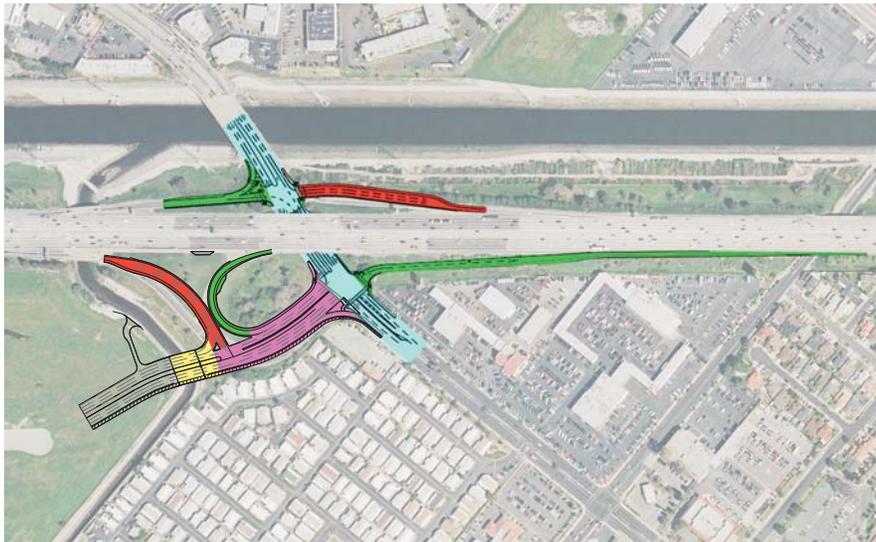


I-405/AVALON BOULEVARD INTERCHANGE

LOS ANGELES COUNTY, CALIFORNIA
DISTRICT 7 — LA — 405 — (PM 10.8/11.4)
EA 233900

Initial Study/Environmental Assessment



Prepared by the
City of Carson and the
State of California Department of Transportation

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.



Interstate Route 405 at Avalon Boulevard Interchange from PM 10.8 to PM 11.4
In the City of Carson, Los Angeles County, California

Initial Study/Environmental Assessment

Submitted Pursuant to: (State) Division 13, Public Resources Code
(Federal) 42 USC 4332(2)(C)

The environmental review, consultation and any other action required in accordance
with applicable Federal laws for this project is being, or has been carried out
by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327

THE CITY OF CARSON
and
THE STATE OF CALIFORNIA
Department of Transportation

7/8/08
Date of Approval


M. Victor Rollinger, PE
Development Services Group General Manager
City of Carson

July 7, 2008
Date of Approval


Ron Kosinski
Deputy District Director
California Department of Transportation
Division of Environmental Planning
District 7—Los Angeles

PROPOSED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description/Location

I-405/Avalon Boulevard Interchange Project

The City of Carson proposes to improve the configuration of the I-405/Avalon Boulevard interchange in the City of Carson, County of Los Angeles. The interchange is located approximately 1.36 miles southeast of the I-405/Main Street interchange and 0.69 miles northwest of the I-405/Carson Street interchange. The proposed improvements would: (1) realign and improve existing ramps in three of the intersection quadrants; (2) add a new ramp in the fourth (i.e. southeast) quadrant, which would link Lenardo Drive and Avalon Boulevard to the freeway at a widened 213th Street bridge; (3) link the interchange to Lenardo Drive on the adjacent Carson Marketplace site with a bridge over the Torrance Lateral flood control channel; and (4) widen Avalon Boulevard in the northbound direction.

Determination

This proposed Negative Declaration (ND) is included to give notice to interested agencies and the public that it is the Department's intent to adopt an ND for this project. This does not mean that the Department's decision regarding the project is final. This ND is subject to modification based on comments received by interested agencies and the public.

The Department has prepared an Initial Study for this project, and pending public review, expects to determine from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed project would have no effect on Farmlands/Timberlands, Community Impacts-Relocations or Mineral Resources.

In addition, the proposed project would have no significant effect on: Land Use, Growth, Community Impacts, Community Impacts – Community Character and Cohesion, Community Character – Environmental Justice, Utilities/Emergency Community Services, Traffic & Transportation/Pedestrian and Bicycle Facilities, Visual/Aesthetics, Cultural Resources, Hydrology and Floodplain, Water Quality and Storm Water Run-off, Geology/Soils/Seismic Topography, Paleontology, Hazardous Waste Materials, Air Quality, Noise and Vibration, Natural Communities, Wetlands and Other Waters, Plant Species, Animal Species, Threatened and Endangered Species, Invasive Species and Cumulative Impacts.

Ronald S. Kosinski
Deputy District Director
District 7
California Department of Transportation

Date

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CHAPTER 1 – PROPOSED PROJECT

1.1 INTRODUCTION

The City of Carson proposes to improve the configuration of the existing interchange of Interstate 405 (I-405) at Avalon Boulevard in the City of Carson in the County of Los Angeles with The California Department of Transportation (the Department or Caltrans). The proposed project lies approximately 1.36 miles southeast of the I-405 interchange with Main Street and 0.69 miles northwest of the interchange with Carson Street. Figures 1 and 2 on pages 2 and 3 show the proposed project location and vicinity map as well as the existing configuration of the interchange.

The proposed project is listed in the Adopted 2006 Regional Transportation Program (RTIP) under Local Highway Projects. The proposed project is listed as ID # LAE2198.

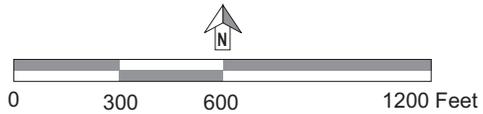
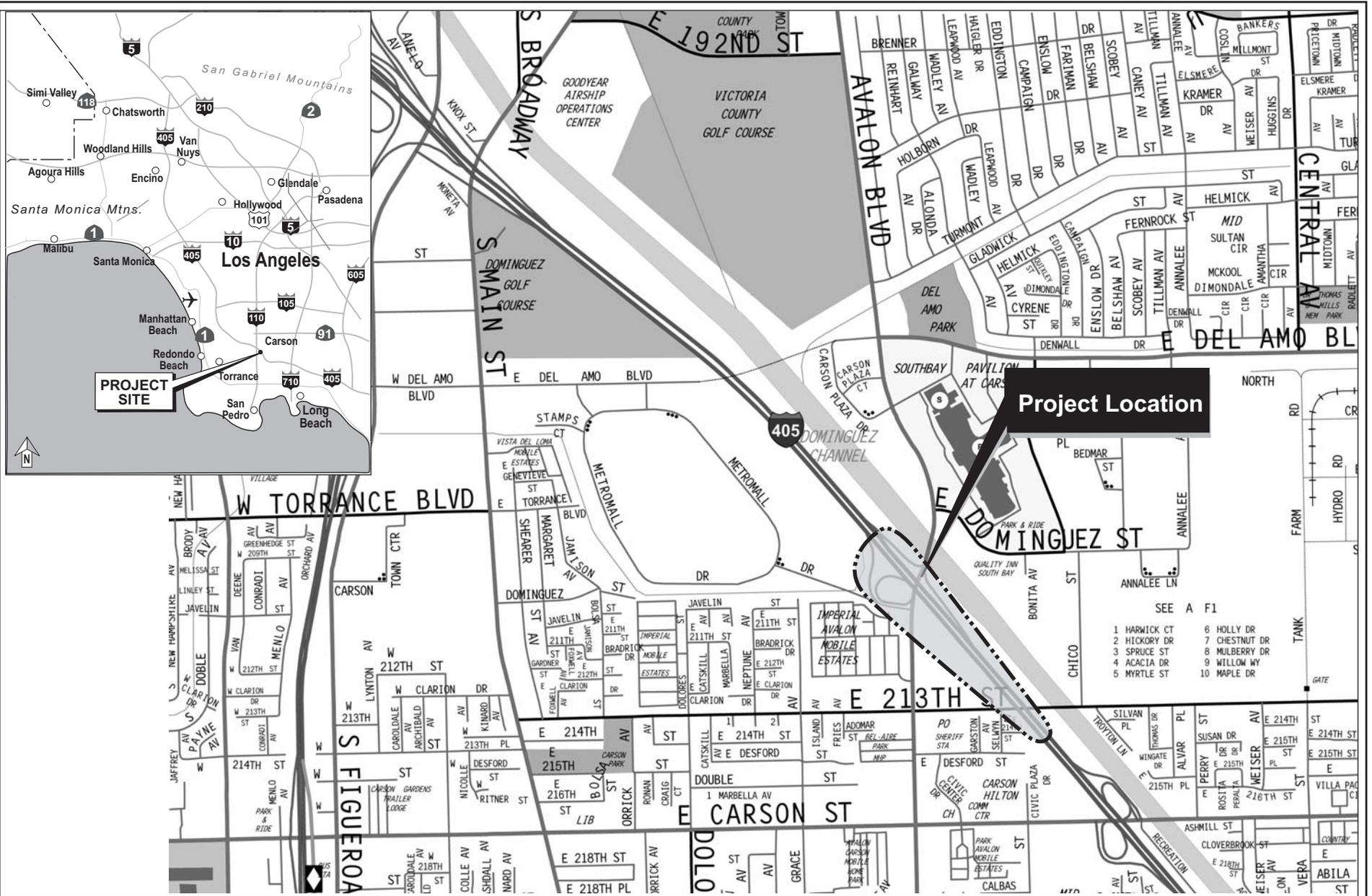
The cost of this proposed project has been estimated at \$31,693,000. Congresswoman Juanita M. McDonald has programmed \$4,800,000 in the recently approved Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) for the proposed project. The balance of the funding (\$26,893,000) would be provided by the Carson Redevelopment Agency.

The proposed project was first identified in the early 1990s as one of the conditions of approval for a then proposed development referred to as the Metro 2000 Project, a regional shopping mall to be constructed at the southwest quadrant of the interchange. The modification was proposed as the most effective way of mitigating the traffic impacts from the Metro 2000 Project.

The City of Carson pursued implementation of the modifications to the I-405/ Avalon Boulevard interchange and prepared a Project Study Report (PSR) for the proposed improvement. Caltrans approved the PSR on June 10, 1996. As part of that document, the Federal Highway Administration (FHWA) also approved an additional access point to the interstate system (I-405). This PSR indicated that the Metro 2000 developer would finance 100 percent of the proposed improvements. For economic reasons, the developer did not pursue the proposed improvements and the previously approved PSR expired.

With the lapse in the original PSR, a Supplemental Project Study Report (SPSR) was prepared for project approval per California Transportation Commission (CTC) guidelines. This SPSR was approved on March 19, 2003, bringing the 1996 PSR current. (The original PSR and the SPSR are available for review at the City of Carson, Engineering Office, 701 East Carson Street, Carson, CA 90745.)

Continued interest in development of the former Metro 2000 Project site culminated with the approval of the Carson Marketplace project in February 2006. The currently proposed Carson Marketplace Project is a 168-acre, mixed-use development with neighborhood commercial, regional commercial, commercial recreation/ entertainment, restaurant, hotel, and residential uses. This proposed project requires the improvements to the I-405/Avalon Boulevard interchange for its full implementation.



Scale in approximate feet.
Source: DMJM Harris, 2006.

Figure 1
Project Location



Source: PCR Services Corporation, 2006.

Figure 2
Current Interchange
Configuration

The expected development of the Metro 2000 project site and the related improvements have been considered by the City in the preparation of their 2004 update to the City of Carson General Plan. The improvements were incorporated into traffic studies and in the selection of future land use designations.

1.2 PURPOSE AND NEED

The purpose of the proposed project is to achieve the following objectives:

- Increase the capacity of the interchange and provide for new turning movements, allowing accessibility for all directional movements at the interchange.
- Link the Carson Marketplace project site with a direct route to the I-405 Freeway.
- Provide a balanced circulation system, reduce out of direction travel, and reduce vehicle miles traveled, thus providing traffic relief for numerous roadway intersections in the western portion of Carson that surrounds the proposed project interchange.
- Enhance operations safety at the ramps and intersection of I-405 and Avalon Boulevard.
- Support the full use of the Carson Marketplace project.
- Support continued development of parcels on the west side of the City of Carson, pursuant to City Plans and Policies, and market forces for development within the City.

The need for the proposed project arises from congested traffic conditions, accessibility limitations that lead to inefficient circulation patterns, the necessity of the improvement to allow implementation of the Carson Marketplace project, the need to support anticipated development in the western parts of the City of Carson, and the opportunity to enhance safety conditions.

- The City of Carson is confronted with increasing traffic within the local road network. The expected 2030 operating conditions at numerous intersections are expected to be operating at unsatisfactory levels of service (LOS).

The traffic analysis for the proposed project evaluated existing and projected service levels at 14 intersections in the vicinity of the proposed project site, as shown in Table 1 on page 5. Currently, two intersections operate at LOS D in at least one of the peak hours, two operate at LOS C in both peak hours and the remainder operate at LOS A or B during both peak hours. However, service levels in the project's horizon year of 2030 will be greatly diminished. Three of the intersections will operate at LOS F in at least one of the peak hours and two will operate at LOS E:

- Avalon Boulevard and Carson Street (LOS E in the P.M. peak hour);
- Main Street and Carson Street (LOS F in the P.M. peak hour);
- Main Street and Torrance Boulevard (LOS E and the A.M. peak hour and LOS F in the P.M. peak hour);
- Avalon Boulevard and Del Amo Boulevard (LOS F in the P.M. peak hour); and
- Stamps Drive and Del Amo Boulevard (LOS E in the P.M. peak hour).

Table 1
Existing and Future (2030) Intersection Levels of Service

	Intersection	Peak Hour	Existing (2006)		No Build Alternative (Year 2030)	
			Delay ^a	LOS ^b	Delay ^a	LOS ^b
1	Carson Street & I-405 NB Ramps	A.M.	5.4	A	5.6	A
		P.M.	4.8	A	5	A
2	Carson Street & I-405 SB Ramps	A.M.	6.3	A	9.8	A
		P.M.	6.7	A	16.7	B
3	Avalon Boulevard & Carson Street	A.M.	30.4	C	49.4	D
		P.M.	42.4	D	66	E
4	Main Street & Carson Street	A.M.	25.4	C	44.2	D
		P.M.	42.5	D	162	F
5	Avalon Boulevard & 213th Street	A.M.	14.7	B	17.4	B
		P.M.	17.9	B	25.7	C
6	Avalon Boulevard & I-405 NB Ramps	A.M.	7	A	7	A
		P.M.	7.9	A	19.7	B
7	Avalon Boulevard & I-405 SB Ramps	A.M.	8.9	A	13.5	B
		P.M.	6.3	A	10.9	B
8	Lenardo Drive & I-405 SB Ramps	A.M.	Future Intersection ^c		Future Intersection ^c	
		P.M.	Future Intersection ^c		Future Intersection ^c	
9	Main Street & Torrance Boulevard	A.M.	22.8	C	85.2	E
		P.M.	26.6	C	114.2	F
10	Main Street & Lenardo Drive	A.M.	Future Intersection ^d		10.4	B
		P.M.	Future Intersection ^d		53.8	D
11	Avalon Boulevard & Del Amo Boulevard	A.M.	25.1	C	42.1	D
		P.M.	30.6	C	98.4	F
12	Stamps Drive & Del Amo Boulevard	A.M.	Future Intersection ^d		24.9	C
		P.M.	Future Intersection ^d		77.4	E
13	Main Street & I-405 NB Ramps	A.M.	13.4	B	15.7	B
		P.M.	11.8	B	13.6	B
14	Main Street & I-405 SB Ramps	A.M.	9.5	A	9.9	A
		P.M.	15.5	B	17.9	B

^a Average delay in seconds per vehicle.

^b Delay and level of service (LOS) calculated using 2000 Highway Capacity Manual level-of-service methodology.

^c Intersection does not exist; to be constructed as part of I-405/Avalon interchange improvement project.

^d Intersection does not exist; to be constructed as part of Carson Marketplace project.

Source: Traffic Technical Report for the I-405/ Avalon Boulevard Interchange Improvement Project Report and Initial Study/Environmental Assessment, Fehr & Peers/Kaku Associates, December 2007.

The deteriorating level of service and inability to serve the west side of the City of Carson is further illustrated by the increasing delay times. In particular, the delay time at the intersection of Main Street and Carson Street during the p.m. peak hour will increase from the current 42.5 seconds per vehicle to 162 seconds per vehicle in 2030, without the proposed project; and at the intersection of Main Street and Torrance Boulevard from 26.6 seconds per vehicle to 114 seconds per vehicle. If no improvements are made, traffic delays caused by congestion will substantially increase by the year 2030.

The I-405/Avalon Boulevard interchange is needed to serve the Carson Marketplace site and simplify circulation movements in the vicinity of that site. Otherwise access to the site involves circuitous and lengthy movements. The existing I-405 northbound off-ramp currently does not allow traffic to access southbound Avalon Boulevard. In addition, the existing I-405 southbound off-, on-ramps connect to Avalon Boulevard with no direct access to the Carson Marketplace site. Under the existing interchange configuration, northbound I-405 traffic accessing the Carson Marketplace would be required to proceed northbound on Avalon Boulevard to Del Amo Boulevard, a circuitous route (with approximately 1.8 miles in adverse travel) where capacity limitations may exist in the future; or use the Main Street interchange, requiring an additional travel distance of approximately 2.3 miles as compared to travel with the proposed improvements. Southbound I-405 traffic would be similarly diverted northward along Avalon Boulevard to Del Amo Boulevard, an increase in travel distance of approximately 1.8 miles; or would be required to access the Marketplace from Interstate 110 (there is no I-405 southbound off-ramp or I-405 northbound on-ramp at Main street), a travel distance increase of approximately 0.3 miles, through intersections which are projected to be operating at capacity in the near future.

- Improvements to the I-405/Avalon Boulevard interchange are needed due to limitations regarding the overall configuration of the roadway network in the proposed project vicinity.

The interchange is an important access point for the entire western part of the City, providing access to California State University at Dominguez Hills, Home Depot Center athletic facility/stadium, and the South Bay Pavilion. However, with decreasing levels of service on the local roadways, options for enhancing regional access are limited.

The I-110 and I-405 interchange which lies to the north of the proposed project interchange restricts the opportunity to provide I-405 access for travelers to and from the north. The next closest I-405 access location is at Vermont Avenue approximately 2¼ miles northwest of the I-405/Avalon Boulevard intersection, isolated from the west side of Carson by the I-110 corridor. Therefore this intersection must serve a large swath of area, and it provides a limited opportunity to serve travelers to and from the north.

- The proposed project is needed to allow operations of the Carson Marketplace project, which was approved along with amendments to the City's General Plan and Zoning Ordinance to facilitate its implementation, in February 2006. A Mitigation Measure and Project Condition precludes full site use without implementation of the proposed access improvements to the I-405/Avalon Boulevard intersection. Inability to provide this facility would frustrate the City's efforts to achieve the following:
 - Provide a signature project for the City offering entertainment/gathering functions on a site that has visual accessibility to the freeway and that clusters more intense development in an area that is readily accessible to the freeway.

- Contribute to the creation of a vibrant City Center in conjunction with the Carson Civic Center, the Home Depot Center, California State University at Dominguez Hills, the South Bay Pavilion, and the Victoria Golf Course and Park.
- Meet an unmet demand for housing, and entertainment opportunities.
- Provide a means by which the City can meet its need to remediate the existing hazardous site conditions, provide for the productive reuse of a brownfield site, and contribute to economic development of the City.
- The proposed project is needed to support the City's General Plan and Redevelopment Plan goals, objectives and policies regarding development in the west side of Carson.
- Deteriorating services and decreasing opportunities for development in this part of the City add a burden in the City's efforts to achieve the following:
 - Development on underutilized lands, including brown fields in need of remediation.
 - Meeting of development demand for a variety of uses that would meet land use needs, and provide economic benefit to the City.
 - Utilization of undeveloped lands where they exist in the City; meeting of demand for a variety of potential developments on underutilized sites.
- As indicated in Table 2 on page 8 the accident rates recorded on the I-405 mainline segments north and south of the Avalon Boulevard interchange are lower than the statewide average rates for similar facilities. A lower accident rate than the statewide average rates was found for the following two ramp facilities analyzed at the Avalon Boulevard interchange:

I-405 northbound off-ramp to northbound Avalon Boulevard: A total of one accident was recorded for this location with no fatalities or injuries. The accident involved a sideswipe with the cause recorded as "other violations."

I-405 southbound off-ramp to Avalon Boulevard: A total of eight accidents were recorded for this location with no fatalities and one injury. The accidents recorded include two each of rear end, broadside, and "hit object" collisions, and included a sideswipe and a head-on collision. Four of the eight accidents recorded were recorded as caused by "other violation" and one each due to influence of alcohol, failure to yield, and speeding, with one accident's cause is unknown.

Higher than average accident rates were recorded for the following two locations:

I-405 southbound on-ramp from southbound Avalon Boulevard (fatality rate and total rate): A total of four accidents were recorded for this location during the three-year period, with one fatality and one injury. These accidents included one each of a sideswipe, a rear end, a broadside and a "hit object" accident. Two of the four accidents were caused by speeding and one by an improper turn.

