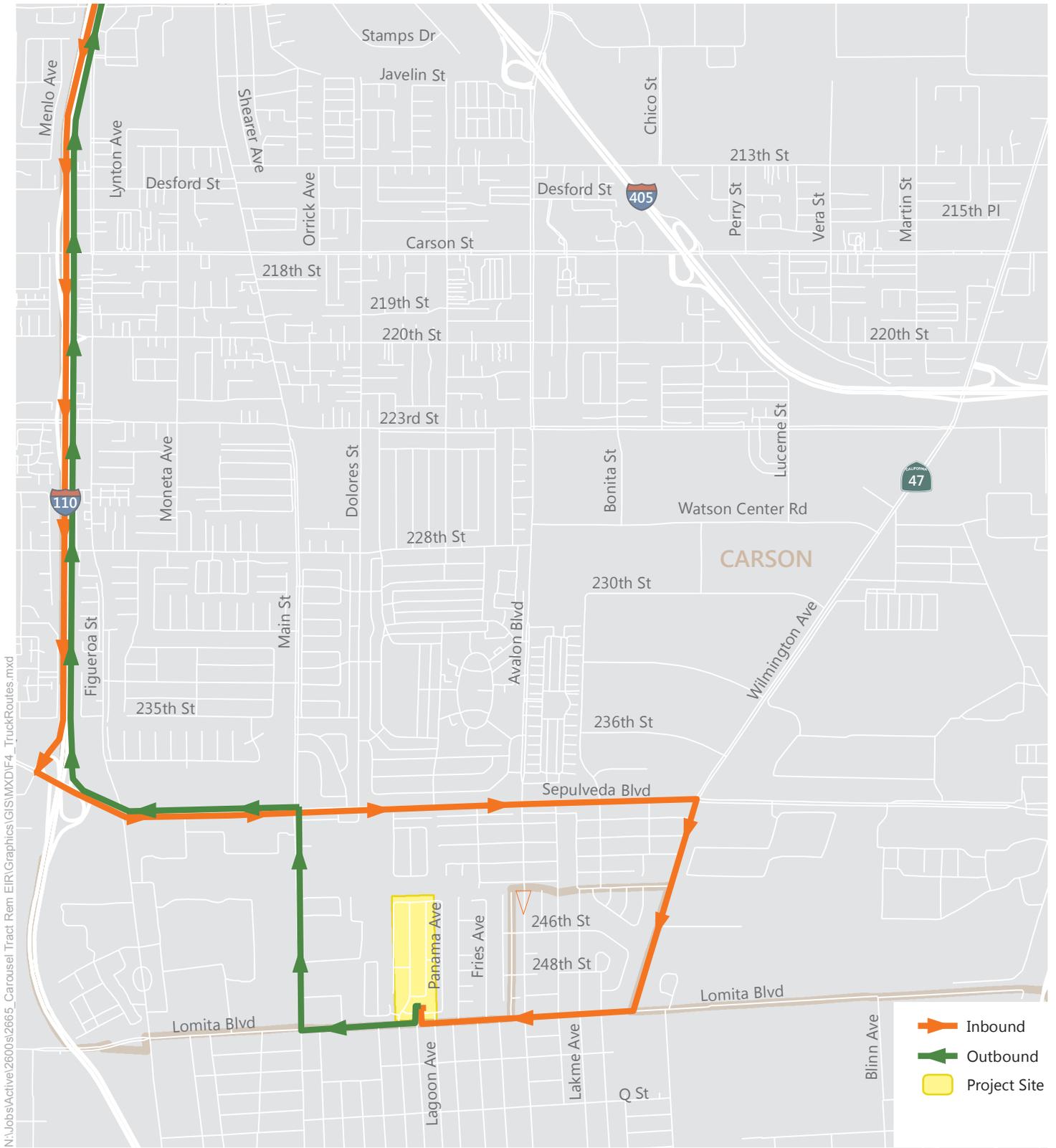
Trip generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. The traffic projections for the proposed project were developed using three steps: estimating the trip generation of the project, determining trip distribution, and assigning the project traffic to the roadway system based on assumptions made about the RAP regarding excavation methods, haul routes, and worker trips, including the shuttle service for workers. Maximum trip generation would occur during excavation in residential areas. Therefore, this phase of activity is the basis of the traffic analysis. Other activities, such as the subsequent street grinding and paving which would produce approximately 24 one-way truck trips per day, and periodic activity such as maintenance and monitoring of SVE/bioventing, would result in less vehicle trips.

### Trip Distribution and Assignment

The estimated total traffic volumes, including truck, worker, and visitor trips, for the project are illustrated in the Traffic Study, Figure 6A, contained in Appendix G of this EIR. The estimated total volumes, including truck, worker, and visitor trips, for the Expedited Implementation Option are illustrated in Figure 6B of the Traffic Study.

### Truck Traffic

Trucks would be coming to the site via I-110 from points north or south of the site. As shown in **Figure 5.7-2, Proposed Haul Route**, inbound trucks were assumed to take the I-110 southbound off-ramp at Sepulveda Boulevard and travel eastbound, turn right onto Wilmington Avenue and travel southbound, turn right onto Lomita Boulevard and travel westbound, and turn right onto either Neptune Avenue or Lagoon



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**Proposed Haul Route**  
**Former Kast Property Tank Farm Site Remediation Project**  
Source: Fehr & Peers, 2014.

FIGURE  
**5.7-2**

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Avenue to enter the site. Trucks would exit the site by turning right from either Neptune Avenue or Lagoon Avenue onto Lomita Boulevard and traveling west, turn right onto Main Street and travel north, turn left onto Sepulveda Boulevard and travel west, and turn right onto the I-110 northbound on-ramp. Trucks are expected to access the site no earlier than 8 A.M. and would depart the site no later than 4 P.M.<sup>3</sup>

### **Worker Traffic**

Worker trips would be generally distributed evenly with approximately 50 percent arriving at the site via shuttle and 50 percent arriving via private vehicles. The distribution pattern of workers arriving via private vehicles would depend on the home location of each worker. Based on typical travel patterns in the area, the generalized distribution was used for worker trips.