Table 2
Accident Rates – 07/01/2002 Through 06/30/2005

Location	Actual Rate per MVM ^a			Statewide Average Rates per MVM ^a		
	Fatal ^b	F + 1 ^c	Total	Fatal ^b	F + 1 ^c	Total
LA 405 - PM 11.224/12.596 (North)	0.000	0.19	0.75	0.004	0.32	1.07
LA 405 - PM 10.541/11.224 (South)	0.000	0.14	0.69	0.006	0.34	1.10
LA 405 NB off to NB Avalon BI - PM 11.120	0.000	0.00	0.21	0.006	0.33	0.90
LA 405 SB on from SB Avalon BI - PM 11.276	0.228	0.23	0.91	0.003	0.32	0.85
LA 405 NB on from Avalon BI - PM 11.390	0.000	0.26	0.96	0.002	0.32	0.80
LA 405 SB off to Avalon BI - PM 11.409	0.000	0.06	0.49	0.005	0.61	1.50

^a MVM- Million Vehicle Miles

^b Fatality

^c Fatality + Injury

Source: Caltrans District 7 TASAS Table B.

I-405 northbound on-ramp from Avalon Boulevard (total rate): A total of 15 accidents were recorded for this location during the three-year period, with no fatalities and six injuries. Two-thirds or 10 of the 15 accidents were broadsides, while the rest were rear end, “hit object,” and sideswipe. Eight of the 15 accidents were caused by “other violations,” while three were due to speeding, two were due to improper turn, one resulted from a failure to yield and one is unknown.

In summary, the proposed improvements will reduce potential traffic collisions at the intersections of the I-405 ramps and the local streets by widening the ramps, allowing additional controlled traffic movements and adding a new I-405 southbound on-ramp. Widened ramps will facilitate the safe stacking of vehicles. The enhanced traffic signalization will further minimize conflicts. The new I-405 southbound on-ramp east of Avalon Boulevard will reduce traffic congestion at the existing ramps intersection and diminish the potential for collisions.

1.3 PROJECT DESCRIPTION

This section of the IS/EA describes the proposed action and the alternatives that were developed during the history of this proposed project to achieve the project purpose and need while avoiding or minimizing environmental impacts. The alternatives are the Build Alternative or the No Build Alternative. Other alternatives for this proposed project were considered and rejected. These alternatives are discussed in Section 1.3.3, Alternatives Considered and Rejected, on page 19.

1.3.1 Build Alternative

The proposed Build Alternative would improve the configuration of the existing interchange of Avalon Boulevard at I-405. As illustrated in Figure 3 on page 9, the interchange would be

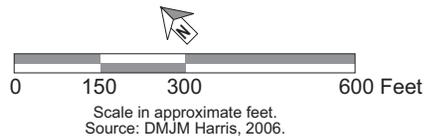
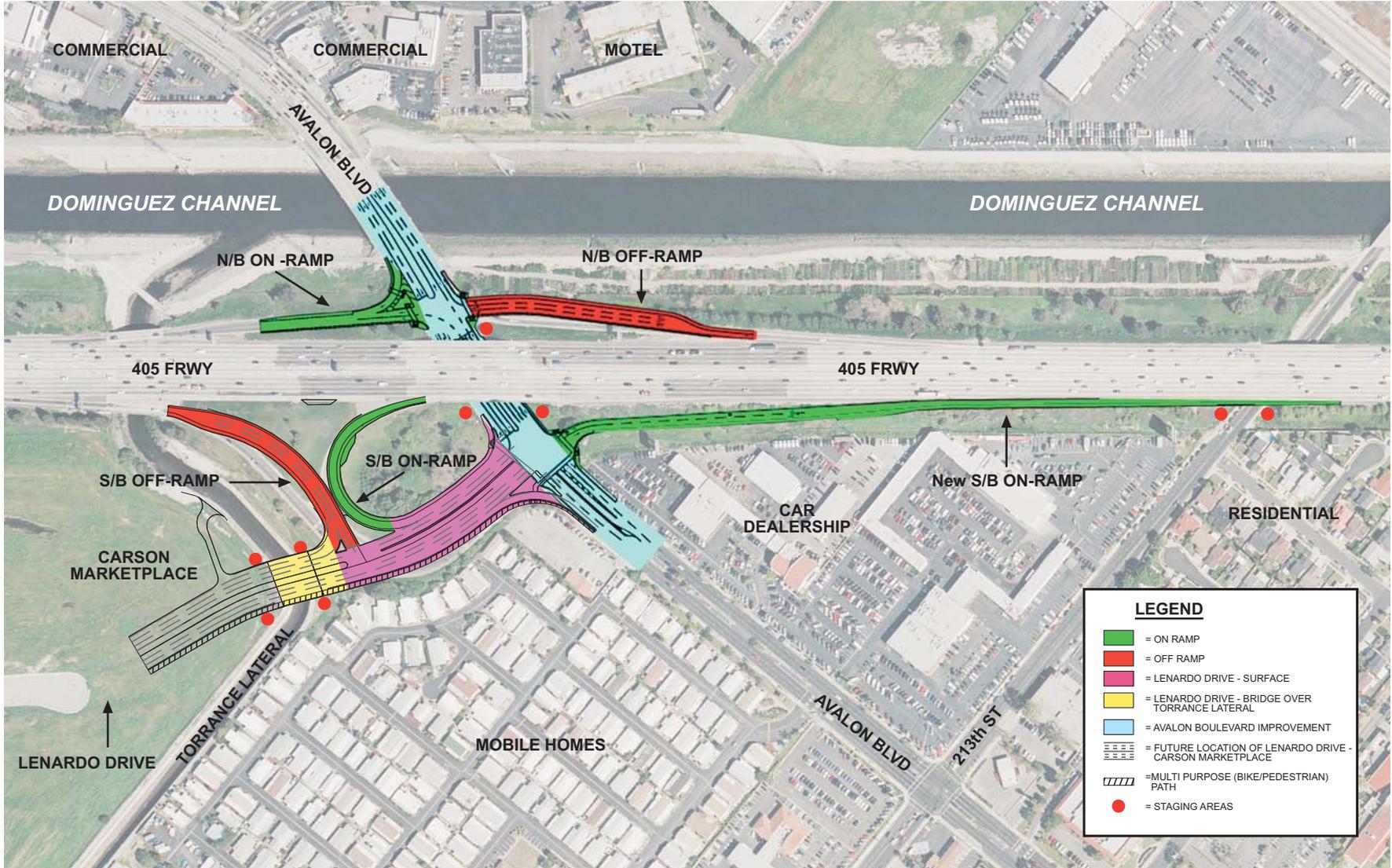


Figure 3
Proposed Project Improvements

redesigned to link the site of the Carson Marketplace project to the intersection at Avalon Boulevard by extending Lenardo Drive to Avalon Boulevard. The existing southbound ramps lying between the Carson Marketplace site and Avalon Boulevard would be realigned and a new southbound ramp would be provided east of Avalon Boulevard. In addition the northbound on and off ramps would be improved to increase their capacity and turning movements. Minor modifications would be made along Avalon Boulevard to provide an appropriate interface with the new ramps. The existing and proposed new freeway access movements are shown in Figure 4 on page 11. Photographs depicting the existing and proposed project features are shown in Figures 5 and 6 on pages 12 and 13.

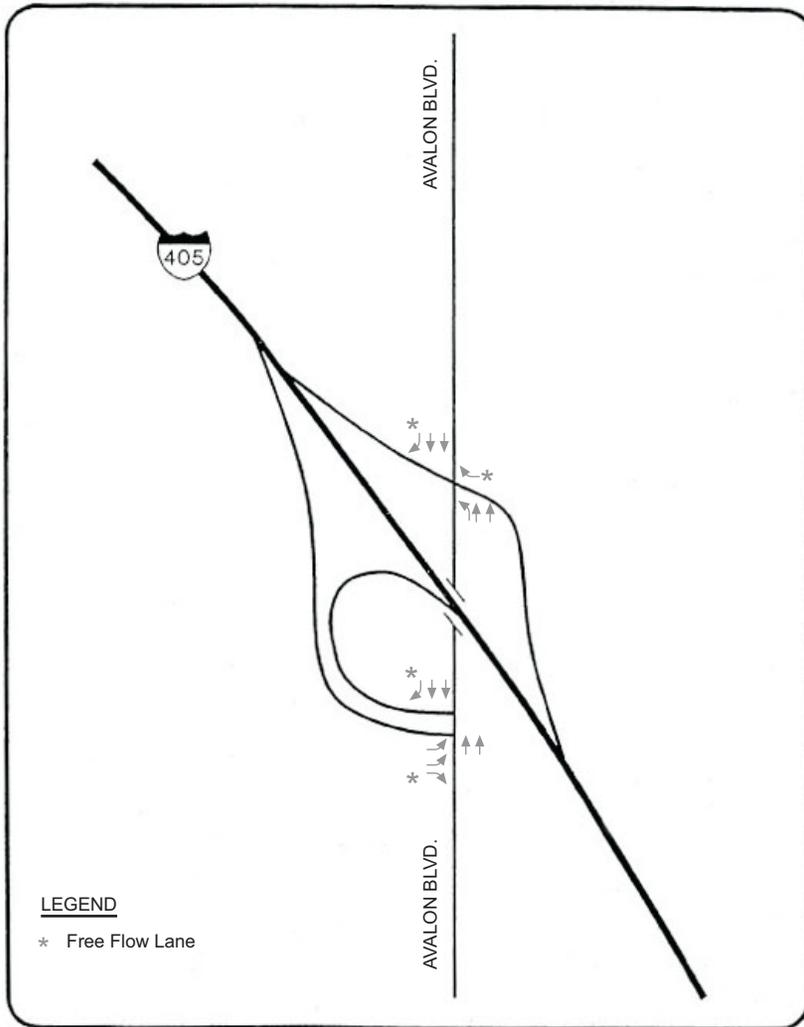
Lenardo Drive Extension and Bridge. Improvements in the Southwest Quadrant would be configured to link the existing ramps to Lenardo Drive, which would be extended from the Carson Marketplace site to Avalon Boulevard, with provisions for vehicular traffic and an ADA compliant multi-purpose path for bicycles and pedestrians. The extension of Lenardo Drive would link the Carson Marketplace project with the Avalon Boulevard intersection and the neighboring roadway network to the east, north and south. The extension of Lenardo Drive would require the construction of a new bridge over the Torrance Lateral flood control channel, and adjacent service roads. (See Photographs 3 and 4 on Figure 5 on page 12). This bridge would be designed as a single-span structure, with its abutments placed behind the flood control channel walls. The final design has not been decided at this time. The bridge span could be a precast unit that is placed over the channel, or a cast-in place concrete structure. A conceptual design of the bridge is shown in Figure 7 on page 14.

Westbound Lenardo Drive would include three lanes. From Avalon Boulevard, westbound Lenardo Drive is composed of a free-flow right turn lane onto southbound I-405 and two through lanes to the Carson Market Place. Eastbound Lenardo Drive is proposed with three through lanes from the Carson Market Place. Crossing the southbound I-405 access ramps, eastbound Lenardo Drive reconfigures into two dedicated left turn lanes onto northbound Avalon Boulevard, a through lane onto the southbound I-405 entrance ramp, a through/right turn lane and a free-flow right turn lane onto southbound Avalon Boulevard.

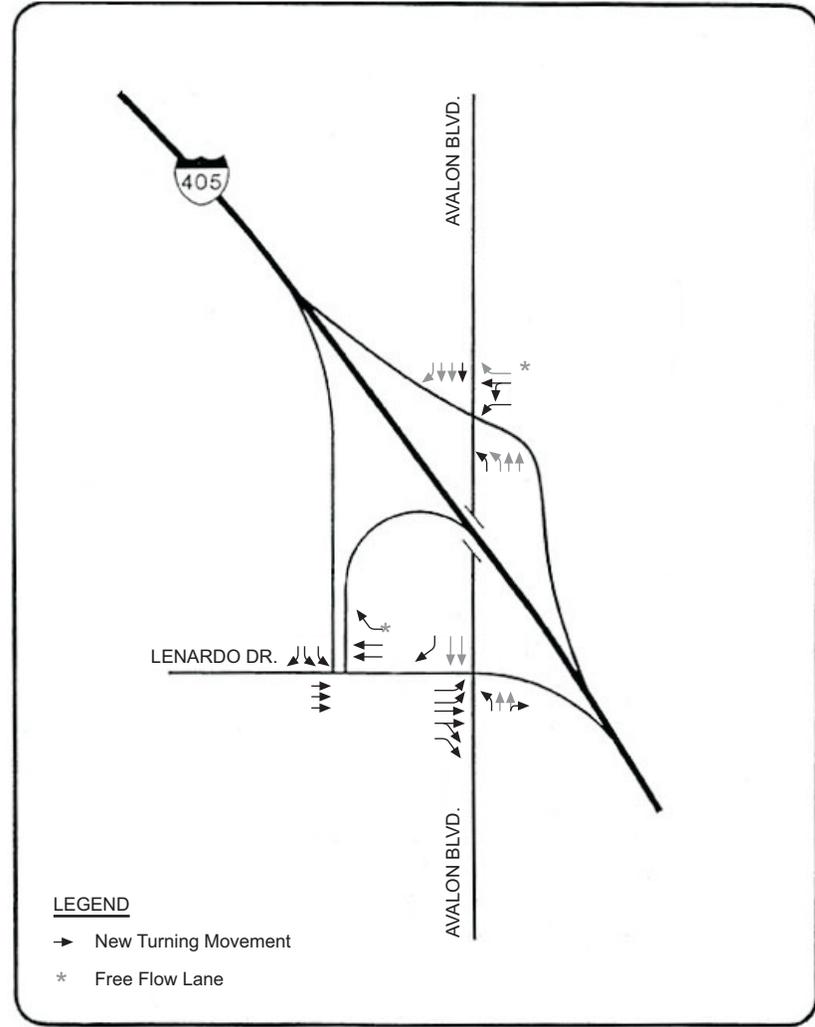
The existing southbound I-405 on- and off-ramps located between the Torrance Lateral Channel and Avalon Boulevard are proposed to be realigned, widened, repaved, re-striped and signalized to begin and terminate on the north side of the newly extended Lenardo Drive. The off ramp would be widened from one lane at the gore nose to three lanes at the intersection, with one right turn lane onto Lenardo Drive and two left turn lanes. The loop on ramp would provide one lane and would be metered. See photographs 1 and 2 on Figure 5.

Southbound On-Ramp. A new I-405 southbound on-ramp would be constructed from the intersection at Avalon Boulevard to the freeway, connecting in the general area of the 213th Street Bridge, approximately 1,700 feet to the south. (See Photographs 5 and 6 on Figure 6 on page 13). The new ramp starts with two lanes at the intersection of signalized Avalon Boulevard and narrows down to one lane at the gore nose; and would be metered. The new on-ramp would provide freeway access for traffic from northbound Avalon Boulevard and from eastbound Lenardo Drive. Construction of the ramp would require regrading of the existing slope along the south side of the I-405 Freeway and the addition of fill material to build a new bench sloping up from the Avalon Boulevard to the freeway.

The merge to the southbound mainline of the freeway would require the widening of the existing 213th Street bridge by a maximum of approximately 8 feet. The final design for this bridge has not been selected. The final design may call for a cast-in-place construction, or precast,



Existing Conditions - No Build Alternative



Proposed -Build Alternative



Source: Barton-Aschman Associates, Inc., 2006

Figure 4
Schematic Ramp Configurations

SOUTHWEST QUADRANT



Photograph 1: Southbound off-ramp.



Photograph 2: Southbound on-ramp.



Photograph 3: Southbound off-ramp from adjacent neighborhood.



Photograph 4: I-405 Freeway and Southbound off-ramp from adjacent neighborhood.

SOUTHEAST QUADRANT

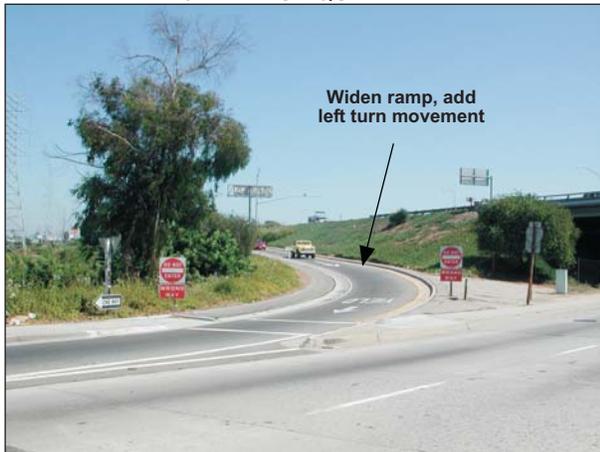


Photograph 5: Southbound on ramp - lower end.



Photograph 6: Southbound on ramp - upper end.

NORTHEAST QUADRANT



Photograph 7: Northbound off-ramp.

NORTHWEST QUADRANT



Photograph 8: Northwest Quadrant..

AVALON BOULEVARD



Photograph 9: Avalon Boulevard.

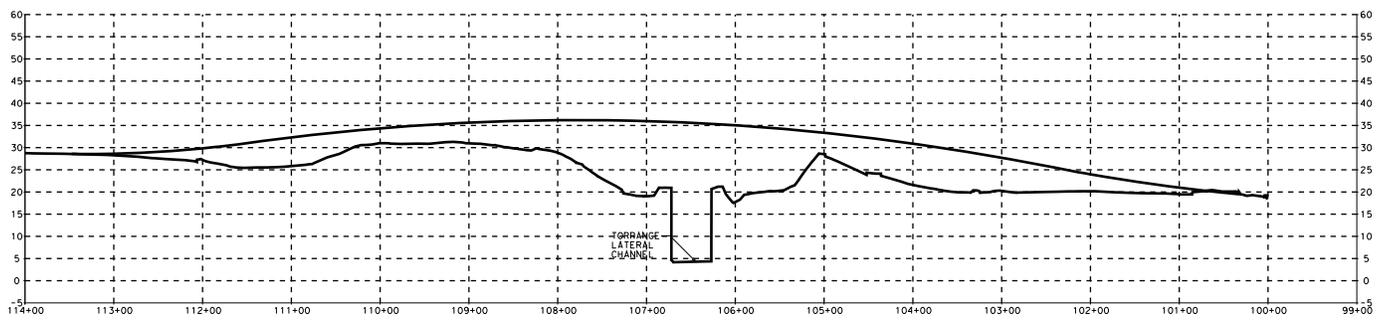
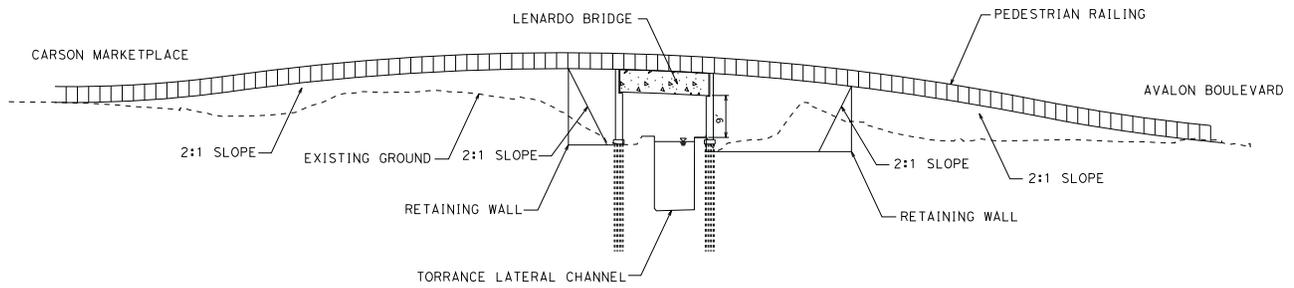


Photograph 10: Passage under the bridge.



Figure 6
Project Features - Photos 5-10

Source: PCR Services Corporation, 2006.



No scale

Source: DMJM Harris, 2007.

Figure 7
 Conceptual Design for the
 Lenardo Drive Bridge

prestressed girders. Additional structural work may also require seismic retrofitting of the existing bridge.

Northbound Off-Ramp. The I-405 northbound off-ramp to Avalon Boulevard would be widened re-striped and re-signalized to allow for one left turn lane onto southbound Avalon Boulevard, one shared left turn lane onto southbound Avalon Boulevard and through lane onto the northbound I-405 entrance ramp and a free right turn lane onto northbound Avalon Boulevard. The off-ramp would be increased from one lane at the gore nose to three lanes at the re-signalized Avalon Boulevard intersection to increase capacity, queuing and turning movements and improve traffic operations (See Photograph 7 on Figure 6). The widening would require cutting into the existing slope along the southern edge of the ramp and re-contouring it with a slight increase in the width of the bench along the northern edge of the ramp.

Northbound On-Ramp. The northbound I-405 on-ramp is also proposed to be widened, re-striped, and re-signalized to accommodate two lanes of traffic from northbound Avalon Boulevard left turns and one signalized right turn lane from southbound Avalon Boulevard to increase capacity, queuing and turning movements and improve traffic operations (See Photograph 8 on Figure 6). This ramp would contain two lanes of traffic merging into one lane prior to the freeway entrance. The widening would require adding fill on the north side of the ramp to increase the width of the bench.

Avalon Boulevard. Implementation of the above improvements would require changes to Avalon Boulevard to accommodate additional turning movements associated with the new ramps (See Photographs 9 and 10 on Figure 6). Provision of the new lanes and turning movements would require several modifications to Avalon Boulevard: (1) modifications to the median on Avalon Boulevard between the northbound and southbound ramp locations; (2) modification of the median on Avalon Boulevard south of Lenardo Drive to provide for a northbound left-turn lane allowing traffic from northbound Avalon Boulevard to access Lenardo Drive; (3) modification of Avalon Boulevard between Dominguez Street and the northbound ramps for the southbound right-turn lane and (4) widening on the east side of Avalon Boulevard between Lenardo Drive and the northbound I-405 off-ramp. In addition, the sidewalk on the eastern side of Avalon Boulevard would be relocated further east behind the existing structural columns that support the I-405 Bridge over Avalon Boulevard. This relocation would require cutting into the side of the slope along Avalon Boulevard, and constructing a retaining wall to support the slope.

Utility Relocations

The proposed project includes no new utility services other than the standard lines required to support ramp meters, light signals, etc. Existing facilities will be used where feasible, and minor relocations or modifications of existing facilities may be required. Project planning has included contacts with utility providers to identify any potential facilities in the area to avoid adversely affecting existing services. The utilities that must be relocated as part of the proposed project construction would be relocated in such a manner as to minimize any disruption of service those utilities provide, pursuant to Section 8.1-10, Utility and Non Highway Facilities of the Standard Specifications issued by Caltrans.

Construction Program

Project construction is proposed to occur in four development stages that have intermittent overlapping of activities. The time of individual phases varies from 3 months to 14 months. The total duration of construction is less than two years, with an estimated completion in 2010. The

main features of the proposed project's construction program are shown in Figure 8 on page 17 illustrates both the phasing stages of the proposed project and the staging areas for construction. The four construction phases consist of the following components:

Construction Stage No. 1 proposes to construct improvements that do not impact the existing traffic. Per this approach, the contractor will construct the new southbound on-ramp from Avalon Boulevard to the I-405 Freeway, widen the I-405 bridge over 213th Street, construct the Lenardo bridge over Torrance Lateral Channel, erect the access ramps from Lenardo Drive to the Torrance Lateral Channel maintenance roads, widen the outside of Lenardo Drive, and construct three maintenance pull-out areas on the I-405 mainline.

Construction Stage No. 2 proposes to open the new southbound I-405 on-ramp, close the existing southbound I-405 off ramp, realign the existing southbound I-405 on- and off-ramps at Avalon Boulevard and complete the widening of Lenardo Drive. Several traffic shifts in conjunction with a detailed traffic control plan will be required to successfully complete stage No. 2.

Construction Stage No. 3 proposes to open the realigned southbound I-405 on- and off-ramps, and widen the northbound I-405 on- and off-ramps at Avalon Boulevard.

Construction Stage No. 4 proposes to open the widened northbound I-405 on- and off-ramps and widen and re-stripe Avalon Boulevard. Completion of the proposed project will occur when the modified Avalon Boulevard is opened to traffic.

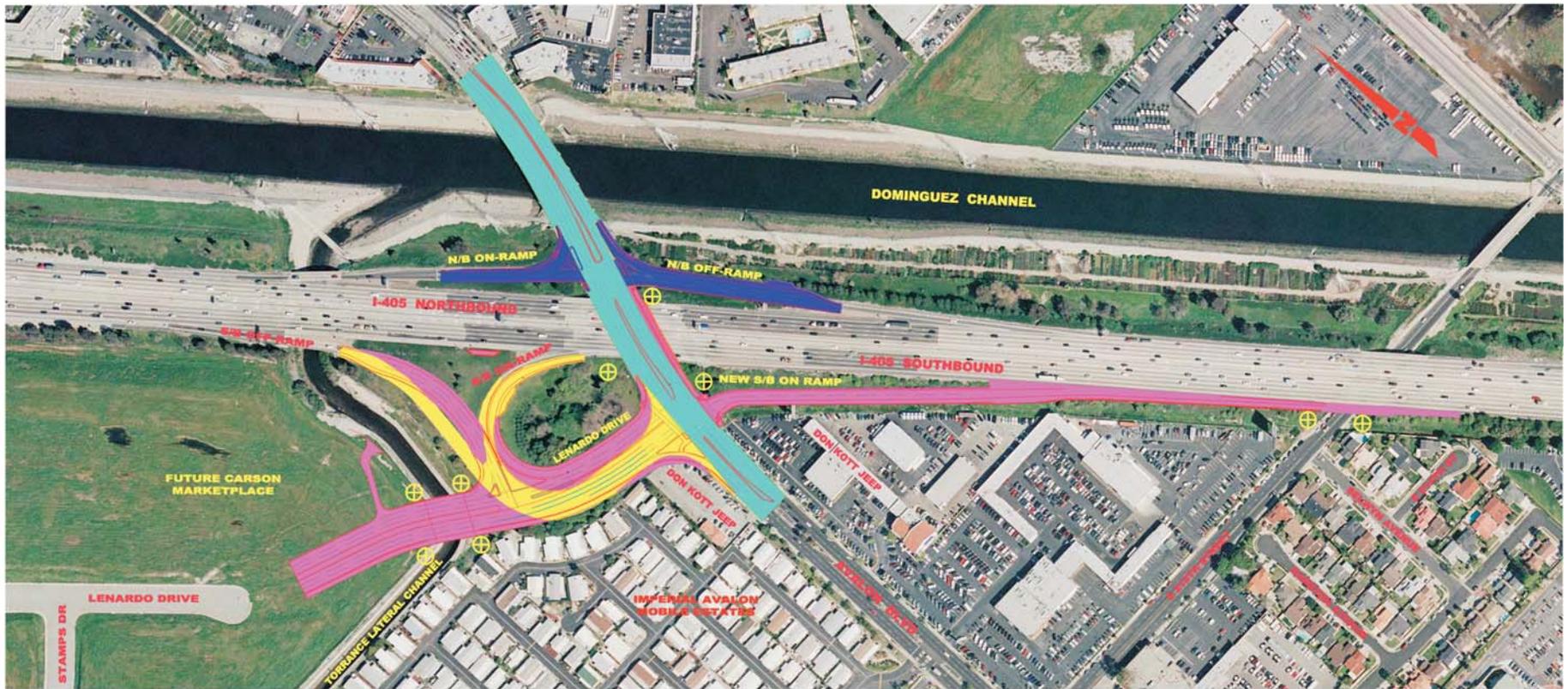
In spite of the many traffic manipulations, the proposed staging plans were designed to provide traffic access to I-405 and Avalon Boulevard during construction, while maintaining an acceptable level of service.

As further indicated in Figure 8, the construction program includes nine staging areas, located as follows: two on either side of 213th Street, below the 213th Street bridge; one on the north side of the I-405 Freeway between the ramp and the mainline freeway; two on either side of Avalon Boulevard, below the mainline bridge; and four at the Lenardo Drive bridge corners. Borrowing of fill for the proposed project will be required. The location of the borrow site would be selected by the contractor, and is expected to be from the most convenient site available during construction. Access for construction will be from Avalon Boulevard, with construction vehicles turning into each of the four interchange quadrants at the ramp locations.

1.3.2 No-Build Alternative

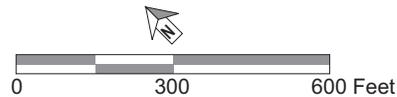
If the proposed project were not built, there would be no alterations to the existing intersection. Roadway operations would remain unchanged. Traffic levels would continue to increase with deterioration of service levels. Under the No Build Alternative, none of the proposed project's purposes and needs would be met: The No Build Alternative would not allow the City to address future traffic congestion in the proposed project area, to improve circulation patterns within the proposed project area with reductions in vehicle miles traveled; to support development in the west side of the City of Carson, including the Carson Marketplace project; or enhance the unsafe conditions at the two existing proposed project intersections.

AVALON BOULEVARD/I-405 INTERCHANGE PROJECT



LEGEND

- CONSTRUCTION PHASE 1
- CONSTRUCTION PHASE 2
- CONSTRUCTION PHASE 3
- CONSTRUCTION PHASE 4
- + CRANE LOCATIONS



Scale in approximate feet.
Source: DMJM Harris, 2006.

Figure 8
Construction Staging

The No-Build Alternative would result in numerous secondary effects regarding future development in the City, future traffic patterns, and levels of congestion. The most immediate effect would be to limit the use of the Carson Marketplace project. That development project includes a mitigation measure that limits site use without the implementation of the ramps. The Carson Marketplace project was approved for 1,550 residential units and 1,995,125 square feet of regional and neighborhood commercial space (inclusive of a 300 room hotel). Under the project's mitigation measure, only the residential development and 200,000 square feet of neighborhood serving commercial uses could be operated. Such development would contribute to traffic congestion in the area.

Limiting the amount of development would have several immediate, short-term effects. It would frustrate the City's development plans, and the opportunity to convert a hazardous brownfield site into a signature project for the City, pursuant to its General Plan and Redevelopment Plan. At the same time, the large number of travel trips associated with the site's use would not be generated, reducing the traffic levels that are otherwise projected and considered in the development of the future baseline scenario.

If the I-405/Avalon Boulevard interchange improvements and full build-out of the Carson Marketplace site do not proceed as scheduled, the City would need to revisit its need to remediate the site, its General Plan and Redevelopment Plan goals and policies, and the range of possible uses at the Carson Marketplace site in the future. However, future evaluations regarding use of that site would occur without consideration of the proposed I-405/Avalon Boulevard improvements to mitigate development impacts.

This contrasts with the understandings of the City during the evaluation of the Carson Marketplace project (and the Metro 2000 Project before that). During the previous evaluation(s), the City performed traffic analyses to identify the development impacts of those projects, and feasible mitigation measures to reduce potential impacts. The City determined that the improvement of the I-405/Avalon Boulevard intersection would be a feasible mitigation measure for the Metro 2000 Project and obtained planning approval to pursue the improvement from Caltrans with approval of the PSR and the SPSR.

If the No-Build Alternative were pursued, the City would likely entertain new development proposals for the Carson Marketplace site with a re-evaluation of the impacts of that project, feasible mitigation measures for that project and possible approval with a Statement of Overriding Considerations.

Approval of such development at the Carson Marketplace site without implementation of the Build Alternative could potentially result in greater impacts on the environment than with the Build Alternative, and would be disadvantageous relative to it. Visitors to the site via the I-405 would be required to take circuitous trips to the I-405/ Avalon Boulevard and I-405/Carson Street ramps. This would add unnecessary travel mileage to the roadway network, and contribute to congestion on Main Street, Del Amo Boulevard, Avalon Boulevard and Carson Street. It would cause reductions in roadway service conditions, and contribute to air quality and noise impacts.

The decisions by the City of Carson regarding their General Plan designations and approval of the Carson Marketplace development were predicated on a planning vision that is based on the site's opportunities to provide freeway accessibility in the most efficient manner. The Carson Marketplace is intended to cluster a large amount of regionally oriented activities on a site that is adjacent to the freeway, and that has the potential to accommodate freeway visitors with no impacts on local roadways, outside of the I-405/Avalon Boulevard intersection. Other

development patterns, e.g. use of alternative sites, incremental smaller developments, etc., are less advantageous.

As noted above, if the Carson Marketplace project or some of its components do not proceed, the immediate traffic generation would be reduced, with less impact on the local roadway network. However, longer term, i.e. through the 2030 time horizon under consideration in this analysis, the impacts are less well known and could be greater than the immediate No-Build implications would suggest. Demand for the proposed uses in the City of Carson, and surrounding areas could increase development pressures at alternative sites. As noted above, accommodating the demand at alternative sites would necessarily, have a greater level of adverse impact with regard to freeway accessibility. Further, it should be noted that components of the Carson Marketplace project include entertainment venues (movie theaters, shops, etc) that are not provided within five to six miles of the Carson Marketplace site. The citizens of Carson would need to travel greater distances for such services.

Development through 2030 would continue to occur throughout the western side of the City of Carson. Such development may increase to consume the demand that would otherwise be met by the Carson Marketplace project, or over the longer term the development in the City could be slightly reduced. In any case, the City would continue to receive development proposals that would have impacts on the I-405/Avalon Boulevard intersection and that would lose the potential road capacity and efficiency that would be attained through the proposed project improvements. Pressures to develop at other sites would be more difficult to mitigate through a more dispersed pattern.

1.3.3 Alternatives Considered and Rejected

Other alternatives were considered for the proposed project at the PSR stage but rejected by the Project Development Team (PDT) as not being feasible options. The initial Project Study Report that was approved for the proposed project in 1996 included an alternative that was deemed infeasible during the planning process. This alternative would have altered the design in the southwest intersection quadrant, while maintaining the same design in the remaining three quadrants. Under this alternative, the design of the southwest quadrant would relocate the intersection of ramp termini of the I-405 southbound on- and off-ramps with Lenardo Drive that lies west of Avalon Boulevard to a location further to the west, in an area within the former Metro 2000 property, currently the Carson Marketplace site. This alternative was rejected as the property was privately owned on a site containing hazardous wastes and requiring remediation. Alternatives that seek to direct traffic to the I-405 Freeway via routings that avoid the I-405/Avalon Boulevard interchange are not feasible replacements because they would cause increases in vehicle miles traveled on traffic to the local street network. This additional traffic would likely require mitigation requirements for numerous intersections, possible need for property acquisition, and still have impacts at the point of entry to the freeway. Further, the additional routing would cause additional environmental impacts on uses along the way, and depending on the routing selected would likely cause greater impacts at sensitive receptor locations.

Likewise, alternatives that seek to direct traffic from the Carson Marketplace site to the I-405 freeway via alternative routings to the I-405/Avalon Boulevard interchange would also add unnecessary travel mileage to the roadway network, with contributions to congestion on Main Street, Del Amo Boulevard, Avalon Boulevard and Carson Street. Again, there would be

implications for alternative additional mitigation at numerous locations, possible acquisitions to implement these mitigation measures, and greater impacts at sensitive receptors.

The Carson Marketplace EIR considered the reduction of traffic impacts from its development through means other than roadway improvements, such as Transportation Demand (TDM) programs, and alternative modes of travel. The Carson Marketplace uses do not lend themselves to implementation of an effective TDM. The Carson Marketplace EIR also evaluated means of public transportation in the proposed project area and recommended a mitigation measure to enhance the quality of public transit in the area. The analysis identified the number of trips that might feasibly occur via public transportation and reflected the use of public transportation in the analysis of the traffic that would occur.

1.4 PERMITS AND APPROVALS NEEDED

The following permits, reviews and approvals would be required prior to construction of the proposed project.

- Approval of the Initial Study/Environmental Assessment.
- Adoption of the Negative Declaration/Finding of No Significant Impact.
- Project Approval.
- Caltrans Encroachment Permit.
- City of Carson Encroachment Permit.
- Los Angeles County Department of Public Works Construction Permit.
- Other non-discretionary permits required for construction.

CHAPTER 2 - AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

2.1 ENVIRONMENTAL TOPICS WITH NO IMPACT

As part of the scoping and environmental analysis conducted for the project, the following environmental resources were considered but no potential for adverse impacts to these resources were identified. Consequently, there is no further discussion regarding these resources in this document.

- **Farmlands/Timberlands.** The proposed project is located in a highly urbanized setting. The proposed project site contains mostly existing roadway improvements (e.g., the existing ramps) and adjacent fill materials associated with construction of those improvements. The site also includes the Torrance Lateral, a flood control channel, with adjacent earth that was disturbed in its construction. The proposed project site contains no Farmlands or Timberlands.
- **Community Impacts – Relocations.** The proposed project would be implemented almost entirely within the existing Caltrans right-of-way. A small parcel at the site of the Lenardo Drive bridge is located within the jurisdiction of the Los Angeles County Flood Control District, and contains the Torrance Lateral flood control channel. The proposed project would not alter operations of the infrastructure for flood control. No relocations would be required for the proposed project.
- **Mineral Resources.** The proposed project is located in a highly urbanized setting. The proposed project site contains mostly existing roadway improvements (e.g., the existing ramps) and adjacent fill materials associated with construction of those improvements. The State Department of Conservation does not designate the proposed project site as a Significant Mineral Resources Area; thus, no impacts resulting from the loss of mineral resources are anticipated.

HUMAN ENVIRONMENT

2.2 LAND USE

2.2.1 REGULATORY SETTING

Public Resources Code 21083, 21087 and the California Environmental Quality Act Guidelines Section 15126.2(a) require lead agencies to assess the impact of a proposed project by examining alterations in the human use of the land, including population distribution and population concentration, and commercial and residential development. Section 15131 allows public agencies to consider economic and social impacts when determining the significance of an environmental impact.

Council on Environmental Quality (CEQ) regulations 40 CFR 1502.16(c) require environmental documents identify possible conflicts between the proposed project and local land use plans.

2.2.2 AFFECTED ENVIRONMENT

The City of Carson was incorporated as a general law city on February 20, 1968. Due to its status as an unincorporated area until somewhat recent times, the City formerly received many land uses that incorporated nearby City's did not want. At its incorporation the City was heavily landscaped with dozens of refuse dumps, landfills, and auto dismantling plants. The City's past uses were reflected in a 2001 land use survey which indicated that the City had 24,830 housing units, of which 74 percent were low density; 2,838,114 sq. ft. of general commercial uses; 1,652,268 sq. ft. of regional commercial uses; 17,268,562 sq. ft. of light industry; and 23,200,526 sq. ft. of heavy industry.¹

The City has been going through a transition in recent years with conversion of its older industrial areas to cleaner, light industrial uses, and the establishment of a broader range of uses, including important regional facilities. Future development proposals include further expansion in the range of uses, including an increase in the number and types of housing opportunities available in the City. It also offers the potential of remediating contaminated, underused brownfield sites associated with the City's historic uses, and putting them to productive use.

Information regarding the socio-economic characteristics of the City are provided in the discussion of Environmental Justice in Section 2.5. Information regarding expected growth in the City is provided in Section 2.3, Growth.

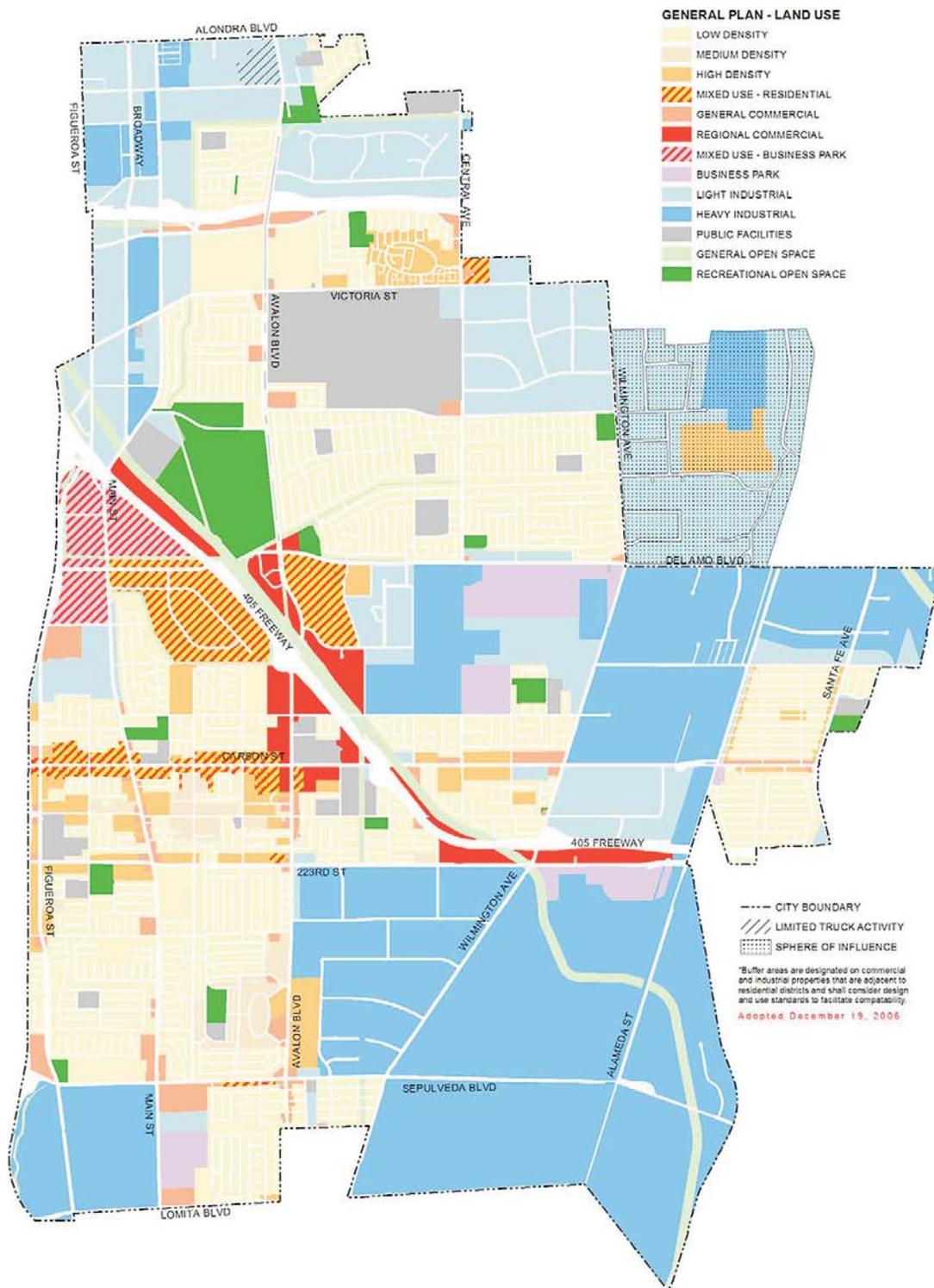
The land use patterns, emerging and future, are illustrated in the General Plan Land Use Map as shown in Figure 9 on page 23. The City's Zoning Map shows the proposed project site as roadways without zoning designations for developed uses.