- 35 percent to and from the south via the I-405 freeway
- 25 percent to and from the north via the I-405 freeway
- 10 percent to and from the south via the I-110 freeway
- 20 percent to and from the north via the I-110 freeway
- 10 percent to and from the east via Sepulveda Boulevard

The off-site location for workers traveling to the site via shuttle van is currently unknown but is assumed to be within five miles of the site. Based on existing land use and the nearby roadway network, it is assumed that the off-site location would be north of the site, with access to the site likely via I-110. As such, and to maintain a conservative analysis, it has been assumed that workers traveling by shuttle van would use the same routes as the truck trips.

### **Visitor Traffic**

Up to nine visitors (such as agency staff, RP personnel) per day could be at the site. It is assumed that six would arrive from points north using the I-110 freeway and the remaining three visitors would likely access the site using surface streets.

## **Thresholds of Significance**

Appendix G of the State CEQA Guidelines provides a set of screening questions that address impacts with regard to transportation. These questions are as follows:

Would the project:

- a) 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

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<sup>3</sup> *The traffic analysis evaluates the highest peak hour in the A.M. and P.M. Given that the arrival of workers and trucks would occur within different hours (workers would begin arriving as early as 7:00 A.M. and trucks would arrive no earlier than 8:00 A.M.) it is unlikely that workers and trucks would arrive at the site within the same one-hour during either peak period. However, to maintain a conservative assumption, all employee trips arriving during the A.M. in addition to the first group of truck trips arriving to the site, were analyzed for the A.M. peak with the converse holding true for the P.M. peak. Based on this assumption, the A.M. peak would be 7:30 to 8:30 A.M. and no trucks would be expected to leave the site.*

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?

- b) 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?
- c) 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?
- d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- e) Result in inadequate emergency access?
- f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities

Based on the City of Carson's circulation system standards and the CMP traffic impact analysis guidelines, the specific thresholds regarding traffic that are used in the analysis are provided below. As determined in the Initial Study, which is contained in Appendix A of this EIR, implementation of the RAP would result in short-term, temporary traffic. As such, the project would not conflict with adopted policies, plans or programs regarding the circulation system or alternative transportation facilities (Item f). As required by the City of Carson, a Construction Traffic Management Plan would be implemented and would include coordination with emergency providers to ensure appropriate emergency access (Item e). In addition, the haul route would follow designated truck routes. The project would not result in any changes to the existing circulation system (Item d). With regard to airports, the nearest airport to the site is the Torrance Municipal Airport, which is located over 3.3 miles to the west of the site (Item c). As such, no further analysis of these topics is necessary.

### Intersection Capacity

The project would have a significant impact relative to local intersections if:

**TRAF 1:** The project-generated traffic causes an increase in the V/C ratio equal to or greater than 0.020 if the intersection is projected to operate at LOS E or F under future plus project conditions (represented by a V/C ratio of 0.901 or greater).

Under these standards, a project would not have a significant impact at an intersection, regardless of the V/C ratio increase, if the intersection is operating at LOS A, B, C or D under the "With Project" traffic conditions. Conversely, if an intersection is or is projected to be operating at LOS E or F, the project would have significant impact if project-generated traffic caused an increase of more than 0.02 in the V/C ratio at any individual intersection.

### CMP Traffic Impacts

The CMP traffic impact analysis guidelines indicate that an impact on the regional transportation (freeway) system is considered to be significant under the following conditions:

**TRAF 2:** The project increases traffic demand on a CMP facility by 2 percent of capacity (i.e., V/C increase of 0.02), causing LOS F (V/C > 1.00) or if the facility is already at LOS F when the project increases traffic demand on a CMP facility by 2 percent of capacity (i.e., V/C increase of 0.02).

## 4. PROJECT ANALYSIS

### Project Design Features

The following Project Design Features (PDFs) are components that would be implemented as part of the RP's Proposed Remedy to minimize the potential impacts regarding traffic and circulation.

**PDF TRAF-1** Prior to implementation of the RAP, the project contractor will submit a Haul Route Plan to the City of Carson for review and approval. The proposed haul route will be restricted to the City's designated truck route roadways and will be as shown in Figure 5.7-2 of this EIR.

**PDF TRAF-2** Prior to implementation of the RAP, the project contractor will prepare a Construction Traffic Management Plan that will be submitted to the City of Carson for review and approval prior to the start of any work. This plan will comprise site traffic control plans, including but not limited to such elements as the designation of haul routes for construction-related trucks, the sequencing of construction activities, any driveway turning movement restrictions, temporary traffic control devices, travel time restrictions for construction-related traffic, consolidation of construction truck deliveries, flag control, and designated staging and parking areas for workers and equipment.

Because the construction activities occur within a public street right-of-way, the following design features would also apply:

- A site-specific construction work site traffic control plan will be prepared for each construction phase and submitted to the City of Carson for review and approval prior to the start of any construction work. This plan will include such elements as the location and hours of any necessary lane closures, local traffic detours (if any), protective devices and traffic controls (such as barricades, cones, flag persons, lights, warning beacons, temporary traffic signals, warning signs), the location and hours of any necessary access limitations for abutting properties, and provisions to maintain emergency access through construction work areas.
- Generally accepted construction safety standards will be followed to separate pedestrians from construction activity through such measures as protection barriers and signage indicating alternative pedestrian access routes where existing facilities would be affected. This would include the sidewalks around the perimeter of an active excavation site.
- Advance notice of planned construction activities will be provided to any affected residents and property owners in the vicinity of the construction site.
- The project contractor will coordinate with emergency service providers (police/sheriffs, fire, ambulance and paramedic services) to provide advance notice of ongoing construction activity and construction hours.