The Land Uses in the proposed project vicinity are shown in Figure 10 on page 24. As indicated, the nearest uses include commercial development, car dealerships, residential development south of the proposed project site, and the recently approved, to be built, Carson Marketplace project west of the proposed project site. In a larger context, the intersection lies at the hub of a regionally important area that includes California State University at Dominguez Hills, the Home Depot Center (a 125 acre, multi sport, athletic training facility, and professional sports venue featuring a 27,000 seat soccer stadium), the South Bay Pavilion shopping center, the Victoria Golf Course and Park and the proposed Carson Marketplace project.

The proposed project site, located as it is at this key location amidst an important regional serving activity center, is an important element in supporting the surrounding development. As discussed in the Statement of Purpose, the proposed project would serve all of the surrounding land uses, by:

- Supporting the full use of the Carson Marketplace project. In so doing, to:
 - Support the existing land use plan of the City of Carson.
 - Support the productive reuse of a large brownfield site for productive use.

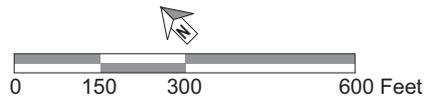
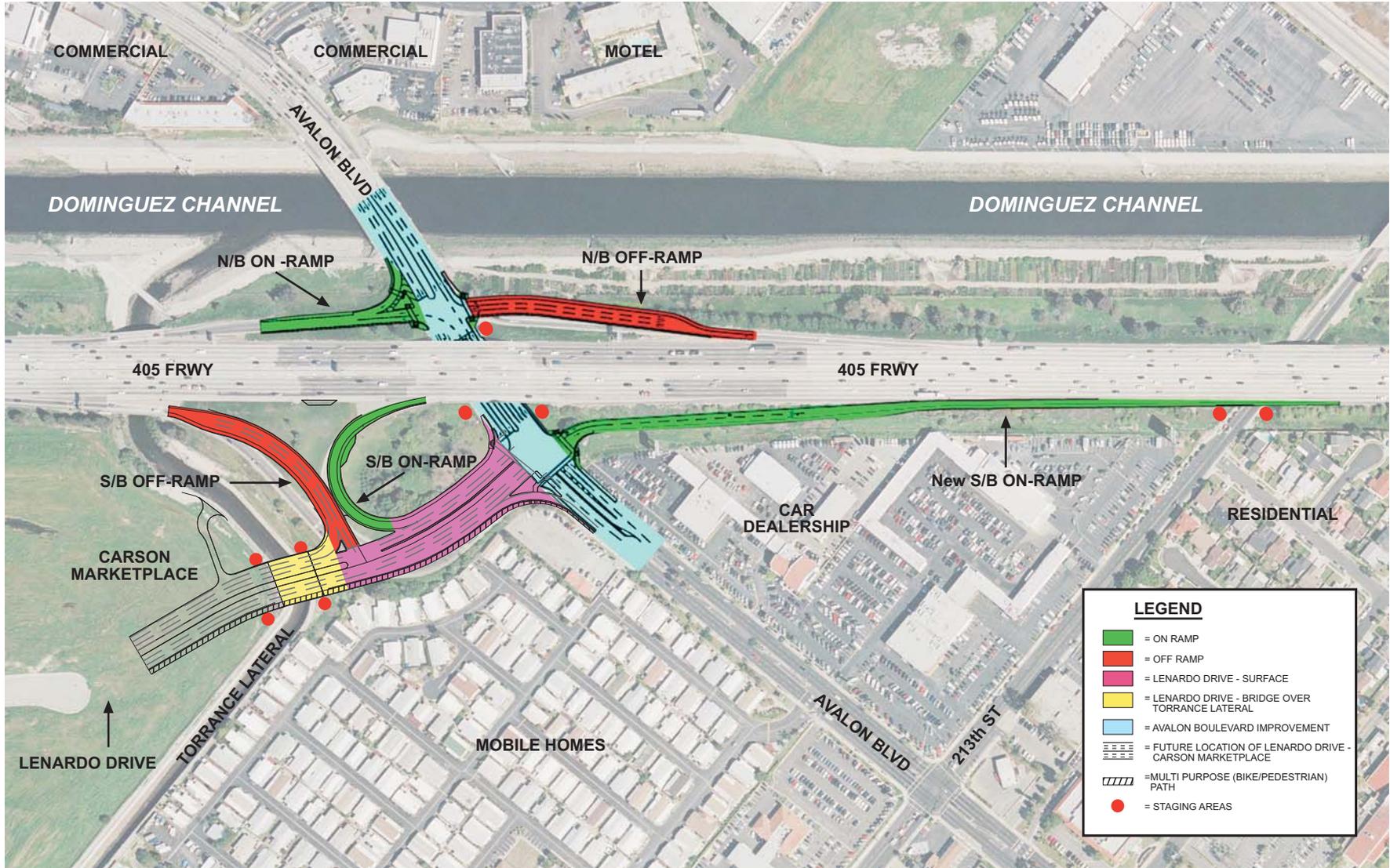
¹ Land Use Element, 2004 General Plan, City of Carson.



No scale

Source: City of Carson

Figure 9
General Plan Land Use Map



Scale in approximate feet.
Source: DMJM Harris, 2006.

Figure 10
Project Vicinity Map

- Provide a signature project for the City of Carson with a mixed-use project that offers entertainment, commercial and residential opportunities for the City residents.
- Support the economic development of the City.
- Supporting continued development of parcels on the west side of the City of Carson.
- Enhancing traffic operations and therefore service to the surrounding uses by:
 - Increasing the capacity of the interchange and providing for new turning movements, allowing accessibility for all directional movements at the interchange.
 - Providing a balanced circulation system, reducing out of direction travel, and reducing vehicle miles traveled, thus providing traffic relief for numerous roadway intersections in the western portion of Carson that surrounds the proposed project interchange.
 - Enhancing operations safety at the ramps and intersection of I-405 and Avalon Boulevard.

The existing and emerging development patterns are consistent with those illustrated in the General Plan land use map, as shown in Figure 9. The General Plan land use map reflects the totality of the City's policies. The City has numerous policies that generally support the continued development shown in the land use map. A few policies that particularly point to the proposed project as a facility to serve the adjacent uses are found in the General Plan and Redevelopment Plan. The Land Use Element includes policies LU-4.1, LU-5.1 and LU-5.2 which support redevelopment projects to enhance economic activity, commercial opportunities, and strategies to market, attract, and/or retain retail commercial areas. Policy LU-11.1 calls for the targeting of sites or areas for the development of signature projects. The City's Redevelopment Plan, which includes and addresses development on the Carson Marketplace site includes Goal 9 which requires the expansion of the resource of developable land by making underutilized land available for development, and Goal 10 which requires the provision of needed or lacking public improvement and facilities which are sensitive to the environment. It also includes Objective 6 which seeks to focus traditional redevelopment activities in those areas of the City which surround the proposed project site, where appropriate, and provide the greatest visibility. It may also be noted that the proposed project was considered in the preparation of the Transportation and Infrastructure Element of the General Plan, and was included in modeling to determine how the City could best meet the transportation needs of the projected growth in the City.

2.2.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

Existing and Future Land Use

The proposed project would occur on lands that are undeveloped, or that currently contain freeway ramps that are scheduled for improvement. As such, the proposed project would not require the acquisition of adjacent properties, nor cause changes in land use activities at surrounding locations. There would be no alterations in the existing land use patterns in the proposed project area.

The proposed project is intended to support existing and projected future land uses in the proposed project area. The I-405/Avalon Boulevard interchange is a gateway to an existing, and developing central activity center for the City of Carson that includes shopping areas, regional recreational facilities, a major sports venue and the recently approved Carson Marketplace project.

The project's Lenardo drive bridge would span over the Torrance Lateral which is a public infrastructure improvement operated by the County of Los Angeles. Both the bridge and the Torrance Lateral are public infrastructure uses and neither would cause interference in the activities of the other. The bridge over the Torrance Lateral has been designed in a manner that would allow the County continued access to the Lateral for its maintenance activities.

Therefore, impacts would be less than significant. The proposed project would not have adverse effects on land use plans, and would support existing land uses.

Consistency with State, Regional and Local Plans

As described in Section 2.2.2 above, the proposed project site is located within the jurisdiction of the City of Carson General Plan. The development of the proposed project was anticipated in the 2004 update to the plan and was considered in development of the future Land Use Map for the City. Further, the proposed project is intended to support on-going activities in the surrounding area and facilitate development of the Carson Marketplace project, adjacent to the I-405/Avalon Boulevard interchange. The Carson Marketplace project was recently approved with amendments to its General Plan and Zoning Ordinance that support the implementation of that project. Full operation of the approved Carson Marketplace site requires implementation of the proposed project. Further, the proposed project is being proposed, pursuant to the General Plan Policies LU-4.1, LU-5.1, and LU-5.2, and Redevelopment Plan Goals 9 and 10, and Objectives 6 as described in the Setting Section above. Therefore, the Build Alternative is fully supportive of the local plans, and more importantly would serve as an implementation mechanism to support local plans.

The proposed project site is also located within the planning area of the Southern California Association of Governments (SCAG). SCAG is a Joint Powers Agency established under California Government Code Section 6502 et seq. Pursuant to federal and state law, SCAG serves as a Council of Governments, a Regional Transportation Planning Agency, and the

Metropolitan Planning Organization (MPO) for Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial counties.

SCAG's mandated responsibilities include developing plans and policies with respect to the region's population growth, transportation programs, air quality, housing, and economic development. Specifically, SCAG is responsible for preparing the Regional Comprehensive Plan and Guide (RCPG), Regional Transportation Plan (RTP), and Regional Housing Needs Assessment (RHNA), in coordination with other state and local agencies. The RTP is implemented through the Regional Transportation Implementation Program (RTIP). The proposed project is listed in the Adopted 2006 (RTIP) under Local Highway Projects. The proposed project is listed as ID # LAE2198. Therefore, the proposed project is a component of regional plans. It is a planned roadway improvement consistent with regional plans.

The proposed project site does not lie within the jurisdiction of other Land Use Plans, e.g., Coastal Zones, natural resources plans, etc.

Parks and Recreation

The proposed project would have no impacts on any park and recreation facilities. The nearest recreational facilities to the proposed project interchange are the Victoria Golf Course and Park, Dominguez Hills Golf Course, Del Amo Park and Carson Park. These facilities are generally located more than 0.5 miles from the proposed project interchange. (From the nearest park edge at Victoria Park to the nearest proposed project component is approximately 0.5 miles, and separated from the proposed project's nearest edge by the Dominguez Channel.) As indicated above, the proposed project is located on land which consists of existing ramps and/or adjacent fill areas and contains no parks or recreational facilities.

As the proposed project would have no impacts on parks, it would have no effects relative to park protection under Section 4(f) of the Department of Transportation Act of 1966. Refer to Appendix B, "Resources Evaluated Relative to the Requirements of Section 4(f)."

NO-BUILD ALTERNATIVE

If the proposed project were not built, there would be no alterations to the existing I-405/ Avalon Boulevard interchange. Roadway operations in the project area would remain unchanged, and traffic levels would continue to increase with deterioration of service levels.

The No-Build Alternative would result in numerous secondary effects regarding future development in the City, future traffic patterns, and levels of congestion. The most immediate effect would be to limit the use of the Carson Marketplace project. That development project includes a mitigation measure that limits site use without the implementation of the ramps. The Carson Marketplace project was approved for 1,550 residential units and 1,995,125 square feet of regional and neighborhood commercial space (inclusive of a 300 room hotel). Under the project's mitigation measure, only the residential development and 200,000 square feet of neighborhood serving commercial uses could be operated without the roadway improvement. Operation of these uses would contribute to traffic in the areas surrounding the proposed project site.

The ultimate effects of the No-Build Alternative on Land Use in the vicinity of the proposed project are uncertain. The City would be required to take a new course of action for development on the Carson Marketplace site and along the western edge of the City. Future land use decisions would be affected by the City's response to changes in plans for the Carson Marketplace site, and private sector development decisions. Regardless of the option pursued, the No Build Alternative would frustrate the achievement the City's planned growth in the area. The City would not be able to establish the proposed project vicinity as a vibrant City Center, with a signature development project, and accommodate needed housing, employment, retail and entertainment uses in the City, as would occur under the proposed Build Alternative.

The decisions by the City of Carson regarding their General Plan designations and approval of the Carson Marketplace development were predicated on a planning vision that is based on the site's opportunities to provide freeway accessibility in the most efficient manner. The Carson Marketplace is intended to cluster a large amount of regionally oriented activities on a site that is adjacent to the freeway, and that has the potential to accommodate freeway visitors with no impacts on local roadways, outside of the I-405/Avalon Boulevard intersection. Other development patterns, e.g., use of alternative sites, incremental smaller developments, etc., are less advantageous.

If the Carson Marketplace project or some of its components do not proceed, the demand for the proposed uses at alternative sites could increase. Accommodating the demand at alternative sites would necessarily, have a greater level of adverse impact with regard to freeway accessibility. Further, it should be noted that components of the Carson Marketplace project include entertainment venues (movie theaters, shops, etc) that are not provided within five to six miles of the Carson Marketplace site. Not providing these uses at the Carson Marketplace site would contribute to a more disperse, inefficient land use pattern.

Development through 2030 would continue to occur throughout the western side of the City of Carson. Such development may increase to consume the demand that would otherwise be met by the Carson Marketplace project, or over the longer term the development in the City could be slightly reduced. In any case, the City would continue to receive development proposals that would have impacts on the I-405/Avalon Boulevard intersection and that lose the potential benefit of roadway capacity and efficiency improvements that would occur with the proposed project. Pressures to develop at other sites would be more difficult to mitigate through a more dispersed pattern.

2.2.4 AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

The proposed project's Build Alternative would avoid the need to perform land acquisitions, or otherwise affect surrounding land uses. Therefore, proposed project impacts on land use would be negligible and no further minimization or mitigation measures would be required.

2.3 GROWTH

2.3.1 REGULATORY SETTING

FEDERAL AND STATE GUIDELINES

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969, require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations, 40 CFR 1508.8, refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

The California Environmental Quality Act (CEQA) also requires the analysis of a project's potential to induce growth. CEQA guidelines, Section 15126.2(d), require that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

REGIONAL PLANNING FOR GROWTH -- SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS (SCAG)

SCAGs Regional Planning Role

SCAG is the region's federally designated metropolitan planning organization (MPO), and was formed for the purpose of developing consensus and coordination relating to regional issues that cross jurisdictional boundaries. The SCAG Region is comprised of six counties: Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial. SCAG is responsible for, among other things, preparing the Regional Comprehensive Plan and Guide (RCPG) and the Regional Transportation Plan (RTP). The RTP contains a set of socioeconomic projections that are used as the basis for SCAG's transportation planning. They include projections of total population, households, and employment at the regional, county, subregional, and jurisdictional levels. SCAG also adopted its regional growth vision, the Compass Vision Report, in 2004. It includes a technical analysis of growth options as well as human evaluation including a wide range of public outreach efforts and stakeholder involvement. The goal of the Compass project is to examine ways that the current growth trends in the Region can be directed to a sustainable, livable future.

Regional Comprehensive Plan and Guide (RCPG)

SCAG prepared the Regional Comprehensive Plan and Guide (RCPG) in conjunction with its constituent members and other regional planning agencies. Adopted in May 1995, and updated in March 1996, the RCPG is intended to serve as a framework to guide decision-making with respect to the growth and changes that can be anticipated by the year 2015 and beyond. The RCPG provides a general view of various regional plans. At the regional level, the goals, objectives and policies in the RCPG are relevant yardsticks for measuring consistency with

adopted plans. However, the authority and responsibility for land use and other critical planning decisions rest with individual city and county governments. Accordingly, the RCPG proposes a strategy for local governments to use, voluntarily, to address issues related to future growth and to provide a means for assessing the potential impacts of projects within the context of the region.

The Growth Management Chapter (GMC) of the RCPG addresses issues related to growth and land use in the SCAG Region and describes guiding principles for development that support the overall goals of the RCPG.

Regional Transportation Plan (RTP)

DESTINATION 2030 is the 2004 Regional Transportation Plan (RTP) for the six county Region. SCAG's Regional Council adopted the RTP in April 2004. SCAG is required to develop, maintain and update the RTP on a three year cycle. The RTP is focused on improving the balance between land use and transportation systems, and it contains policies to guide future regional decisions. The most current SCAG population, housing, and employment forecasts are the adopted 2004 RTP Regionwide, subregion, and County forecasts for the years 2005, 2010, 2015, 2020, and 2025. Growth projections for the year 2030 are also set forth in the 2004 RTP with the assumption that existing land use policies will be continued throughout this time.

Compass Vision Report

The Compass Vision Report outlines a future for the region that includes the creation of sustainable communities based on mobility, livability, prosperity, and sustainability. The Compass Vision is implemented by SCAG through its "2% Strategy." The 2% Strategy focuses on mixed-use infill and redevelopment in strategic locations that are near existing and proposed transit within the region. The Compass Vision Report contains "Regional Growth Principles" that are proposed to provide a framework for local and regional decision making.

2.3.2 AFFECTED ENVIRONMENT

The Land Uses in the proposed project vicinity are shown in Figure 10 on page 24 of Section 2.2.2. As indicated, the nearest uses include commercial development, car dealerships, residential development south of the proposed project site, and the recently approved Carson Marketplace project east of the proposed project site. In a larger context, the intersection lies at the hub of a regionally important area that includes California State University at Dominguez Hills, the Home Depot Center (a 125 acre, multi sport, athletic training facility, and professional sports venue featuring a 27,000 seat soccer stadium), the South Bay Pavilion shopping center, the Victoria Golf Course and Park and the proposed Carson Marketplace project.

As described above, SCAG has provided the RCPG, the RTP and the Compass Vision Report for identifying potential growth, providing information to service providers regarding growth and establishing policies to manage growth. The 2004 RTP forecasts growth for the South Bay Cities Subregion, and the City of Carson in which the proposed project is located. These forecasts are shown in Table 3 on page 32.² The forecasts for the Subregion have been

² SCAG, 2004 RTP. The 2007 forecast is interpolated from 2005 and 2010 estimates.

adopted to aid in future planning activities. The City projections are advisory and provided for informational use for planning of future services. As indicated, the projected population increases between 2007 and 2030 for the Subregion and the City are 118,331 (13 percent) and 12,886 (13 percent), respectively. The household population increases during that time period are 43,888 (15 percent) and 4,811 (19 percent), respectively. The employment population increases are 79,369 (19 percent) and 12,134 (20 percent) respectively.

2.3.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

Relationship to SCAG Policies and Projections

As the proposed project is included in the Regional Transportation Implementation Plan (RTIP), the implementing mechanism for the RTP, the proposed project is a component of the SCAG programming and planning for the future. Therefore, proposed project implementation is accounted for and consistent with SCAG plans, as well as integrated regional plans, such as air quality plans and the Transportation Conformity Rule.

Further, by supporting development of the Carson Marketplace, the project is supportive of SCAG Policies. It is supportive of the Compass Vision Report 2% Strategy by supporting development of a mixed-use infill and redevelopment project that is located in strategic location next to an adjacent freeway. It is also supportive of the following policies in the SCAG Growth Management Plan:

- 3.05. Encourage patterns of urban development and land use, which reduce costs on infrastructure construction and make better use of existing facilities.
- 3.13. Encourage local jurisdictions' plans that maximize the use of existing urbanized areas accessible to transit through infill and development.
- 3.14. Support local plans to increase density of future development located at strategic points along the regional commuter rail, transit systems, and activity centers.
- 3.15. Support local jurisdictions strategies to establish mixed use clusters and other transit oriented developments around transit stations and along transit corridors.

As the proposed project is supportive of and consistent with SCAG policies, impacts with regard to these policies would be less than significant.

Relationship to City of Carson Policies and Projections

As described above, the proposed project is included as an anticipated improvement in the transportation modeling that was used in preparing the 2004 updates to the Carson General Plan, and was considered in evaluating the traffic impacts of the Carson Marketplace project. Therefore, the proposed project is fully anticipated within existing plans, and would serve growth that is otherwise anticipated for the future. Impacts regarding Carson Policies and Projections would be less than significant.

Table 3

Comparison of Proposed Project and SCAG Forecasts

Forecast	SCAG Forecasts			Increase Percentage
	2007	2030	Increase (2007 - 2030)	
South Bay Cities				
Population	892,589	1,010,920	118,331	13%
Households	304,889	348,777	43,888	15%
Employment	445,419	524,788	79,369	19%
City of Carson				
Population	95,526	109,412	12,886	13%
Households	25,786	30,595	4,811	19%
Employment	63,264	75,398	12,134	20%

Source: Southern California Association of Governments, 2004.

Potential Growth Effects

The Build Alternative would generate no new population growth of its own accord. It is a transportation improvement that is anticipated in existing plans, and is an infrastructure improvement to accommodate anticipated growth in the west side of the City of Carson. It would serve the Carson Marketplace project, whose impacts were fully analyzed pursuant to CEQA and whose project site is currently accessible, albeit in an inefficient manner. The proposed project involves a reconfiguration of existing freeway ramps to an existing freeway, and proposes no alterations to the main-line freeway. As such, it does not create access into new areas that would otherwise not be accessible, nor increase the available capacity for future growth. The proposed project would not have an adverse effect on the ability of public agencies to provide services, and impacts on growth would be less than significant.

NO-BUILD ALTERNATIVE

If the proposed project were not built, there would be no alterations to the existing I-405/Avalon Boulevard interchange. Roadway operations in the proposed project area would remain unchanged, and traffic levels would continue to increase with deterioration of service levels.

The No-Build Alternative would provide a short-term hindrance to growth as the Carson Marketplace project could not be fully operated without the proposed I-405/Avalon Boulevard interchange improvements, however such anticipated and planned growth might still occur over a longer time frame without the benefits of the roadway enhancements. Over a longer time period, forecasted growth would continue to occur, with possibly different land use distributions in the vicinity of the proposed project area. The No-Build Alternative would not instigate new unexpected growth. Impacts would be less than significant.

2.3.4 AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

The proposed project's Build Alternative would not cause increases in regional growth. It would accommodate growth that has been identified and planned for. Therefore, proposed project

impacts on growth would be negligible and no avoidance, minimization or mitigation measures would be required.

2.4 COMMUNITY IMPACTS – COMMUNITY CHARACTER AND COHESION

2.4.1 REGULATORY SETTING

The National Environmental Policy Act of 1969 as amended (NEPA), established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings [42 U.S.C. 4331(b)(2)]. The Federal Highway Administration in its implementation of NEPA [23 U.S.C. 109(h)] directs that final decisions regarding projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as, destruction or disruption of human-made resources, community cohesion and the availability of public facilities and services.

Under the California Environmental Quality Act, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this proposed project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the proposed project's effects.

2.4.2 AFFECTED ENVIRONMENT

The land use relationships in the proposed project vicinity are illustrated in Section 2.2.2 of the Land Use analysis. As indicated, the nearest uses include commercial development, car dealerships, residential development south of the proposed project site, and the recently approved, to be built Carson Marketplace project west of the proposed project site. There are existing residential neighborhoods lying south of the proposed extension of Lenardo Boulevard and south of the 213th Street Bridge which will be widening to accept the new southbound on-ramp from Avalon Boulevard. Numerous regional and local services, which include California State University at Dominguez Hills, the Home Depot Center, the South Bay Pavilion shopping center, the Victoria Golf Course and Park and the proposed Carson Marketplace project.

The public/community facilities in the proposed project vicinity are illustrated in Section 2.6.2 of the Utilities & Emergency Services/Community Services analysis. As indicated, there are no public facilities/services within the proposed project site nor adjacent to the proposed project site.

The proposed project's relationship to growth is discussed in detail in Section 2.3.3. As indicated, the proposed project is a roadway improvement accounted for SCAG 2006 RTIP, and as such is accounted for in regional transportation modeling and provision of regional services. The proposed project is intended to accommodate otherwise anticipated growth, and is not a generator of otherwise unexpected growth.

2.4.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

The proposed build alternative is a roadway project that would enhance traffic operations in the areas surrounding the I-405/Avalon Boulevard interchange. All of the proposed project components would occur within existing infrastructure rights-of-way. None of the proposed project components would require incursion into surrounding neighborhoods, change existing community relationships, nor interfere with operation of existing public facilities. As the proposed project would improve traffic operations along the local road network it would enhance accessibility between residential development south of the I-405 and community services and facilities north of the I-405. Thus the proposed project would not have adverse affects on quality of life in surrounding neighborhoods.

Further, the modeled noise estimates indicate there would be reductions in noise levels in the areas adjacent to the proposed project. (As described in Section 2.16, Noise, the sound levels in the mobile home park next to the Lenardo Drive bridge would vary imperceptibly with reductions in some location; and the 213th bridge improvement would include a sound wall that would noticeably reduce sound levels below current levels.) The sound wall is required to address currently deficient conditions rather than the proposed project impacts, a benefit for residents adjacent to the 213th Street Bridge.

The only notable impacts of the proposed project would be short-term, temporary impacts due to construction, particularly impacts regarding air quality, noise and traffic. These impacts would not affect land use relationships in the area, nor change the general long-term characteristics and cohesiveness of the community.

NO BUILD ALTERNATIVE

The No Build Alternative would cause no changes to the environment and therefore have no direct impacts on the physical environment. Therefore, there would be no change in the character or cohesiveness of the community. Increasing traffic levels that would not be reduced would be adverse effects on the quality of life in the community. To the extent that the No Build alternative could limit development at the Carson Marketplace it could reduce traffic impacts as well as the range of goods and services that are available to nearby residents in the near term future.

2.4.4 AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Implementation of the proposed project would not result in impacts regarding community character and cohesiveness and no avoidance, minimization and/or mitigation measures would be required.

2.5 COMMUNITY IMPACTS – ENVIRONMENTAL JUSTICE

2.5.1 REGULATORY SETTING

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations*

and Low-Income Populations signed by President Clinton on February 11, 1994. This Executive Order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2008, this is \$21,200 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. The Department's commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the Director, which can be found in Appendix C of this document.

The Council on Environmental Quality (CEQ) classifies minorities as those who identified themselves as belonging to one of the following groups: Black/African American; Hispanic or Latino (regardless of race);³ Asian; Native Hawaiian or Other Pacific Islander; and American Indian or Alaska Native. For the purposes of this analysis, minority individuals also include all other non-white racial categories such as "some other race" and "two or more races." CEQ guidance states that a "minority population" may be present in an area if the minority population in the area of interest is "meaningfully greater" than the minority population of the surrounding area.

CEQ classifies low-income populations as those identified with annual salaries that are considered to be below the annual statistical poverty thresholds as reported by the Bureau of the Census. The accepted rationale in determining whether a low-income population is present in a given area is similar to that for minorities, in that a low-income population would be present if the low-income population within the area of interest is "meaningfully greater" than the low-income population of the surrounding area.

2.5.2 AFFECTED ENVIRONMENT

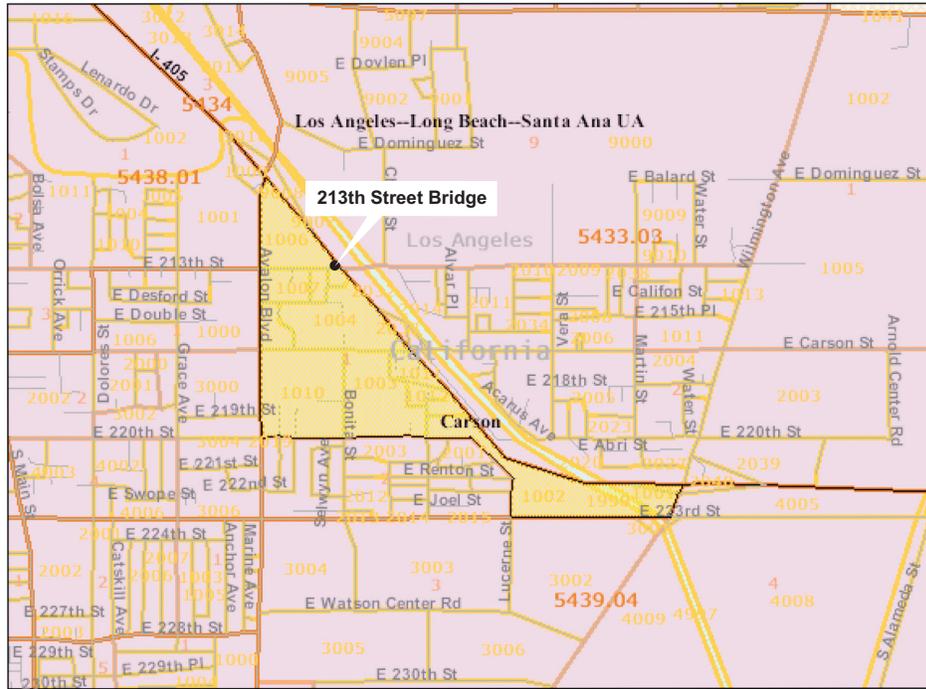
Populations that would be subject to potential adverse impacts from the proposed project are those located immediately adjacent to the proposed project site south of Lenardo Drive, and southwest of the 213th Street Bridge. The affected population south of Lenardo Drive resides in the Census Tract 5438, Block Group, 01. The affected population southwest of the 213th Street Bridge resides in Census Tract 5439, Block Group 01. The location and boundaries of these block groups are shown on Figure 11 on page 36. Race, ethnicity and poverty information for these census areas, as well as the City of Carson are presented in Table 4 on page 37.⁴

As shown in Table 4, the two Block Groups adjacent to the proposed project site have slightly reduced but somewhat similar levels of minority population when compared to the City as a whole (74 percent, 84 percent, and 88 percent, respectively). The two Block Groups have slightly increased but somewhat similar levels of poverty population when compared to the City as a whole (13 percent, nine percent, and eight percent, respectively). The City has a minority

³ The term "Hispanic" is an ethnic marker, suggestive of a common linguistic and cultural history associated largely with Spanish imperialist endeavors in the New World. Unlike the racial categories used in the U.S. Census, such as "Black/African American" and "Asian", the term "Hispanic" does not necessarily entail phenotypic difference. People of all races could conceivably be "Hispanic".

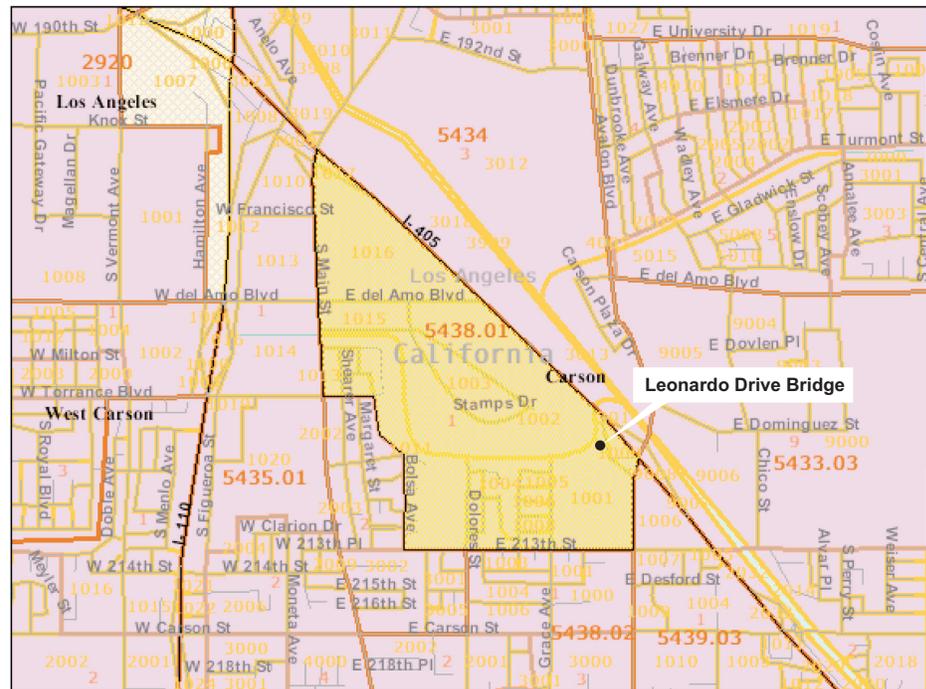
⁴ 2000 Census.

- Boundaries**
- '00 Census Tract
 - '00 Block Group
 - '00 Block
 - '00 Place
 - '00 Urban Area
 - '00 Urban Area
- Features**
- Major Road
 - Street
 - Stream/Waterbody
 - Stream/Waterbody



Adjacent to 213th Street Bridge Widening

Block Group 1, Census Tract 5439.03, Los Angeles County, California



Adjacent to Leonardo Drive Bridge and Extension

Block Group 1, Census Tract 5438.01, Los Angeles County, California



Figure 11
Affected Block Groups

Source: County of Los Angeles, 2007

Table 4

Race, Ethnicity, and Poverty Status within the Immediate Project Vicinity and the City of Carson

	Lenardo Bridge	213th Street	City of Carson
	Block Group 1 Census Tract 5438.01	Block Group 1 Census Tract 5439.03	
RACE			
Non-Hispanic			
White	26% 722	16% 195	12% 10,767
Black or African American	6% 165	6% 78	25% 22,485
American Indian and Alaska Native	0.4% 10	0.0% 0	0.2% 180
Asian	28% 779	35% 437	22% 19,711
Native Hawaiian or Pacific Islander	5.1% 142	3.7% 46	2.9% 2,589
Some Other Race	0.0 1	0.08% 1	0.19% 171
Two or More Races	3% 97	4% 54	3% 2,495
Hispanic or Latino	31% 878	35% 437	35% 31,332
Total Population	2,794	1,248	89,730
Total Minority^a	74% 2,072	84% 1,053	88% 78,963
POVERTY STATUS			
Households Below Poverty Level^b	13% 125	9% 30	8% 2,079

^a Total Minority is all persons in the study area who identified themselves as Black/African American; Hispanic (regardless of race); Asian; Native Hawaiian or Other Pacific Islander; American Indian or Alaska Native; some other race; and two or more races.

^b Households defined with incomes below poverty level as reported in the 2000 Census. It should be noted that although these figures were reported in the 2000 Census, they are actually based on poverty levels for the year 1999.

Source: Bureau of the Census 2000.

population greater than 50 percent, but its poverty level is low: eight percent when compared to 15 percent for Los Angeles County as a whole.⁵

2.5.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

The proposed Build Alternative is a roadway project that would enhance traffic operations in the areas surrounding the I-405/Avalon Boulevard interchange. Surrounding populations would benefit from the implementation of the proposed project. Further, the modeled noise estimates indicate there would be reductions in noise levels in the areas adjacent to the proposed project.

⁵ Los Angeles County poverty level is 15 percent, per 2000 Census.

As described in Section 2.16, Noise, the Lenardo Drive Bridge would block some of the existing noise that reaches the nearby residential uses, and the 213th Street Bridge would include a sound wall that would noticeably reduce sound levels below current levels. The sound wall is required to address currently deficient conditions rather than the proposed project impacts, and residents adjacent to the 213th Street Bridge would benefit from noticeable reduction in noise levels. The proposed project's long term operations impacts would be negligible. There would be no significant impacts that could be borne differentially across populations.

The only notable impacts of the proposed project would be short-term, temporary impacts due to construction, particularly impacts regarding air quality, noise and traffic. The locally affected populations have similar characteristics as the general population of the City.

Based on the above discussion and analysis, the proposed Build Alternative would not cause disproportionately high and adverse effects on any minority or low-income populations as per E.O. 12898 regarding environmental justice.

NO BUILD ALTERNATIVE

The No Build Alternative would cause no changes to the environment and therefore have no direct impacts on the physical environment. Therefore, there would be no changes that could be disproportionately borne by one population as opposed to another. At the same time, the predominantly minority city would be denied the opportunity to improve traffic conditions and noise levels in the City.

2.5.4 AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Implementation of the proposed project would not result in impacts regarding environmental justice and no avoidance, minimization and/or mitigation measures would be required.

2.6 UTILITIES AND EMERGENCY/COMMUNITY SERVICES

2.6.1 REGULATORY SETTING

California Code of Regulations Streets and Highways Code Sections 700-711 discusses utility relocation policies and procedures. Public Resources Code 21083, 21087 and the California Environmental Quality Act Guidelines Section 15126.2 (a) require lead agencies to assess the impact of a proposed project by examining alterations in the human use of the land, including public services. Public Utilities Commission General Order 131-D provides guidance for transportation projects that involve relocation of 50kV or higher transmission lines.

2.6.2 AFFECTED ENVIRONMENT

Information regarding utilities and emergency/community services were obtained from DMJM/HARRIS/AECOM (DMJM) as part of a Background Submittal in September, 2006, the City of Carson website, and from the Carson Marketplace Draft Environmental Impact Report from November 2005.

Community Facilities and Services

Community facilities and services located within the study area are shown in Figure 12 on page 40, Community Services and Facilities. Community facilities and services include public and private utilities, schools, fire stations, police stations, religious institutions, medical institutions, and parks and recreational facilities.

Public and Private Utilities

There are several public and private utilities located within the proposed project area. The utilities within the proposed project area are owned by: Air Products & Chemicals, Inc., Arco Pipeline Company, BP West Coast Products LLC, California Water Service/Dominguez District WTR, Pacific Pipeline System Inc., SBC/Pacific Bell, Southern California Gas Company, Shell Oil Pipeline-North, Media One-Carson, Time Warner, Southern California Edison Distribution, and Verizon. The types of utility facilities include: power poles, telephone poles, natural gas pipelines, fuel oil pipelines, water pipelines, sewers, manholes, aerial and underground transmission lines, and fire hydrants.

Utilities within and adjacent to the existing ramps are limited to freeway serving facilities such as ramp metering and roadway lighting. Several local, neighborhood serving utilities are located under and along Avalon Boulevard. There are no 50kV or higher transmission lines that would be affected by the proposed project.

Schools

The City of Carson is served by the Los Angeles Unified School District. Within the City, there are approximately thirteen elementary schools, three middle schools, two high schools, one privately owned and operated, one adult education facility, and one California State University. Four schools are located within one mile of the proposed project site including Carson Elementary, Bonita Elementary, Carnegie Middle, and St. Philomena School.

Fire Protection Services

The Los Angeles County Fire Department provides fire protection services to over 3.9 million residents throughout the unincorporated areas of the County and 57 District cities. The proposed project site is located within Division 1 of the Central Region in the Battalion 7 service area. There are six primary fire stations within City boundaries. In addition to these fire stations, there is a Fire Prevention Office located at Carson City Hall. Two paramedic units are located within the city and provide service to the City. Auxiliary paramedic definitive care is provided by units located nearby in Lomita, Lawndale, Hawthorne, Lakewood, Paramount, and Rolling Hills. The nearest response unit to the proposed project site is Fire Station No. 36, located at 127 West 223rd Street, approximately 1.25 miles southwest of the proposed project site. Other response units in the proposed project area include Station No. 10 at 1860 East Del Amo Boulevard and Station No. 116 at 755 Victoria Street. The latter two stations are located approximately 2.4 miles from the proposed project site.

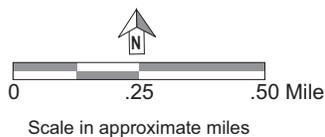
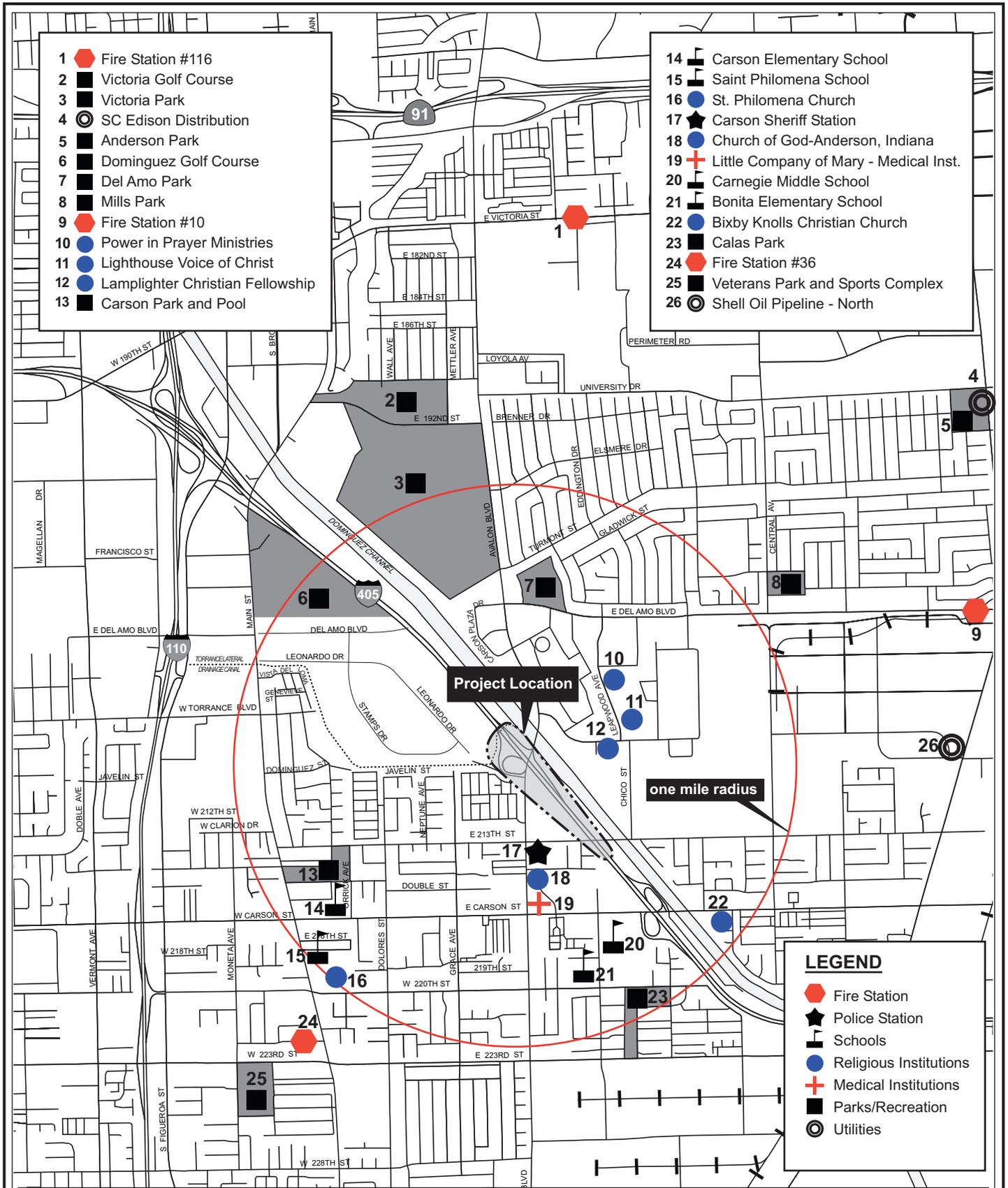


Figure 12
Community Facilities and Services

Source: Thomas Guide 2004 and PCR Services Corporation

Police Protection Services

The Carson Sheriff Station located at 21356 South Avalon Boulevard provides police protection services for the City (including the proposed project site), West Compton, Gardena, Torrance, and Rancho Dominguez. Within a 24-hour time period, approximately 30 deputies are on duty over three work shifts throughout the City. The number of patrol cars available for routine patrol is considered adequate by the Sheriff's Department. Auxiliary support units are readily deployable through the Sheriff's Department response resources. The Carson Sheriff Station is a local County emergency operations center. The nature of calls for service are assessed and dispatched from the Carson Station directly.