**PDF TRAF-3** One travel lane will be kept open at all times or detours will be provided during residential property remediation, well installation and street trenching phases.

**PDF TRAF-4** The project contractor will arrange for off-site parking within 5 miles of the site and will provide shuttle services to the site for approximately 50 percent of on-site workers.

## Analysis of Project Impacts

**Threshold TRAF-1:** The project would have a significant impact on transportation and circulation if it increases traffic demand on a CMP facility by 2 percent of capacity (i.e., V/C increase of 0.02), causing LOS F (V/C > 1.00) or if the facility is already at LOS F when the project increases traffic demand on a CMP facility by 2 percent of capacity (i.e., V/C increase of 0.02).

**Impact Statement TRAF-1:** *The RP's Proposed Remedy and Expedited Implementation Option would not exceed threshold standards related to V/C ratios at any of the study intersections. Therefore, the RP's Proposed Remedy and the Expedited Implementation Option would have a less than significant impact with respect to intersection service levels.*

Implementation of the RAP would begin in 2015 and end in 2021. The RP's Proposed Remedy is expected to generate approximately 32 workers, including 16 workers who would travel from home to the site and contribute approximately 10 additional off-peak round trips to various off-site locations during the course of a typical day. The remaining 16 employees would park at an off-site location and travel to the site in shuttle vans, making one round-trip each in the morning and evening peak hours. Workers would arrive as early as 7:00 A.M. and would depart as late as 5:00 P.M. No specific location for off-site worker parking has been identified at this time, but this analysis assumes that it would be located within five miles of the project site.

An average of 66 one-way trucks and a maximum of 99 trucks would travel to and from the site daily. Applying PCE methodology, in which one truck trip is equivalent to two passenger car trips, truck traffic would be equivalent to a maximum of 396 PCE trip ends on a peak day. Trucks would arrive no earlier than 8:00 A.M. and leave no later than 4:00 P.M. The estimated daily truck trips are assumed to occur fairly evenly over the workday, with a slight inbound peak during the A.M. peak hour and a slight outbound peak during the P.M. peak hour.

As shown in Table 5.7-4, *Remedial Action Plan Trip Generation Estimates*, it is assumed that the proposed project would generate approximately 478 daily PCE trips, with 61 trips during both the A.M. and P.M. peak hours. During the A.M. peak hour the project would generate 58 inbound trips and 3 outbound trips; during the P.M. peak hour the project would generate 3 inbound trips and 58 outbound trips. This provides a conservatively high estimate for this analysis, as the project truck traffic and employee traffic may not all occur during the same one-hour period.

Project peak hour traffic volumes during implementation of the RAP are compared to existing intersection operating conditions in Table 5.7-5, *Existing Plus Project – Intersection Levels of Service and Impact Analysis*. As shown in Table 5.7-5, under City of Carson's intersection traffic impact significance criteria, the RP's Proposed Remedy would not result in any significant impacts at any of the 14 study intersections.

Table 5.7-4

## Remedial Action Plan Trip Generation Estimates

Trip Number and Source	Trip Generation Rates							Week day Daily	Estimated Trip Generation					
	Weekday Daily	AM Peak Hour			PM Peak Hour				AM Peak Hour			PM Peak Hour		
		Rate	% In	% Out	Rate	% In	% Out		In	Out	Total	In	Out	Total
Trucks (99) <sup>a</sup>	4.00	0.38	100	0	0.38	0	100	396	38	0	38	0	38	38
Employees (16)- Parking On-Site <sup>b</sup>	3.25	1.00	100	0	1.00	0	100	52	16	0	16	0	16	16
Employees - Parking Off-Site (16) <sup>c</sup>	0.75	0.38	50	50	0.38	50	50	12	3	3	6	3	3	6
Visitors (9) <sup>d</sup>	2.00	0.10	50	50	0.10	50	50	18	1	0	1	0	1	1
<b>Total</b>								<b>478</b>	<b>58</b>	<b>3</b>	<b>61</b>	<b>3</b>	<b>58</b>	<b>61</b>

<sup>a</sup> Trip Generation Rates and Estimates reported in Passenger Car Equivalents (PCE); PCE rate of 1 truck = 2 PCEs.

<sup>b</sup> 16 employees to be parking on-site; trip rate includes trips to various off-site locations not during the peak hour

<sup>c</sup> 16 employees would arrive using vans. 3 round trip (RT) vans in AM, 3 RT vans in PM. Vans would arrive full/depart empty in AM; arrive empty/depart full in PM.

<sup>d</sup> Up to 9 visitors to site daily.

Source: Fehr & Peers, 2014.

## Expedited Implementation Option

Under the Expedited Implementation Option excavation activities would be accelerated and implementation would occur by the end of 2019, approximately two years less than under the basic project. Because of the accelerated schedule, daily traffic would be incrementally greater than under the basic project, A.M. and P.M. peak hour traffic volumes would be incrementally higher than under the basic project. An average of 118 one-way truck trips, and maximum of 151 one-way truck trips, would travel to the site daily. Trucks would arrive no earlier than 8:00 A.M. and leave no later than 4:00 P.M.

As shown in **Table 5.7-6, Expedited Implementation Option Trip Generation Estimates**, the Expedited Implementation Option would generate 790 total daily trips and 94 trips during both the A.M. and P.M. peak hours (compared to 61 under the basic project). Total daily PCE truck trips would be 604 (compared to 478 under the basic project) and A.M. and P.M. peak hour truck trips would be 57 (compared to 38 under the basic project). **Table 5.7-7, Existing Plus Expedited Implementation Option – Intersection Levels of Service and Impact Analysis** illustrates service levels that would result under the Expedited Implementation Option. As shown in Table 5.7-7, in accordance with City of Carson's intersection traffic impact significance criteria, even with incrementally greater peak hour traffic under the Expedited Implementation Option, the Expedited Implementation Option would not result in any significant impacts at any of the 14 study intersections.