Religious Institutions

Within one mile of the proposed project site, there are five religious institutions: Lamplight Christian Fellowship located at 940 E. Dominguez Street, Power in Prayer Ministries located at 20720 Leapwood Avenue, Lighthouse Voice of Christ located at 20850 Leapwood Avenue, Church of God Anderson-Indiana located at 21521 Avalon Boulevard, and St. Philomena Church located at 21832 Main Street. The City of Long Beach has one religious institution located within one mile of the proposed project site: the Bixby Knolls Christian Church located at 1240 East Carson Street.

Medical Institutions

There are eight medical institutions that service the proposed project area. Of these medical institutions, are three hospitals located in Torrance including: Harbor UCLA Medical Center, the Little Company of Mary, and Torrance Memorial. Two hospitals are located in Long Beach including: Long Beach Memorial, and the Veterans' Affairs Medical Center. Two other hospitals include Gardena Memorial in the City of Gardena and Kaiser Permanente located in Harbor City. Within Carson, the Little Company of Mary has a family medicine medical institution located at 21501 South Avalon Boulevard located approximately 0.45 miles southeast of the proposed project site.

Parks and Recreational Facilities

There are sixteen public parks, one county park, two public golf courses, and one community center totaling 354 acres within the City of Carson. There are two parks and one golf course located within a one-mile radius of the proposed project site: Carson Park and Pool located at 21411 Orrick Avenue, Del Amo Park located at 703 East Del Amo Boulevard, and the Dominguez Golf Course located at 19800 Main Street. Other parks and recreational facilities within proximity to the proposed project area include: Anderson Park, Calas Park, Carson Community Center, Hemingway Park, Mills Park, Scott Park, Veterans Park and Sports Complex, and the Victoria Golf Course and Park.

2.6.3 ENVIRONMENTAL CONSEQUENCES

Impacts to public utilities/ services are based on factors such as: noise, air quality, safety, distance, circulation, accessibility, and the disruption of operation during both the construction and operation of the proposed project. Potential operational impacts to community facilities can

occur when the following types of project effects are present: property acquisitions affecting community facilities, restricted access to community facilities and services, or impaired use of the facilities.

BUILD ALTERNATIVE

Project Operations

The Build Alternative is a roadway improvement project. It is intended to improve traffic conditions on the local roadway network, with improved operating conditions at intersections in the vicinity of the proposed project's ramp improvements. In so-doing, the proposed project would support emergency access as well as general access. Therefore, the proposed project would serve and allow improved access to public facilities in the vicinity of the proposed project site. The proposed project would not require the acquisition of any properties. As there are no public service facilities within the proposed project site, nor adjacent to the proposed project site, the Build Alternative would not impair any public facilities, nor interfere with access to any public facilities. (Potential impacts on parks and recreation facilities are discussed further in Section 2.2.3 of the Land Use analysis. As indicated therein, the proposed project would have no impacts on parks, and no impacts that would require a Section 4(f) analysis. See Appendix B, below.)

Further, the proposed project would not interfere with the long term operations of any public utilities. The proposed project design would incorporate any needed utility provisions, e.g. lighting, drainage etc. pursuant to Caltrans specifications and guidelines. (See further discussion regarding drainage in Section 2.10, below.) Improvements along Avalon Boulevard do not require vertical realignment of the roadway, and thus would not affect underground utilities. The proposed project operations would not adversely affect the provision of utilities in the vicinity of the proposed project. There are no 50kV or higher transmission lines that would be affected by the proposed project.

Construction

Construction of the proposed project would have short term adverse affects on accessibility through the closure of project ramps and construction within Avalon Boulevard. Impacts would be somewhat attenuated by the proposed project's staging program that staggers certain improvements, e.g. it provides for the new southbound on-ramp prior to closing the existing southbound on ramp, it phases improvements to reduce impacts, etc. Further, construction impacts would be reduced through the provision of a Traffic Management Plan (TMP) as discussed in the Traffic Section, Sections 2.7.3 and 2.7.4, below. Impedance to traffic could interfere with access to public services in the vicinity of the proposed project and emergency service. Local populations and emergency vehicles on the local roadway network would be affected only during the construction work on Avalon Boulevard which is limited. None of the public services in the proposed project vicinity are located adjacent to the proposed project site in a manner that would subject them to the proposed project's construction air quality and noise impacts.

Construction impacts on utilities would be limited. As noted above, the vertical alignment of Avalon Boulevard would not be altered and therefore there would be no impact on underground utilities. Proposed project design and construction are occurring through coordination with the

utility providers listed above. All of the utility providers identified above have been consulted with regard to potentially affected utilities. In order to minimize construction impacts, project design and implementation are being coordinated with applicable utilities: Early coordination with owners/operators is facilitating the determination of appropriate actions for each potentially impacted utility. As discussed in the following section, Caltrans maintains protocols for avoiding and minimizing potential impacts on utility services. As such, potential impacts to utilities would be minimized and no significant impacts to utilities are anticipated as a result of operation of the proposed project.

NO BUILD ALTERNATIVE

If the proposed project were not built, there would be no alterations to the existing intersection and no changes to the physical environment. There would be no impacts on utilities and emergency/community services.

2.6.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

In accordance with Caltrans design guidelines, utility infrastructures that are impacted by proposed project construction would be relocated before construction, during construction, protected in place, or abandoned. The utilities that must be relocated as part of proposed project construction would be relocated in such a manner as to minimize any disruption of service those utilities provide, pursuant to Section 8.1-10, Utility and Non Highway Facilities of the Standard Specifications issued by Caltrans. Therefore, proposed project impacts to utility service systems during construction and operation would be reduced to a less than significant level.

Impacts to fire, police, and emergency service response times would be minimized by implementation of a Traffic Management Plan (TMP) that would contain detailed plans of access routes and detours during construction. The TMP should be reviewed and approved by the Los Angeles County Fire Department and any potentially affected fire or law enforcement agency. Caltrans would maintain contacts with the community, police and fire protection services through public outreach during the construction phase.

2.7 TRAFFIC & TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

This traffic and transportation/pedestrian and bicycle facilities analysis is based on the Revised Draft Traffic Technical Report prepared by Fehr & Peers/Kaku Associates, dated December 2007.

2.7.1 REGULATORY SETTING

The Department, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

The Department is committed to carrying out the 1990 Americans with Disabilities Act (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

2.7.2 AFFECTED ENVIRONMENT

Figure 13 on page 45 illustrates the location of the proposed project, the intersections, freeway segments, and ramps analyzed in the Traffic Study. The assessment of existing traffic conditions was assessed using a collection of traffic volume data and analyzing the levels of service at the study intersections, ramp-weaving sections, and freeway mainline segments.

EXISTING TRAFFIC VOLUMES

The existing traffic volume data (i.e. the number of vehicles passing through the analyzed intersections, and project ramps) was determined to provide a basis for performing the traffic analysis. These volumes were determined for the morning (A.M.) and evening (P.M.) peak hours. The peak hours represent the hour in which the greatest number of trips occur, with the hour varying depending upon the location. Existing A.M. and P.M. peak hour traffic volumes for analyzed intersections in the study area were factored up at a rate of 0.5 percent per year for one year to represent 2006 conditions.⁶ Figure 14 on page 46 illustrates existing (2006) A.M. and P.M. peak hour traffic volumes at the analyzed intersections.

Existing freeway traffic volume data was obtained from Caltrans. Figure 15 on page 47 illustrates the freeway traffic volume data for the I-405 freeway analyzed segment and ramp locations.⁷

EXISTING LEVEL OF SERVICE ANALYSIS

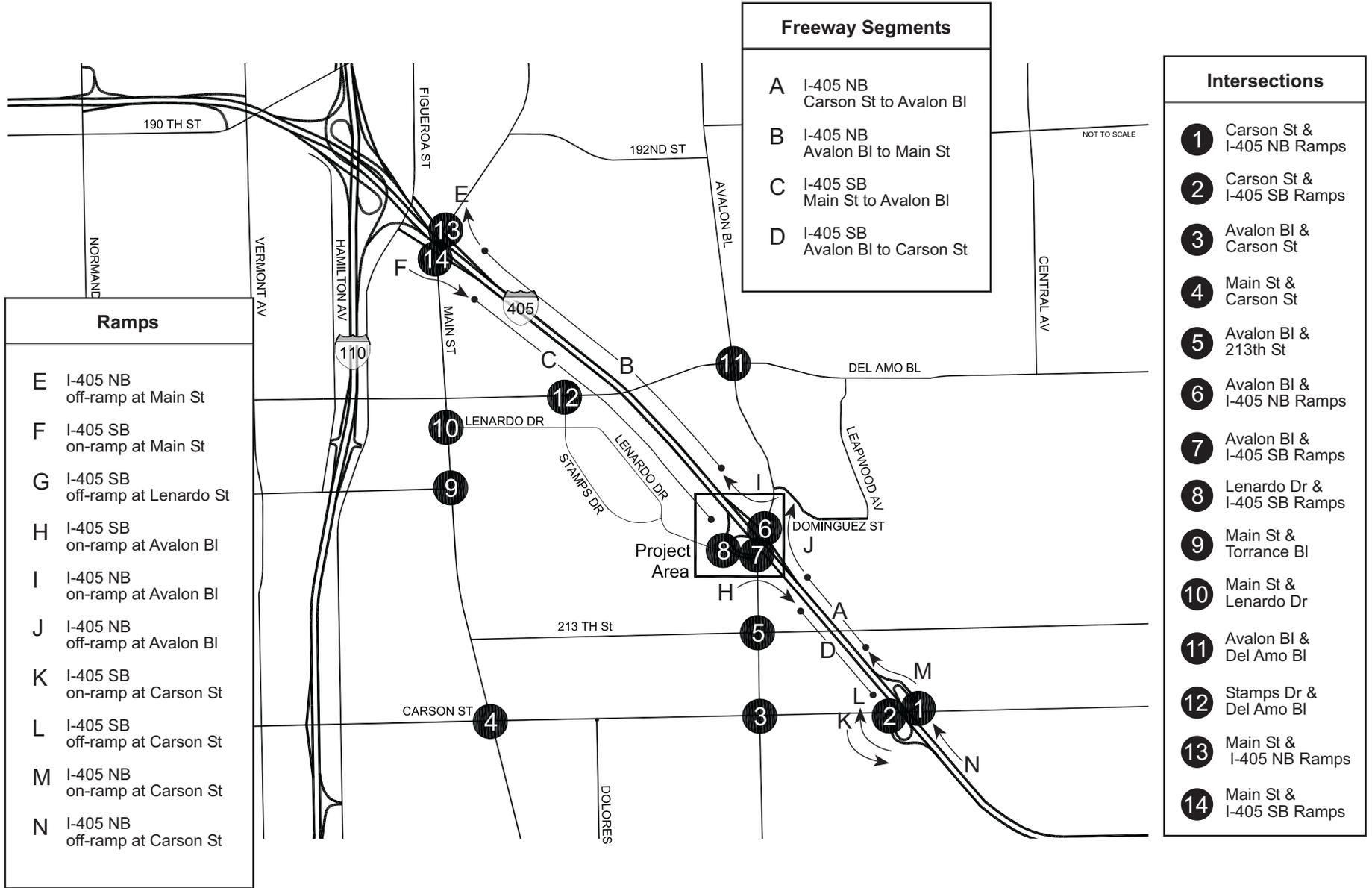
Level of Service (LOS) analysis was conducted for the analyzed intersections, freeway mainline segments, freeway-ramp merge/diverge areas, and ramp weaving areas using the existing traffic volumes data obtained from Caltrans.

Existing Intersection Levels of Service

In accordance with policies established by Caltrans, the "Operational Analysis" method from the Highway Capacity Manual 2000 (HCM) was used to perform the intersection level of service analysis. LOS categories range from excellent, nearly free-flow conditions at LOS A to overloaded, stop-and-go conditions at LOS F. The LOS definitions for signalized intersections are shown in Table 5 on page 48. The study intersections are currently operating at a LOS of D or better during both the A.M. and P.M. peak hours. Table 6 on page 49, presents the results of the existing intersection levels of service calculations.

⁶ Traffic Technical Report for the I-405/Avalon Interchange Improvement Project, Fehr & Peers/Kaku Associates, December 2007.

⁷ This existing freeway traffic volume data was obtained from the California Department of Transportation (Caltrans).



No scale

Source: Kaku Associates, 2007

Figure 13
Traffic Analysis Study Area
and Facilities

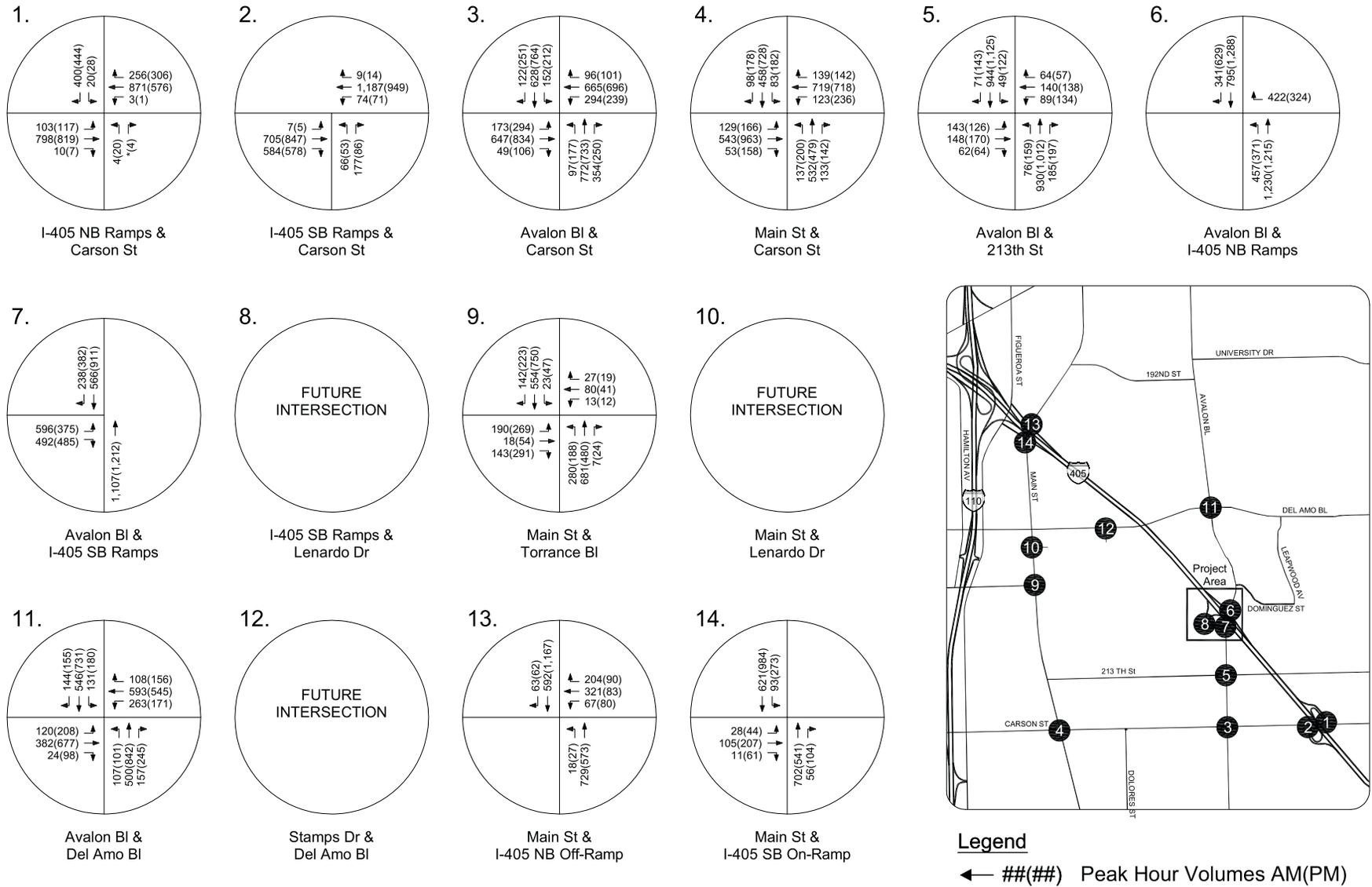


Figure 14
 Existing (Year 2006) Traffic Volumes at
 Study Intersections



No scale

Source: Kaku Associates, 2007

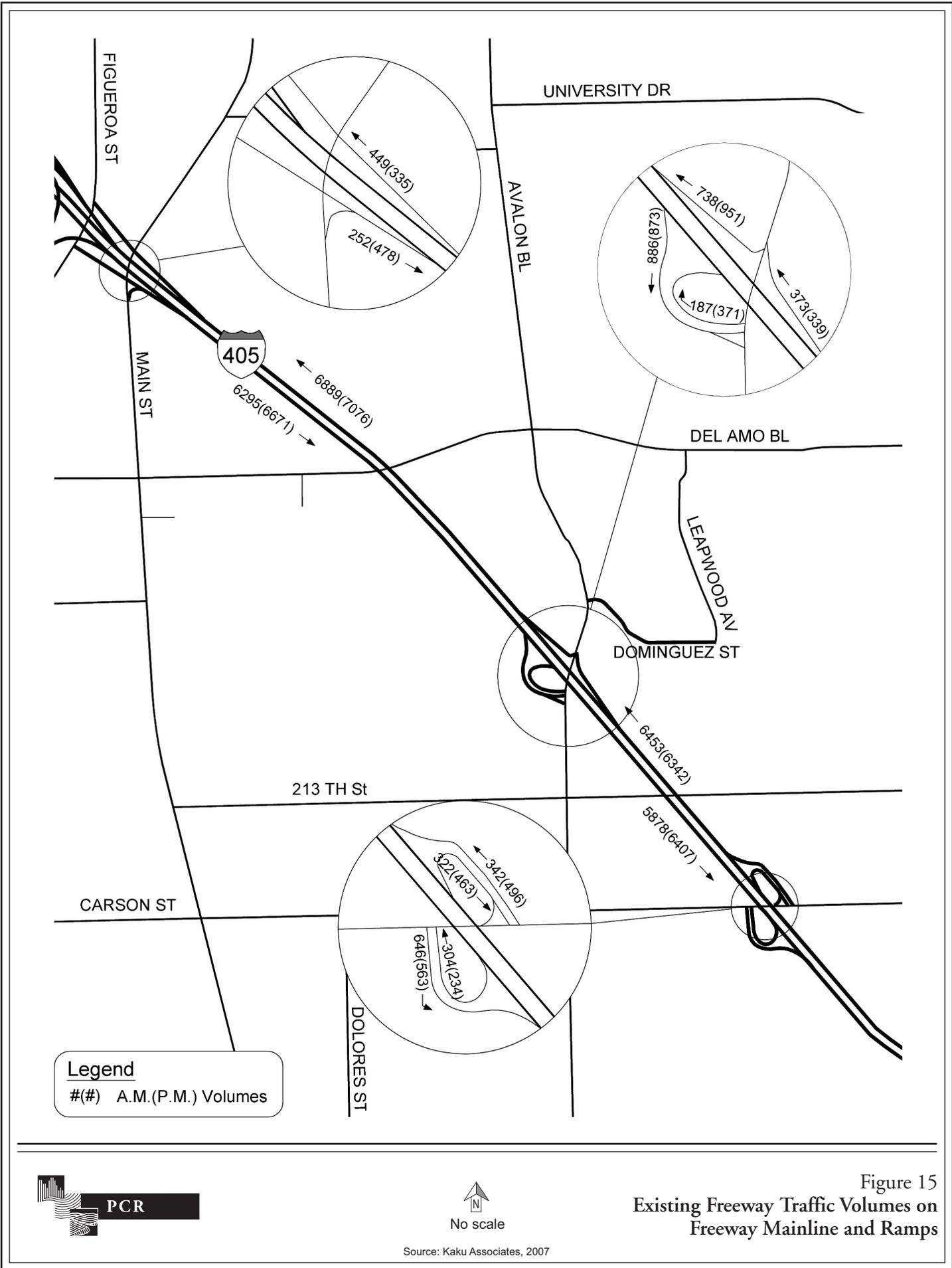


Figure 15
Existing Freeway Traffic Volumes on
Freeway Mainline and Ramps



No scale

Source: Kaku Associates, 2007

Table 5

Level of Service Definitions for Signalized Intersections

Level of Service	Average Total Delay (seconds/vehicle)	Definition
A	≤ 10.0	This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
B	> 10.0 and ≤ 20.0	This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
C	> 20.0 and ≤ 35.0	These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	> 35.0 and ≤ 55.0	At this LOS, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55.0 and ≤ 80.0	These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.
F	> 80.0	This level, considered unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

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

Existing Freeway Mainline Segments Level of Service

The LOS definitions used for evaluating service levels on the freeway main line segments is shown in Table 7 on page 50. The LOS is measured in terms of density, or passenger cars per mile per lane (pc/mi/ln). Existing freeway mainline segments level of service are shown in Table 8 on page 51. As shown, the northbound segment from Avalon Boulevard to Main Street currently operates at LOS E during the A.M. peak hour and the southbound segments from Main Street to Avalon Boulevard and from Avalon Boulevard to Carson Street operate at LOS E during the P.M. peak hour.

Actual measured loop data provided by Caltrans from the PeMS monitoring system indicate that in the northbound direction during the A.M. peak period and in the southbound direction during the P.M. peak period, actual speeds drop and densities increase substantially even though the observed traffic volumes are lower than in the hour preceding the peak period. This indicates that these segments are currently operating under oversaturated conditions or are nearing saturated conditions. The HCM basic freeway segment methodology does not simulate this condition. Therefore, in order to replicate this condition to the extent possible, the peak hour factor input to

Table 6

Existing (Year 2006) Intersection Levels of Service

	Intersection	Peak Hour	Existing	
			Delay ^a	LOS ^b
1	Carson Street & I-405 NB Ramps	A.M.	5.4	A
		P.M.	4.8	A
2	Carson Street & I-405 SB Ramps	A.M.	6.3	A
		P.M.	6.7	A
3	Avalon Boulevard & Carson Street	A.M.	30.4	C
		P.M.	42.4	D
4	Main Street & Carson Street	A.M.	25.4	C
		P.M.	42.5	D
5	Avalon Boulevard & 213 th Street	A.M.	14.7	B
		P.M.	17.9	B
6	Avalon Boulevard & I-405 NB Ramps	A.M.	7.0	A
		P.M.	7.9	A
7	Avalon Boulevard & I-405 SB Ramps	A.M.	8.9	A
		P.M.	6.3	A
8	Lenardo Drive & I-405 SB Ramps	A.M.	Future Intersection ^c	
		P.M.		
9	Main Street & Torrance Boulevard I	A.M.	22.8	C
		P.M.	26.6	C
10	Main Street & Lenardo Drive	A.M.	Future Intersection ^d	
		P.M.		
11	Avalon Boulevard & Del Amo BI	A.M.	25.1	C
		P.M.	30.6	C
12	Stamps Drive & Del Amo Boulevard	A.M.	Future Intersection ^d	
		P.M.		
13	Main Street & I-405 NB Ramps	A.M.	13.4	B
		P.M.	11.8	B
14	Main Street & I-405 SB Ramps	A.M.	9.5	A
		P.M.	15.5	B

^a Average delay in seconds per vehicle.

^b Delay and level of service (LOS) calculated using 2000 Highway Capacity Manual level-of-service methodology.

^c Intersection does not exist; to be constructed as part of I-405/Avalon interchange improvement project.

^d Intersection does not exist; to be constructed as part of Carson Marketplace project.

Source: Traffic Technical Report for the I-405/ Avalon Boulevard Interchange Improvement Project Report and Initial Study/Environmental Assessment, Fehr & Peers/Kaku Associates, December 2007.

the methodology was adjusted to force a higher density and worse level of service for a given traffic volume for the A.M. peak hour northbound and the P.M. peak hour southbound. This adjustment is reflected in the data presented in Table 8 on page 51.

Table 7
Level of Service Definitions for Freeway Mainline and Ramp Analyses

LOS Criteria for Freeway Segments^a	
LOS	Density Range (pc/mi/ln)*
A	0-11
B	>11-18
C	>18-26
D	>26-35
E	>35-45
F	>45

LOS Criteria for Merge and Diverge Areas^b	
LOS	Density Range (pc/mi/ln)
A	≤ 10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand exceeds capacity

LOS Criteria for Weaving Segments^c	
LOS	Density Range (pc/mi/ln)
A	≤ 10.0
B	>10.0-20.0
C	>20.0-28.0
D	>28.0-35.0
E	>35.0-43.0
F	> 43.0

a Highway Capacity Manual 2000, Exhibit 23-3.

b Highway Capacity Manual 2000, Exhibit 25-4.

c Highway Capacity Manual 2000, Exhibit 24-2.

* *Passenger cars per mile per lane.*

Source: Traffic Technical Report for the I-405/ Avalon Boulevard Interchange Improvement Project Report and Initial Study/Environmental Assessment, Fehr & Peers/Kaku Associates, December 2007.

Existing Freeway Ramp Weaving Levels of Service

The HCM LOS methodology for weaving segments determines LOS by comparing the computed density with the criteria in Table 7. A single LOS is used to characterize total flow in the weaving segment, although it is recognized that in some situations non-weaving vehicles may achieve higher-quality operations than weaving vehicles. Table 8 presents the results of existing freeway ramp weaving analysis. As can be seen in the table, both of the analyzed weaving segments I-405 northbound Carson Street to Avalon Boulevard and I-405 southbound Avalon Boulevard to Carson Street are currently operating at LOS F.

Existing Freeway-Ramp Junction Areas of Influence Levels of Service

Table 8 also presents the results of existing freeway-ramp junction areas of influence LOS analysis. As shown, except for the two locations of Avalon Boulevard northbound on-ramp and

Table 8

Existing (Year 2006) Freeway Mainline and Ramp Analyses

Basic Freeway Segment^a				
Segment	A.M.		P.M.	
	Density^d	LOS	Density^d	LOS
Northbound - Carson Street to Avalon Boulevard	32.6	D	28.3	D
Northbound - Avalon Boulevard to Main Street	38.8	E	32.9	D
Southbound - Main Street to Avalon Boulevard	28.0	D	41.7	E
Southbound - Avalon Boulevard to Carson Street	25.9	C	38.2	E

Ramp-Freeway Junction Areas of Influence^b				
Ramps	A.M.		P.M.	
	Density^d	LOS	Density^d	LOS
Carson Street northbound off-ramp	32.3	D	32.7	D
Carson Street northbound on-ramp	23.8	C	23.4	C
Avalon Boulevard northbound off-ramp	32.7	D	32.4	D
Avalon Boulevard northbound on-ramp	n/a	F ^e	n/a	F ^e
Main Street northbound off-ramp	28.7	D	28.7	D
Main Street southbound on-ramp	18.1	B	19.3	B
Avalon Boulevard southbound off-ramp	35.1	E	36.8	E
Avalon Boulevard southbound on-ramp	22.2	C	23.7	C
Carson Street southbound off-ramp	28.1	D	31.6	D
Carson Street southbound on-ramp	22.2	C	23.5	C

Freeway Weaving Segment^c				
Segment	A.M.		P.M.	
	Density^d	LOS	Density^d	LOS
Northbound - Carson Street to Avalon Boulevard	80.7	F	83.1	F
Southbound - Avalon Boulevard to Carson Street	65.9	F	75.6	F

^a Basic freeway segment LOS criteria per Highway Capacity Manual, 2000, Exhibit 23-2.

^b Ramp-freeway junction LOS criteria per Highway Capacity Manual, 2000, Exhibit 25-4.

^c Freeway weaving segment LOS criteria per Highway Capacity Manual, 2000, Exhibit 24-2.

^d Basic freeway segments, ramp junctions, and weaving areas level of service are measured with density (pc/mi/ln).

^e LOS F exists when the total flow departing from the merge area exceeds the capacity of the downstream freeway segments. No density will be predicted for such cases - Exhibit 25-4, Highway Capacity Manual 2000.

Source: Traffic Technical Report for the I-405/ Avalon Boulevard Interchange Improvement Project Report and Initial Study/Environmental Assessment, Fehr & Peers/Kaku Associates, December 2007.

Avalon Boulevard southbound off-ramp, all other analyzed freeway-ramp junction areas along the I-405 Freeway are currently operating at LOS D or better.

EXISTING ACCIDENT CONDITIONS

As indicated in Table 9 on page 52, the accident rates recorded on the I-405 mainline segments north and south of the Avalon Boulevard interchange are lower than the statewide average rates for similar facilities. A lower accident rate than the statewide average rates was found for the following other two ramp facilities analyzed at the Avalon Boulevard interchange:

Table 9

Accident Rates – 07/01/2002 Through 06/30/2005

Location	Actual Rate per MVM ^a			Statewide Average Rates per MVM ^a		
	Fatal ^b	F + 1 ^c	Total	Fatal ^b	F + 1 ^c	Total
LA 405 – P.M. 11.224/12.596 (North)	0.000	0.19	0.75	0.004	0.32	1.07
LA 405 – P.M. 10.541/11.224 (South)	0.000	0.14	0.69	0.006	0.34	1.10
LA 405 NB off to NB Avalon BI – P.M. 11.120	0.000	0.00	0.21	0.006	0.33	0.90
LA 405 SB on from SB Avalon BI – P.M. 11.276	0.228	0.23	0.91	0.003	0.32	0.85
LA 405 NB on from Avalon BI – P.M. 11.390	0.000	0.26	0.96	0.002	0.32	0.80
LA 405 SB off to Avalon BI - P.M. 11.409	0.000	0.06	0.49	0.005	0.61	1.50

^a MVM- Million Vehicle Miles

^b Fatality

^c Fatality + Injury

Source: Caltrans District 7 TASAS Table B.

- I-405 northbound off-ramp to northbound Avalon Boulevard: A total of one accident was recorded for this location with no fatalities or injuries. The accident involved a sideswipe with the cause recorded as “other violations.”
- I-405 southbound off-ramp to Avalon Boulevard: A total of eight accidents were recorded for this location with no fatalities and one injury. The accidents recorded include two each of rear end, broadside, and “hit object” collisions, and included a sideswipe and a head-on collision. Four of the eight accidents recorded were recorded as caused by “other violation” and one each due to influence of alcohol, failure to yield, and speeding, with one accident’s cause is unknown.

Higher than average accident rates were recorded for the following two locations:

- I-405 southbound on-ramp from southbound Avalon Boulevard (fatality rate and total rate): A total of four accidents were recorded for this location during the three-year period, with one fatality and one injury. These accidents included one each of a sideswipe, a rear end, a broadside and a “hit object” accident. Two of the four accidents were caused by speeding and one by an improper turn.
- I-405 northbound on-ramp from Avalon Boulevard (total rate): A total of 15 accidents were recorded for this location during the three-year period, with no fatalities and six injuries. Two-thirds or 10 of the 15 accidents were broadsides, while the rest were rear end, “hit object,” and sideswipe. Eight of the 15 accidents were caused by “other violations,” while three were due to speeding, two were due to improper turn, one resulted from a failure to yield and one is unknown.

2.7.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

Construction

The proposed project would be constructed in four phases. The proposed project design would require a number of modifications to the existing roadway system including some periods where existing ramps would be closed to the public. A level of service analysis was performed for the proposed project intersections, subject to the construction impact during each of the four construction phases. The results of this analysis are presented in Table 10 below.

As indicated, during the various construction stages, intersection operating conditions are not expected to be substantially affected at most of the study intersections. A substantial degradation in operating conditions is projected for the intersection of Avalon Boulevard and Carson Street during those portions of construction Stage Two when the I-405 southbound ramps at Avalon Boulevard may be temporarily closed and those portions of construction Stage Three when the I-405 northbound ramps at Avalon Boulevard may be temporarily closed, resulting in traffic shifts to the I-405/Carson Street interchange via Avalon Boulevard and Carson Street. Impact minimization measures are included below that would reduce construction impacts to less than significant.

Accident Analysis

The new ramps and ramp modifications are designed to meet or exceed applicable Caltrans Highway Design Manual standards. Therefore, there is no reason to expect an increase in accident rates due to the proposed modifications.

Operations

Opening Year (2010) - Build Alternative

This subsection presents the projected future intersection, freeway mainline segment, freeway/ramp junction and freeway ramp weaving operating conditions for the proposed project for the opening year (2010) of proposed project operations. Future traffic projections underlying both the No Build and Build Alternatives includes background ambient growth (rates based on SCAG regional model data) and specific related development projects in the proposed project vicinity, as described further in Section 2.23, Cumulative impacts, below. The year 2010 traffic volumes for the study area intersections and ramps are shown on Figure 16 on page 56 and Figure 17 on page 57, respectively.

Intersection Level of Service Analysis

The results of the 2010 intersection analysis are shown in Table 11 on page 58. Table 11 shows the expected traffic conditions for both the Build and No Build Alternatives and the differences between the two alternatives. As indicated, no significant project impacts are projected for any of the analyzed intersections at year 2010. Only one intersection (Main

Table 10

Construction Period Intersection Level of Service Analysis

Intersection	Peak Hour	Cumulative Base		Stage One		Stage Two		Stage Three		Stage Four	
		Delay ^a	LOS ^b								
1 Carson Street & I-405 NB Ramps	A.M.	5.5	A	5.5	A	5.5	A	14.0	B	5.5	A
	P.M.	6.6	A	6.6	A	4.8	A	23.3	C	6.6	A
2 Carson Street & I-405 SB Ramps	A.M.	8.5	A	8.5	A	14.9	B	7.5	A	7.1	A
	P.M.	9.1	A	9.1	A	55.3	E	15.2	B	7.1	A
3 Avalon Boulevard & Carson Street	A.M.	32.9	C	32.9	C	57.5	E	91.3	F	31.3	C
	P.M.	76.7	E	76.7	E	134.7	F	190.7	F	72.0	E
4 Main Street & Carson Street	A.M.	28.8	C	28.8	C	29.7	C	29.7	C	29.7	C
	P.M.	89.7	F	89.7	F	75.6	E	75.6	E	75.6	E
5 Avalon Boulevard & 213 th Street	A.M.	15.9	B	15.9	B	16.1	B	16.4	B	15.9	B
	P.M.	19.6	B	19.6	B	25.4	C	29.7	C	19.6	B
6 Avalon Boulevard & I-405 NB Ramps	A.M.	7.3	A	7.3	A	7.3	A	Ramps Closed for Construction		12.4	B
	P.M.	8.1	A	8.1	A	7.9	A		28.7	C	
7 Avalon Boulevard I & Lenardo Dr/I-405 SB On-Ramp	A.M.	12.4	B	12.4	B	16.9	B	15.7	B	20.7	C
	P.M.	7.8	A	7.8	A	21.8	B	29.6	C	28.2	C
8 Lenardo Drive & I-405 SB Ramps	A.M.	Future Intersection ^c		Future Intersection ^c		Ramps Closed for Construction		6.1	A	6.1	A
	P.M.	Future Intersection ^c		Future Intersection ^c		Ramps Closed for Construction		11.2	B	11.2	B
9 Main Street & Torrance Boulevard I	A.M.	24.4	C	24.4	C	25.1	C	25.1	C	25.1	C
	P.M.	28.3	C	28.3	C	28.2	C	28.2	C	28.2	C
10 Main Street & Lenardo Drive	A.M.	Future Intersection ^d									
	P.M.	Future Intersection ^d									

Table 10 (Continued)

Construction Period Intersection Level of Service Analysis

Intersection	Peak Hour	Cumulative Base		Stage One		Stage Two		Stage Three		Stage Four	
		Delay ^a	LOS ^b								
11 Avalon Boulevard & Del Amo Boulevard	A.M.	26.4	C	26.4	C	38.7	D	38.7	D	38.7	D
	P.M.	35.9	D								
12 Stamps Drive & Del Amo Boulevard	A.M.	Future Intersection ^d									
	P.M.	Future Intersection ^d									
13 Main Street & I-405 NB Ramps	A.M.	14.1	B	14.1	B	13.8	B	24.1	C	13.8	B
	P.M.	11.6	B	11.6	B	10.6	B	20.8	C	10.6	B
14 Main Street & I-405 SB Ramps	A.M.	9.7	A	9.7	A	9.4	A	9.4	A	9.4	A
	P.M.	16.5	B	16.5	B	15.8	B	15.8	B	15.8	B

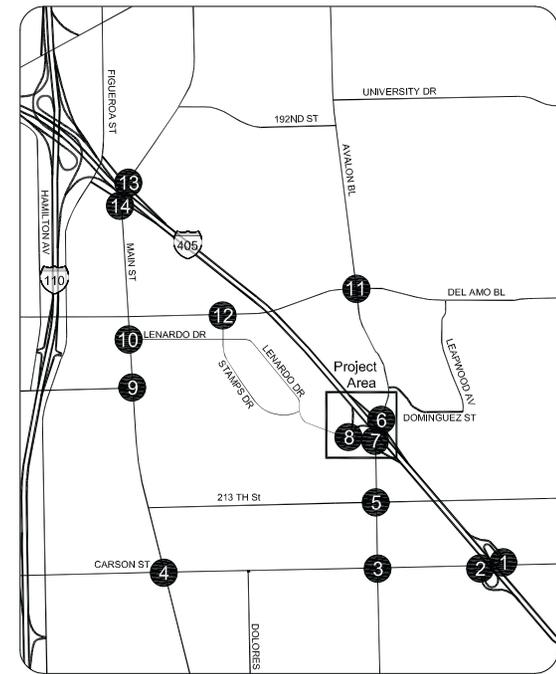
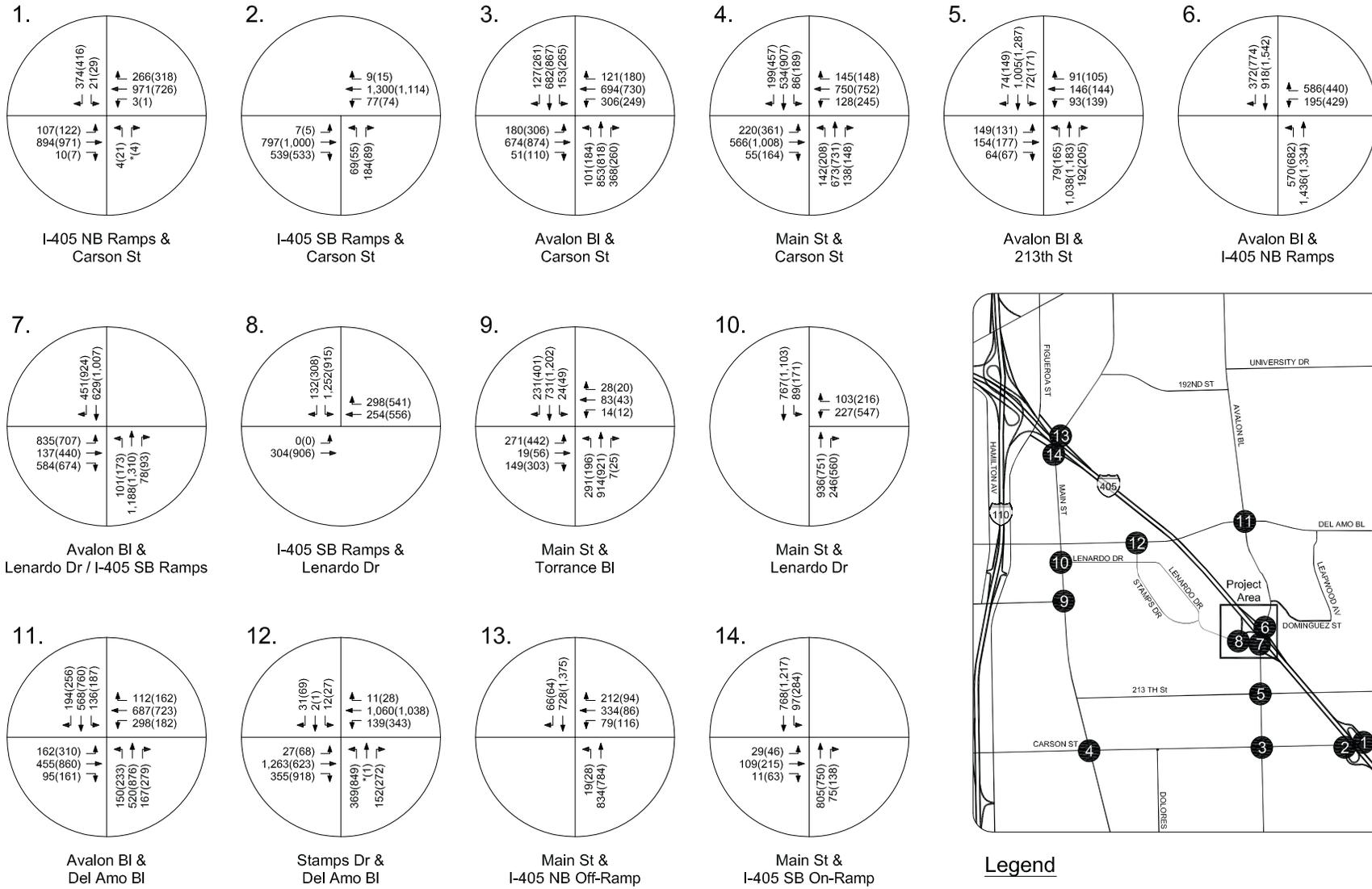
^a Average delay in seconds per vehicle.