Table 5.7-5

## Existing Plus RP's Proposed Remedy Intersection Levels Of Service And Impact Analysis

No.	Intersection	Peak	Existing	Existing Project	V/C	Significant
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		Hour	V/C or Delay		V/C or Delay		Increase	Impact?
			Los	LOS	Los	LOS		
1	I-110 SB Off-Ramp & Sepulveda Boulevard	AM	0.795	C	0.795	C	0.000	No
		PM	0.830	D	0.830	D	0.000	No
2	I-110 NB Off-Ramp & Sepulveda Boulevard	AM	0.717	C	0.717	C	0.000	No
		PM	0.615	B	0.625	C	0.010	No
3	Figueroa St & Sepulveda Boulevard	AM	0.704	C	0.705	C	0.001	No
		PM	0.630	B	0.645	B	0.015	No
4	Main St & Sepulveda Boulevard	AM	0.682	B	0.684	B	0.002	No
		PM	0.751	C	0.782	C	0.031	No
5	Main St & Lomita Boulevard	AM	0.734	C	0.735	C	0.001	No
		PM	0.771	C	0.771	C	0.000	No
6	Neptune Ave & Lomita Boulevard	AM	0.547	A	0.562	A	0.015	No
		PM	0.479	A	0.506	A	0.027	No
7	Lagoon Ave & Lomita Boulevard <sup>a</sup>	AM	0.751	C	0.439	C	0.002	No
		PM	0.662	B	0.428	B	0.012	No
		AM	80.0 <sup>b</sup>	F	92.8 <sup>b</sup>	F	12.8 <sup>b</sup>	N/A
		PM	46.0 <sup>b</sup>	E	47.5 <sup>b</sup>	E	1.5 <sup>b</sup>	N/A
8	Avalon Boulevard & Sepulveda Boulevard	AM	0.684	B	0.684	B	0.000	No
		PM	0.776	C	0.776	C	0.000	No
9	Avalon Boulevard & Lomita Boulevard	AM	0.653	B	0.676	B	0.023	No
		PM	0.641	B	0.645	B	0.004	No
10	Wilmington Ave & I-405 NB Ramps	AM	0.656	B	0.659	B	0.003	No
		PM	0.652	B	0.652	B	0.000	No
11	Wilmington Ave & I-405 SB Ramps	AM	0.720	C	0.722	C	0.002	No
		PM	0.822	D	0.826	D	0.004	No
12	Wilmington Ave & E 223rd St	AM	0.623	B	0.623	B	0.000	No
		PM	0.740	C	0.740	C	0.000	No
13	Wilmington Ave & Sepulveda Boulevard	AM	0.666	B	0.666	B	0.000	No
		PM	0.625	B	0.628	B	0.003	No
14	Wilmington Ave & Lomita Boulevard <sup>a</sup>	AM	0.448	A	0.448	A	0.000	No
		PM	0.422	A	0.427	A	0.005	No
		AM	50.6 <sup>b</sup>	F	58.0 <sup>b</sup>	F	7.4 <sup>b</sup>	N/A
		PM	54.8 <sup>b</sup>	F	57.1 <sup>b</sup>	F	2.3 <sup>b</sup>	N/A

<sup>a</sup> Unsignalized intersection operating at LOS E or F per the HCM methodology were also analyzed per the ICU methodology to calculate a V/C ratio, as per City of Carson practices.

<sup>b</sup> Expressed in "seconds of delay" on the most constrained approach.

Source: Fehr & Peers, 2014.

Table 5.7-6

Expedited Implementation Option Trip Generation Estimates

Trip Number and Source	Weekday Daily	Trip Rate						Week day Daily	Trip Estimate					
		AM Peak Hour			PM Peak Hour				AM Peak Hour Trips			PM Peak Hour		
		Rate	% In	% Out	Rate	% In	% Out		In	Out	Total	In	Out	Total
<i>Source and Type</i>														
Delivery Trucks (151) <sup>a</sup>	4.00	0.38	100	0	0.38	0	100	604	57	0	57	0	57	57
Employees (24)- Parking On-Site <sup>b</sup>	6.00	1.00	100	0	1.00	0	100	144	24	0	24	0	16	16
Employees - Parking Off-Site (23) <sup>c</sup>	1.04	0.52	50	50	0.38	50	50	24	6	6	12	6	6	12
Visitors (9) <sup>d</sup>	2.00	0.10	50	50	0.10	50	50	18	1	0	1	0	1	1
<b>Total</b>								<b>790</b>	<b>88</b>	<b>6</b>	<b>94</b>	<b>6</b>	<b>88</b>	<b>94</b>

<sup>a</sup> Trip Generation Rates and Estimates reported in Passenger Car Equivalent (PCE); PCE rate of 1 truck = 2 PCEs.

<sup>b</sup> Per Project Description, 24 employees to be parking on-site; trip rate includes trips to various off-site locations not during the peak hour

<sup>c</sup> Per Project Description, 23 employees would arrive using vans. 3 RT vans in AM, 3 RT vans in PM. Vans would arrive full/depart empty in AM; arrive empty/depart full in PM.

<sup>d</sup> Per Project Description, up to 9 visitors to site daily.

Source: Fehr and Peers, 2014.

**Threshold TRAF-2:** The project increases traffic demand on a CMP facility by 2 percent of capacity (i.e., V/C increase of 0.02), causing LOS F (V/C > 1.00) or if the facility is already at LOS F when the project increases traffic demand on a CMP facility by 2 percent of capacity (i.e., V/C increase of 0.02).

**Impact Statement TRAF-2:** The RP's Proposed Remedy and Expedited Implementation Option would not exceed threshold standards related to CMP facilities because they do not exceed minimum volumes of peak traffic at any CMP arterial or freeway monitoring stations to warrant analysis under the CMP. In addition, the RP's Proposed Remedy and Expedited Implementation Option would not adversely impact ridership or operation of transit lines in the area. Therefore, impacts related to CMP service levels would be less than significant.

**CMP Roadway Analysis**

A project would impact CMP arterial monitoring intersections if it added 50 or more trips during either the A.M. or P.M. weekday peak hours at CMP arterial intersection monitoring locations or if it added 150 or more trips, in either direction, during either the A.M. or P.M. weekday peak hours at CMP freeway monitoring locations. The CMP arterial monitoring intersection nearest to the site is located at Figueroa Street and Sepulveda Boulevard, approximately one mile west of the site. Based on the RP's Proposed Remedy's trip generation described in Table 5.7-4, and distribution of all haul trucks along the proposed haul route within

Table 5-7

## Existing Plus Expedited Implementation Option Intersection Levels Of Service And Impact Analysis

No.	Intersection	Peak Hour	Existing		Existing Plus Project		V/C Increase	Significant Impact?
			V/C or Delay	LOS	V/C or Delay	LOS		
1	I-110 SB Off-Ramp & Sepulveda Boulevard	AM	0.795	C	0.795	C	0.000	No
		PM	0.830	D	0.830	D	0.000	No
2	I-110 NB Off-Ramp & Sepulveda Boulevard	AM	0.717	C	0.718	C	0.001	No
		PM	0.615	B	0.630	C	0.015	No
3	Figueroa St & Sepulveda Boulevard	AM	0.704	C	0.706	C	0.002	No
		PM	0.630	B	0.652	B	0.022	No
4	Main St & Sepulveda Boulevard	AM	0.682	B	0.686	B	0.004	No
		PM	0.751	C	0.798	C	0.047	No
5	Main St & Lomita Boulevard	AM	0.734	C	0.736	C	0.002	No
		PM	0.771	C	0.771	C	0.000	No
6	Neptune Ave & Lomita Boulevard	AM	0.547	A	0.571	A	0.024	No
		PM	0.479	A	0.521	A	0.042	No
7	Lagoon Ave & Lomita Boulevard <sup>a</sup>	AM	0.751	C	0.448	A	0.011	No
		PM	0.662	B	0.433	A	0.017	No
		AM	80.0 <sup>b</sup>	F	100.9 <sup>b</sup>	F	20.9 <sup>b</sup>	N/A
		PM	46.0 <sup>b</sup>	E	48.3 <sup>b</sup>	E	2.3 <sup>b</sup>	N/A
8	Avalon Boulevard & Sepulveda Boulevard	AM	0.684	B	0.684	B	0.000	No
		PM	0.776	C	0.776	C	0.000	No
9	Avalon Boulevard & Lomita Boulevard	AM	0.653	B	0.692	B	0.039	No
		PM	0.641	B	0.647	B	0.006	No
10	Wilmington Ave & I-405 NB Ramps	AM	0.656	B	0.659	B	0.003	No
		PM	0.652	B	0.652	B	0.000	No
11	Wilmington Ave & I-405 SB Ramps	AM	0.720	C	0.723	C	0.003	No
		PM	0.822	D	0.827	D	0.005	No
12	Wilmington Ave & E 223rd St	AM	0.623	B	0.623	B	0.000	No
		PM	0.740	C	0.740	C	0.000	No
13	Wilmington Ave & Sepulveda Boulevard	AM	0.666	B	0.666	B	0.000	No
		PM	0.625	B	0.630	B	0.005	No
14	Wilmington Ave & Lomita Boulevard <sup>a</sup>	AM	0.448	A	0.448	A	0.000	No
		PM	0.422	A	0.429	A	0.007	No
		AM	50.6 <sup>b</sup>	F	62.5 <sup>b</sup>	F	11.9 <sup>b</sup>	N/A
		PM	54.8 <sup>b</sup>	F	56.1 <sup>b</sup>	F	1.3 <sup>b</sup>	N/A

<sup>a</sup> Unsignalized intersection operating at LOS E or F per the HCM methodology were also analyzed per the ICU methodology to calculate a V/C ratio, as per City of Carson practices.

<sup>b</sup> Expressed in "seconds of delay" on the most constrained approach.

Source: Fehr & Peers, 2014.

the City of Carson, the RP's Proposed Remedy would minimally affect the intersection of Figueroa Street and Sepulveda Boulevard. Therefore, the RP's Proposed Remedy would not add more than 50 vehicles per hour ("vph") at any CMP arterial monitoring location during the A.M. or P.M. weekday peak hours. In addition, the total estimated project-related traffic in any direction during the weekday peak hour is projected to be 61 vph, which is below the minimum criteria of 150 vph at freeway monitoring locations. Because the RP's Proposed Remedy would not meet the minimum trips required for analysis at CMP monitoring locations, it would not exceed CMP guideline criteria. Impacts with respect to CMP monitoring locations would, thus, be less than significant.

### **CMP Transit**

The CMP transit guidelines, which establish standards related to transit ridership, assume 3.5 percent transit use for a work force. Based on the approximately 32 workers a day, including 16 workers who would travel from home to site and the remaining 16 employees who would park at an off-site location and travel to the project site in shuttle vans, it is estimated that the project could add one new transit person trip in both the A.M. and P.M. peak hours. The project site is served by several established public transit routes which provide connectivity to public transit services throughout the surrounding area. Existing transit lines are located on Lomita Boulevard, Main Street, Sepulveda Boulevard, and Avalon Boulevard, which also would serve as the RP's Proposed Remedy's haul route. Although the RP's Proposed Remedy would share common roadways with transit lines, it would not increase traffic in a manner that would cause new congestion or conditions (significant traffic impacts) that would affect operation of these streets. The Carson North-South Shuttle, which is located on the north side of Lomita Boulevard just west of Neptune Boulevard, is the nearest stop to the project site. No construction would occur along Lomita Boulevard or other truck route streets and, thus, no bus stops would be adversely affected by construction activities. Therefore, the RP's Proposed Remedy's traffic and construction activities would not adversely affect the operation of these existing lines. Because of the low estimated ridership generated by the RP's Proposed Remedy and adequacy of the affected roadway system during construction (2015-2021) to serve existing transit, the RP's Proposed Remedy would not adversely affect existing transit facilities. Impacts with respect to CMP transit guidelines would be less than significant.

## **Expedited Implementation Option**

### **CMP Roadway Analysis**

Based on the Expedited Implementation Option's trip generation described in Table 5.7-6, above, and primary distribution of trips along the designated truck route in the City of Carson, the Expedited Implementation Option would minimally affect the nearest CMP arterial monitoring location of Sepulveda Boulevard and Pacific Coast Highway during the A.M. or P.M. weekday peak hours. In addition, the total estimated traffic in any direction during the weekday peak hour under the Expedited Implementation Option is projected to be 94 vph, which is below the minimum criteria of 150 vph at freeway monitoring locations. Because the Expedited Implementation Option would not meet the minimum trips required for analysis at CMP monitoring locations, it would not exceed CMP guideline criteria. Impacts with respect to CMP monitoring locations would, thus, be less than significant.

### **CMP Transit**

The Expedited Implementation Option would generate approximately 47 workers a day, including 24 workers who would travel from home to site and the remaining 23 employees who would park at an off-site

location and travel to the project site in shuttle vans, it is estimated that the project could add one new transit person trip in both the A.M. and P.M. peak hours. Construction activities and traffic would not adversely affect street service levels or bus stops. Because of the low estimated ridership generated by the Expedited Implementation Option and adequacy of the affected roadway system during construction (2015-2019) to serve existing transit, the RP's Proposed Remedy would not adversely affect existing transit facilities. Impacts with respect to CMP transit guidelines under the Expedited Implementation Option would be less than significant.

## 5. ALTERNATIVES ANALYSIS

### Analysis of Impacts Associated with Alternative 1 (No Project)

The No Project Alternative would not involve any excavation or construction activities and, thus, would not result in the generation of additional vehicle trips relative to existing conditions. Impacts related to traffic and circulation would be less than significant.

### Analysis of Impacts Associated with Alternative 2 (Excavation Beneath Landscape and Hardscape to 10 Feet Alternative)

Alternative 2 would generate the same hourly and daily traffic as the RP's Proposed Remedy. However, total truck loads would be increased under the RP's Proposed Remedy. Thus, remedial activities that could affect local roadways and sidewalks would occur over a longer time frame (approximately 7.8 years compared to 6 years under the RP's Proposed Remedy or 4 years under the Expedited Implementation Option). As with the RP's Proposed Remedy, impacts on study area intersections would be less than significant.

### Analysis of Impacts Associated with Alternative 3 (No Excavation Beneath Hardscape – 5 Feet to Targeted 10 Feet)

Alternative 3 would generate the same hourly and daily traffic as the RP's Proposed Remedy. Because less total material would be removed from the site, remedial activities that could affect local roadways and sidewalks would occur over a shorter time frame (approximately 4 years compared to 6 years under the RP's Proposed Remedy). As with the RP's Proposed Remedy, impacts on study area intersections would be less than significant.

## 6. CUMULATIVE IMPACTS

Cumulative impacts associated with the RP's Proposed Remedy are based on year 2021 cumulative growth, which includes ambient yearly growth to 2021 and the addition of related projects. The respective trip generation estimates for each of related projects is shown in **Table 5.7-8, Related Projects Trip Generation**. The location of related project is illustrated in Figure 4.1, Locations of Related Projects in Chapter 4, *Basis of Cumulative Analysis*, in this EIR.

**Table 5.7-9, Cumulative Year (2021) Plus Project Intersection Levels of Service and Impact Analysis** provides a summary of the cumulative base scenario, which is shown as "Future." This designation does not include traffic generated under the RP's Proposed Remedy. As shown in Table 5.7-9, four of the 14 study

Table 5.7-8

## Related Projects Trip Generation

Project	Address	Size	Unit	Use	Trip Generation		
					Daily	AM	PM
1. Kaiser South Bay Hospital Expansion	25825 Vermont Ave, Los Angeles	234.407	ksf	Medical Office	2,971	200	320
		77.5	ksf	Records/office/warehouse			
		286	beds	Hospital			
2. 1311 W Sepulveda Apartments	1311 W Sepulveda Boulevard, Los Angeles	352	units	Apartments	1,434	19	55
		17.904	ksf	Retail			
3. Daycare Facility	25621 S Normandie Ave, Los Angeles	84	child	Daycare	376	67	69
		1450 Pacific Coast Highway, Los Angeles	204	units			
4. Del Lago Apartments					1,357	104	126
5. Carson Marketplace/The Boulevards at South Bay	Del Amo Ave west of I-405, Carson				68,951	2,510	5,761
6. Carson Shell Revitalization	20945 S Wilmington Ave, Carson		Mixed Use Development	Office	6,357	408	580
		10	employee				
		90	ksf	Industrial/Commercial			
		83	ksf	Community Retail			
7. Ponte Vista Residential Project	26900 S Western Ave, Los Angeles	143	DU	Single Family Residential	7,458	571	699
		600	DU	Condominium			
		392	DU	Apartments			
		2.8	AC	Park			

1. *Traffic Impact Study & Technical Memorandum for the Kaiser Permanente South Bay Medical Center (2006, with amendment 2009), Fehr & Peers/Kaku Associates*
2. *Traffic Impact Study for the 1311 W. Sepulveda Boulevard Project (2009), Linscott, Law & Greenspan, Engineers*
3. *Memorandum of Understanding (MOU) for the 25621 S Normandie Avenue Child Care Facility (2010), Arch Beach Consulting*
4. *Traffic Impact Study for the Proposed Del Lago Apartment Project (2012), Crain & Associates*
5. *Traffic Study for the Carson Marketplace (2005), Kaku Associates*
6. *Traffic Study for the Carson Shell Revitalization (2012, with amendment 2014), Fehr & Peers*
7. *Traffic Impact Study: Ponte Vista at San Pedro (2012), Linscott, Law & Greenspan, Engineers*

Source: Fehr & Peers, 2014.

Table 5.7-9

## Cumulative Year (2021) Plus Project Intersection Levels Of Service And Impact Analysis

No.	Intersection	Peak Hour	Future		Future +Project		V/C Increase	Significant Impact?
			V/C or Delay	LOS	V/C or Delay	LOS		
1	I-110 SB Off-Ramp & Sepulveda Boulevard	AM	0.827	D	0.827	D	0.000	No
		PM	0.862	D	0.862	D	0.000	No
2	I-110 NB Off-Ramp & Sepulveda Boulevard	AM	0.735	C	0.735	C	0.000	No
		PM	0.645	B	0.654	B	0.009	No
3	Figueroa St & Sepulveda Boulevard	AM	0.727	C	0.728	C	0.001	No
		PM	0.674	B	0.689	B	0.015	No
4	Main St & Sepulveda Boulevard	AM	0.703	B	0.704	C	0.001	No
		PM	0.813	D	0.843	D	0.030	No
5	Main St & Lomita Boulevard	AM	0.760	C	0.761	C	0.001	No
		PM	0.930	E	0.930	E	0.000	No
6	Neptune Ave & Lomita Boulevard	AM	0.565	A	0.580	A	0.015	No
		PM	0.500	A	0.527	A	0.027	No
7	Lagoon Ave & Lomita Boulevard <sup>a</sup>	AM	0.782	C	0.456	A	0.001	No
		PM	0.693	B	0.445	A	0.011	No
		AM	101.0 <sup>b</sup>	F	118.6 <sup>b</sup>	F	17.6 <sup>b</sup>	N/A
		PM	53.3 <sup>b</sup>	F	55.2 <sup>b</sup>	F	1.9 <sup>b</sup>	N/A
8	Avalon Boulevard & Sepulveda Boulevard	AM	0.751	C	0.751	C	0.000	No
		PM	0.923	E	0.923	E	0.000	No
9	Avalon Boulevard & Lomita Boulevard	AM	0.705	C	0.718	C	0.013	No
		PM	0.744	C	0.749	C	0.005	No
10	Wilmington Ave & I-405 NB Ramps	AM	0.670	B	0.673	B	0.003	No
		PM	0.716	C	0.716	C	0.000	No
11	Wilmington Ave & I-405 SB Ramps	AM	0.493	C	0.497	A	0.004	No
		PM	0.536	D	0.538	B	0.002	No
12	Wilmington Ave &	AM	0.644	B	0.644	B	0.000	No

Table 5.7-9 (Continued)

## Cumulative Year (2021) Plus Project Intersection Levels Of Service And Impact Analysis

	E 223rd St	PM	0.765	C	0.765	C	0.000	No
13	Wilmington Ave & Sepulveda Boulevard	AM	0.693	B	0.693	B	0.000	No
		PM	0.659	B	0.663	B	0.004	No
14	Wilmington Ave & Lomita Boulevard <sup>a</sup>	AM	0.474	A	0.474	A	0.000	No
		PM	0.468	A	0.472	A	0.004	No
		AM	68.4 <sup>b</sup>	F	78.0 <sup>b</sup>	F	9.6 <sup>b</sup>	N/A
		PM	77.6 <sup>b</sup>	F	80.2 <sup>b</sup>	F	2.6 <sup>b</sup>	N/A

<sup>a</sup> Unsignalized intersection operating at LOS E or F per the HCM methodology were also analyzed per the ICU methodology to calculate a V/C ratio, as per City of Carson practices.

<sup>b</sup> Expressed in "seconds of delay" on the most constrained approach.

Source: Fehr & Peers, 2014.

intersections are projected to operate at LOS E during the peak hour. The poor LOS calculated at study intersections No. 7, Lagoon Avenue and Lomita Boulevard and No. 14, Wilmington Avenue and Lomita Boulevard are the result of relatively high levels of delay on the most constrained approach, rather than the volume of vehicles traveling through these stop-controlled intersections.

- Intersection No. 5: Main Street and Lomita Boulevard
- Intersection No. 7: Lagoon Avenue and Lomita Boulevard
- Intersection No. 8: Avalon Boulevard and Lomita Boulevard
- Intersection No. 14: Wilmington Avenue and Lomita Boulevard

As also shown in Table 5.7-9, peak hour traffic generated by the RP's Proposed Remedy is added to the year 2021 base peak hour traffic to create cumulative traffic levels in 2021 ("Future + Project"). Detailed LOS calculations are provided in the Traffic Study, Appendix B, contained in Appendix G of this EIR. The difference between the "Future" and "Future Plus Project" represents the relative increase associated with the RP's Proposed Remedy. The increases illustrated under "V/C" increase under the RP's Proposed Remedy would not exceed City of Carson intersection capacity service thresholds at any of the 14 study intersections. Therefore, cumulative impacts under the RP's Proposed Remedy would be less than significant.

### Expedited Implementation Option

Cumulative impacts associated with the Expedited Implementation Option are based on year 2019 cumulative growth, which includes ambient yearly growth to 2019 and the addition of related projects. **Table 5.7-10, Cumulative Year (2019) Plus Expedited Implementation Option Intersection Levels of Service and Impact Analysis** provides a summary of the cumulative base scenario, which is shown as "Future." This designation does not include traffic generated under the Expedited Implementation Option. As shown in Table 5.7-9, four of the 14 study intersections are projected to operate at LOS E during the peak hour. The poor LOS calculated at study intersections No. 7, Lagoon Avenue and Lomita Boulevard and No. 14, Wilmington Avenue and Lomita Boulevard, are the result of relatively high levels of delay on the most constrained approach, rather than the volume of vehicles traveling through these stop-controlled intersections.

- Intersection No. 5: Main Street and Lomita Boulevard
- Intersection No. 7: Lagoon Avenue and Lomita Boulevard
- Intersection No. 8: Avalon Boulevard and Lomita Boulevard
- Intersection No. 14: Wilmington Avenue and Lomita Boulevard

Also as shown in Table 5.7-10, peak hour traffic generated by the Expedited Implementation Option is added to the year 2019 base peak hour traffic ("Future + Project"). Detailed LOS calculations are provided in the Traffic Study, Appendix B, contained in Appendix G of this EIR. Vehicle trips associated with the Expedited Implementation Option are compared to the cumulative base intersection conditions to determine impacts. The difference between the "Future" and "Future Plus Project" quantities represents the relative increase associated with the Expedited Implementation Option. The increases illustrated under "V/C" increase under the Expedited Implementation Option would not exceed City of Carson intersection capacity service thresholds at any of the 14 study intersections.

Table 5.7-10

## Cumulative Year (2019) Plus Expedited Implementation Option Intersection Levels Of Service And Impact Analysis

No.	Intersection	Peak Hour	Future		Future +Project		V/C Increase	Significant Impact?
			V/C or Delay	LOS	V/C or Delay	LOS		
1	I-110 SB Off-Ramp & Sepulveda Boulevard	AM	0.819	D	0.819	D	0.000	No
		PM	0.854	D	0.854	D	0.000	No
2	I-110 NB Off-Ramp & Sepulveda Boulevard	AM	0.727	C	0.729	C	0.002	No
		PM	0.638	B	0.653	B	0.015	No
3	Figueroa St & Sepulveda Boulevard	AM	0.719	C	0.720	C	0.001	No
		PM	0.668	B	0.690	B	0.022	No
4	Main St & Sepulveda Boulevard	AM	0.697	B	0.701	C	0.004	No
		PM	0.808	D	0.854	D	0.046	No
5	Main St & Lomita Boulevard	AM	0.751	C	0.753	C	0.002	No
		PM	0.922	E	0.922	E	0.000	No
6	Neptune Ave & Lomita Boulevard	AM	0.561	A	0.585	A	0.024	No
		PM	0.494	A	0.536	A	0.042	No
7	Lagoon Ave & Lomita Boulevard <sup>a</sup>	AM	0.451	A	0.458	A	0.007	No
		PM	0.430	A	0.447	A	0.017	No
		AM	95.3 <sup>b</sup>	F	121.9 <sup>b</sup>	F	26.6 <sup>b</sup>	N/A
		PM	51.7 <sup>b</sup>	F	54.5 <sup>b</sup>	F	2.8 <sup>b</sup>	N/A
8	Avalon Boulevard & Sepulveda Boulevard	AM	0.744	C	0.744	C	0.000	No
		PM	0.917	E	0.917	E	0.000	No
9	Avalon Boulevard & Lomita Boulevard	AM	0.698	B	0.718	C	0.020	No
		PM	0.738	C	0.744	C	0.006	No
10	Wilmington Ave & I-405 NB Ramps	AM	0.665	B	0.668	B	0.003	No
		PM	0.709	C	0.709	C	0.000	No
11	Wilmington Ave & I-405 SB Ramps	AM	0.489	A	0.495	A	0.006	No
		PM	0.531	B	0.534	A	0.003	No
12	Wilmington Ave & E 223rd St	AM	0.639	B	0.639	B	0.000	No
		PM	0.758	C	0.758	C	0.000	No
13	Wilmington Ave & Sepulveda Boulevard	AM	0.686	B	0.686	B	0.000	No
		PM	0.654	B	0.659	B	0.005	No
14	Wilmington Ave & Lomita Boulevard <sup>a</sup>	AM	0.469	A	0.469	A	0.000	No
		PM	0.464	A	0.471	A	0.007	No
		AM	65.5 <sup>b</sup>	F	79.8 <sup>b</sup>	F	13.3	N/A
		PM	74.5 <sup>b</sup>	F	78.2 <sup>b</sup>	F	3.7 <sup>b</sup>	N/A

<sup>a</sup> Unsignalized intersection operating at LOS E or F under HCM conditions; Analyzed under ICU per City of Carson criteria.

<sup>b</sup> Expressed in "seconds of delay" on the most constrained approach.

Source: Fehr & Peers, September 2014.

Therefore, cumulative impacts under the Expedited Implementation Option would be less than significant. However, under the Expedited Implementation Option, the “Future + Project” and “V/C Increases” are slightly higher because peak hour traffic under this option are incrementally higher than under the RP’s Proposed Remedy.

Based on the City of Carson’s intersection traffic impact significance criteria, the project would not result in any adverse impacts at any of the 14 study intersections.

## **7. MITIGATION MEASURES**

Impacts associated with intersection capacity, CMP monitored locations and transit would be less than significant under the RP’s Proposed Remedy and the Expedited Implementation Option. Alternative 1 would result in no increase in traffic and therefore, no significant impacts would occur. As with the RP’s Proposed Remedy, Alternative 2 and Alternative 3 would not result in significant impacts on intersection capacities, CMP roadway and transit service levels. Therefore, no mitigation measures would be required.

## **8. LEVEL OF SIGNIFICANCE AFTER MITIGATION**

No significant impacts would occur under the RP’s Proposed Remedy or under the Expedited Implementation Option. In addition, Alternative 1 would not result in any increase in traffic and Alternatives 2 and 3 would have less than significant impacts related to transportation and circulation. Therefore, no mitigation measures would be required and impacts would be less than significant for the Base Case, the Expedited Implementation Option, and Alternatives 1, 2, and 3 with regard to traffic and circulation issues.