^b Delay and LOS calculated using 2000 Highway Capacity Manual LOS methodology.

^c Intersection does not exist; to be constructed as part of I-405/Avalon interchange improvement project.

^d Intersection does not exist; to be constructed as part of Carson Marketplace project.

Source: Traffic Technical Report for the I-405/Avalon Boulevard Interchange Improvement Project Report and Initial Study/Environmental Assessment, Fehr & Peers/Kaku Associates, December 2007.



Legend
 ← ##(##) Peak Hour Volumes A.M.(P.M.)
 ← *(*) Nominal Volumes



Source: Fehr & Peers - Kaku Associates, 2007

Figure 16
 Opening Year (2010) - Traffic Projections at
 Study Intersections - Build Alternative

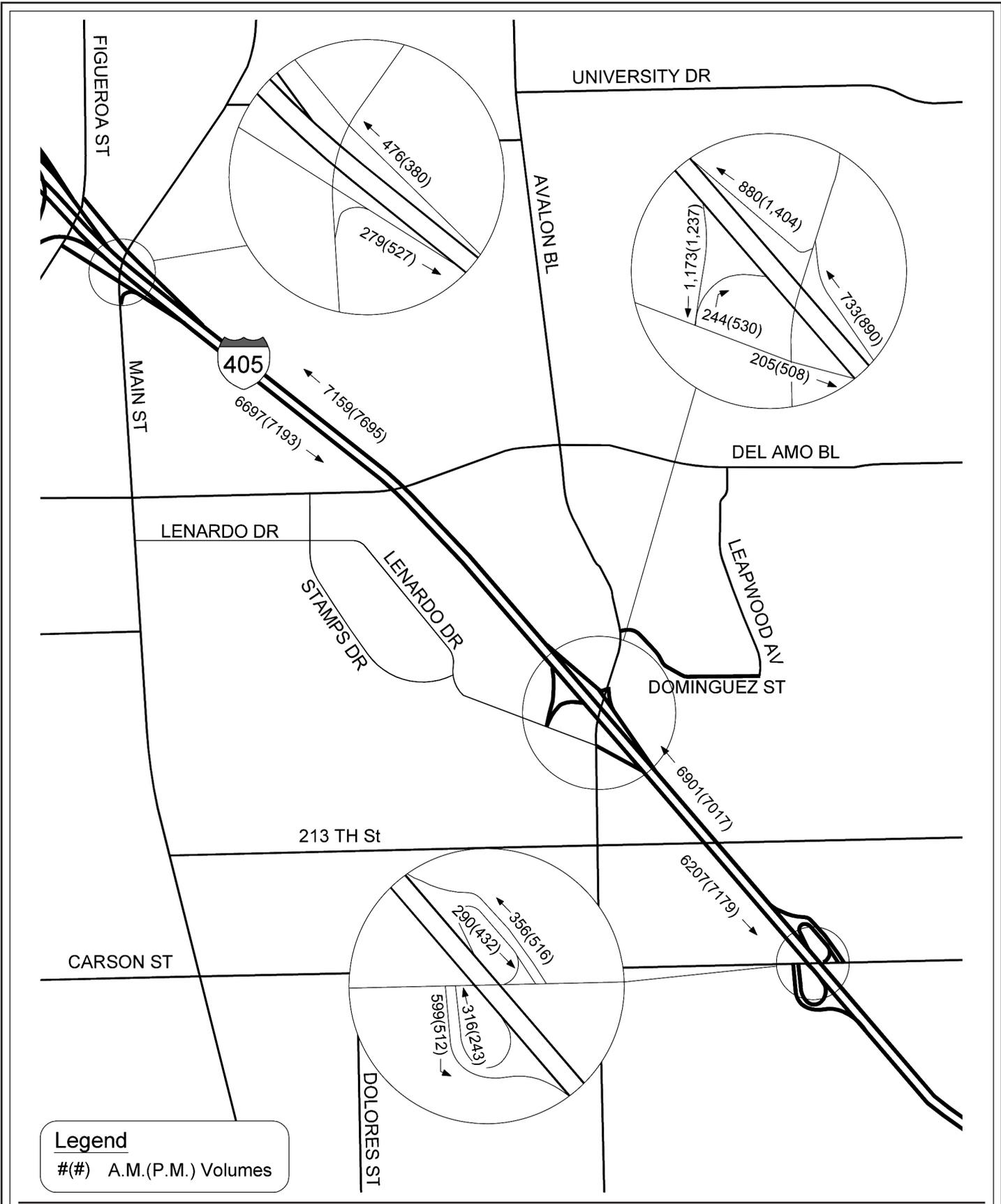


Figure 17
 Opening Year (2010) - Build Alternative
 Traffic Projections on
 Freeway Mainline and Ramps



Source: Fehr & Peers - Kaku Associates, 2007

Table 11

Opening Year (2010) Intersection Level of Service Analysis

	Intersection	Peak Hour	No Build Alternative		Build Alternative		Change in Delay	Significant Impact?
			Delay ^a	LOS ^b	Delay ^a	LOS ^b		
1	Carson Street & I-405 NB Ramps	A.M.	5.5	A	5.7	A	0.2	No
		P.M.	4.9	A	5.1	A	0.2	No
2	Carson Street & I-405 SB Ramps	A.M.	6.7	A	6.4	A	-0.3	No
		P.M.	11.2	B	6.5	A	-4.7	No
3	Avalon Boulevard & Carson Street	A.M.	33.3	C	27.0	C	-6.3	No
		P.M.	58.1	E	45.8	D	-12.3	No
4	Main Street & Carson Street	A.M.	37.9	D	36.6	D	-1.3	No
		P.M.	142.9	F	65.6	E	-77.3	No
5	Avalon Boulevard & 213 th Street	A.M.	15.6	B	17.1	B	1.5	No
		P.M.	22.1	C	27.1	C	5.0	No
6	Avalon Boulevard & I-405 NB Ramps	A.M.	6.4	A	11.7	B	5.3	No
		P.M.	13.7	B	19.5	B	5.8	No
7	Avalon Boulevard & Lenardo Drive/I-405 SB On-Ramp	A.M.	11.2	B	17.7	B	6.5	No
		P.M.	9.8	A	22.2	C	12.4	No
8	Lenardo Drive & I-405 SB Ramps	A.M.	Future Intersection ^c		11.6	B	Not Applicable	
		P.M.			13.1	B		
9	Main Street & Torrance Boulevard	A.M.	68.7	E	42.9	D	-25.8	No
		P.M.	101.5	F	53.5	D	-48.0	No
10	Main Street & Lenardo Drive	A.M.	10.3	B	7.5	A	-2.8	No
		P.M.	48.7	D	14.8	B	-33.9	No
11	Avalon Boulevard & Del Amo Boulevard	A.M.	37.3	D	28.0	C	-9.3	No
		P.M.	82.7	F	53.9	D	-28.8	No
12	Stamps Drive & Del Amo Boulevard	A.M.	22.6	C	21.6	C	-1.0	No
		P.M.	63.1	E	32.4	C	-30.7	No
13	Main Street & I-405 NB Ramps	A.M.	15.0	B	15.0	B	0.0	No
		P.M.	12.7	B	12.7	B	0.0	No
14	Main Street & I-405 SB Ramps	A.M.	9.6	A	9.6	A	0.0	No
		P.M.	16.2	B	16.2	B	0.0	No

^a Average delay in seconds per vehicle.

^b Delay and LOS calculated using 2000 Highway Capacity Manual LOS methodology.

^c Intersection does not exist; to be constructed as part of I-405/Avalon interchange improvement project.

^d Intersection analyzed using the modified Build Alternative lane configuration recommended in Chapter VII.

Source: Traffic Technical Report for the I-405/ Avalon Boulevard Interchange Improvement Project Report and Initial Study/Environmental Assessment, Fehr & Peers/Kaku Associates, December 2007.

Street/Carson Street) is projected to operate at LOS E or worse for the Build Alternative. On the contrary, the proposed improvements at the I-405/Avalon Interchange are projected to improve conditions with a reduction in vehicular delay at the following seven intersections:

- Carson Street & I-405 southbound ramps

- Avalon Boulevard & Carson Street
- Main Street & Carson Street
- Main Street & Torrance Boulevard
- Main Street & Lenardo Drive
- Avalon Boulevard & Del Amo Boulevard
- Stamps Drive & Del Amo Boulevard

In addition, five of these locations, operating under poor (LOS E or F) conditions under the No Build Scenario, would be either fully or partially alleviated by the proposed project. These intersections include:

- Avalon Boulevard & Carson Street
- Main Street & Carson Street
- Main Street & Torrance Boulevard
- Avalon Boulevard & Del Amo Boulevard
- Stamps Drive & Del Amo Boulevard

The new I-405 southbound ramps/Lenardo Drive intersection as part of the I-405 improvement project at the Avalon Boulevard interchange is projected to operate at LOS B in the A.M. and the P.M. peak hours for the opening year (2010). Please refer to Figure 16 for the morning and evening peak hour traffic projections for the opening year (2010) Build Alternative.

The improvements in seconds of delay at the intersections listed above can be attributed to the shift in traffic from other neighboring ramp locations along the I-405 northbound and southbound to the I-405/Avalon Boulevard Interchange as a result of improved access to/from northbound and southbound I-405 Freeway to/from northbound and southbound Avalon Boulevard and providing additional access to the Carson Marketplace development via extension of Lenardo Drive up to Avalon Boulevard.

Freeway Mainline Segment Analysis

Table 12 on page 60 presents density results and corresponding LOS results for the freeway mainline LOS analysis for the opening year (2010). Except for a minor reduction in density for the I-405 northbound segment between Avalon Boulevard and Main Street in the A.M. peak hour, all other analyzed segments are projected to operate with a nominal increase in density in the Build Alternative scenario. The analyzed freeway segments are projected to experience an increase in density with the project at the opening year (2010). This can be attributed to the increase in level of traffic on the mainline and ramps at the I-405 interchange at Avalon Boulevard. As indicated in Table 12, the following segments are projected to operate at LOS E or F under the Build Alternative for the opening year (2010):

- I-405 northbound between Carson Street and Avalon Boulevard (A.M. peak hour)
- I-405 northbound between Avalon Boulevard and Main Street (A.M. and P.M. peak hours)
- I-405 southbound between Main Street and Avalon Boulevard (P.M. peak hour)
- I-405 southbound between Avalon Boulevard and Carson Street (P.M. peak hour)

Table 12

Opening Year (2010) Freeway Mainline and Ramp Level of Service Analysis

Basic Freeway Segment ^a										
Segment	Open Year (2010) No Build Alternative				Open Year (2010) Build Alternative				A.M.	P.M.
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour			
	Density ^d	LOS	Density ^d	LOS	Density ^d	LOS	Density ^d	LOS		
Northbound - Carson Street to Avalon Boulevard	36.0	E	30.8	D	36.9	E	32.5	D	0.9	1.7
Northbound - Avalon Boulevard to Main Street	42.6	E	38.1	E	42.3	E	38.2	E	-0.3	0.1
Southbound - Main Street to Avalon Boulevard	30.3	D	n/a	F ^e	30.4	D	n/a	F	0.1	n/a
Southbound - Avalon Boulevard to Carson Street	27.1	D	n/a	F ^e	27.5	D	n/a	F	0.4	n/a
Ramp-Freeway Junction Areas of Influence ^b										
Ramp	Open Year (2010) No Build Alternative				Open Year (2010) Build Alternative				A.M.	P.M.
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour			
	Density ^d	LOS	Density ^d	LOS	Density ^d	LOS	Density ^d	LOS		
Carson Street northbound off-ramp	34.6	D	36.2	E	34.3	D	35.7	E	-0.3	-0.5
Carson Street northbound on-ramp	24.8	C	24.5	C	25.1	C	n/a	F ^e	0.3	n/a
Avalon Boulevard northbound off-ramp	35.7	E	35.5	E	37.0	E	n/a	F ^e	1.3	n/a
Avalon Boulevard northbound on-ramp	n/a	F ^e	n/a	F ^e	n/a	F ^e	n/a	F ^e	n/a	n/a
Main Street northbound off-ramp	29.9	D	31.2	D	29.9	D	31.3	D	0.0	0.1
Main Street southbound on-ramp	19.0	B	20.5	C	19.0	B	20.5	C	0.0	0.0
Avalon Boulevard southbound off-ramp	n/a	F ^e	n/a	F ^e	n/a	F ^e	n/a	F ^e	n/a	n/a
Southbound Avalon Boulevard southbound on-ramp	22.9	C	n/a	F ^e	23.2	C	n/a	F ^e	0.3	n/a
Northbound Avalon Boulevard southbound on-ramp	ramp to be constructed as part of project				23.8	C	n/a	F ^e	n/a	n/a
Carson Street southbound off-ramp	30.9	D	34.1	D	31.1	D	35.3	E	0.2	1.2
Carson Street southbound on-ramp	22.8	C	n/a	F ^e	23.0	C	n/a	F ^e	0.2	n/a

Table 12 (Continued)

Opening Year (2010) Freeway Mainline and Ramp Level of Service Analysis

	Freeway Weaving Segment ^c									
	Opening Year (2010) No Build Alternative					Opening Year (2010) Build Alternative				
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M.	P.M.
	Density ^d	LOS	Density ^d	LOS	Density ^d	LOS	Density ^d	LOS	Change in Density	
Northbound - Carson Street to Avalon Boulevard	89.2	F	93.4	F	92.8	F	102.3	F	3.6	8.8
Southbound - Avalon Boulevard to Carson Street	71.4	F	90.9	F	76.1	F	103.1	F	4.7	12.2

^a Basic freeway segment LOS criteria per Highway Capacity Manual, 2000, Exhibit 23-2.

^b Ramp-freeway junction LOS criteria per Highway Capacity Manual, 2000, Exhibit 25-4.

^c Freeway weaving segment LOS criteria per Highway Capacity Manual, 2000, Exhibit 24-2.

^d Basic freeway segments, ramp junctions, and weaving areas level of service are measured with density (pc/mi/ln).

^e LOS F exists when the total flow departing from the merge area exceeds the capacity of the downstream freeway segments. No density will be predicted for such cases - Exhibit 25-4, Highway Capacity Manual 2000. A similar situation occurs with regard to freeway segments.

Source: Traffic Technical Report for the I-405/ Avalon Boulevard Interchange Improvement Project Report and Initial Study/ Environmental Assessment, Fehr & Peers/Kaku Associates, December 2007.

Freeway-Ramp Junction Areas of Influence Analysis

With the project, the following ramp locations are projected to operate at LOS E or F at the opening year (2010):

- Carson Street northbound off-ramp (LOS E in the P.M. peak hour)
- Carson Street northbound on-ramp (LOS F in the P.M. peak hour)
- Avalon Boulevard northbound off-ramp (LOS E in the A.M. and LOS F in the P.M. peak hour)
- Avalon Boulevard northbound on-ramp (LOS F in both the A.M. and P.M. peak hours)
- Avalon Boulevard southbound off-ramp (LOS F in both the A.M. and the P.M. peak hours)
- Southbound on-ramp from southbound Avalon Boulevard (LOS F in the P.M. peak hour)
- Southbound on-ramp from northbound Avalon Boulevard (new ramp constructed as part of project) (LOS F in the P.M. peak hour)
- Carson Street southbound off-ramp (LOS E in the P.M. peak hour)
- Carson Street southbound on-ramp (LOS F in the P.M. peak hour)

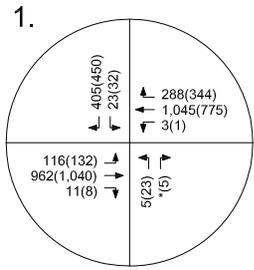
Whereas, the aforementioned would operate at LOS E or F, the freeway-ramp junction area at Carson Street northbound off-ramp is projected to experience a minor reduction in density for the Build Alternative scenario. The junction area would experience a decrease in density as a result of shift in traffic with the implementation of improvements as part of the Build Alternative. A minor increase in density at the other analyzed locations can be attributed to the increase in level of traffic as a result of improvements to the I-405 Freeway interchange at Avalon Boulevard.

Freeway Weaving Segment Analysis

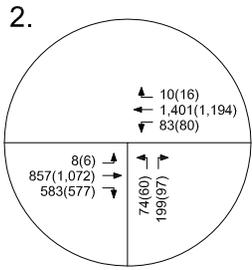
Table 12 also presents the result of density calculations and corresponding LOS for the analyzed freeway weaving segments for the Build alternative at the opening year (2010). As shown, both of the analyzed segments along the I-405 Freeway (northbound between Carson Street to Avalon Boulevard and southbound between Avalon Boulevard and Carson Street) are projected to operate at LOS F during both the A.M. and P.M. peak hours at the opening year (2010). Both of the analyzed freeway segments are projected to experience an increase in density with the proposed project at the opening year (2010). This can be attributed to the increase in level of traffic on the mainline and ramps at the I-405 interchange at Avalon Boulevard.

Design Year (2030) - Build Alternative

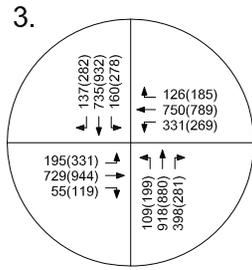
This subsection presents the projected future intersection, freeway mainline segment, freeway/ramp junction and freeway ramp weaving operating conditions for the I-405/Avalon Boulevard project design year (2030) Build Alternative. Figures 18 and 19 on pages 63 and 64 present the traffic projections for the design year (2030) Build Alternative at study intersections and on the freeway mainline and ramps.



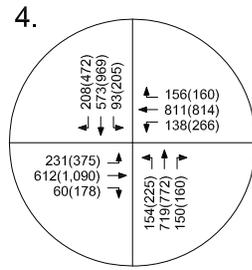
I-405 NB Ramps & Carson St



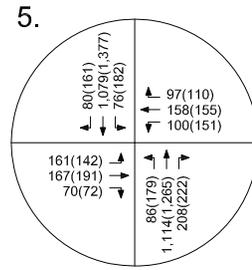
I-405 SB Ramps & Carson St



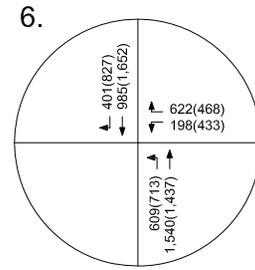
Avalon Bl & Carson St



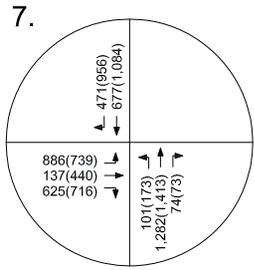
Main St & Carson St



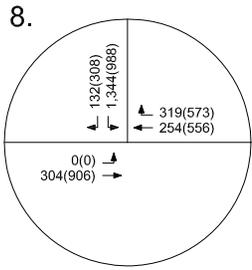
Avalon Bl & 213th St



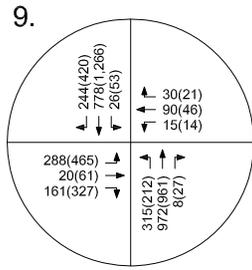
Avalon Bl & I-405 NB Ramps



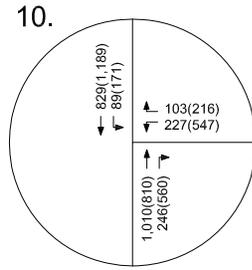
Avalon Bl & Lenardo Dr / I-405 SB Ramps



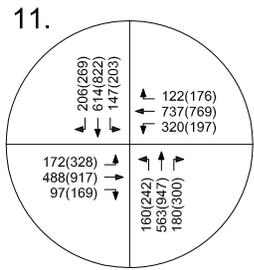
I-405 SB Ramps & Lenardo Dr



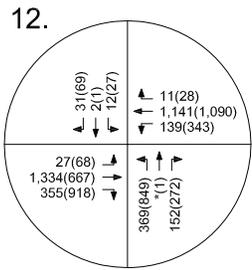
Main St & Torrance Bl



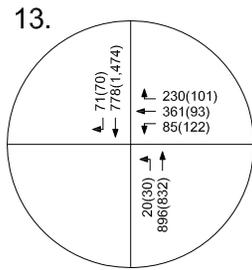
Main St & Lenardo Dr



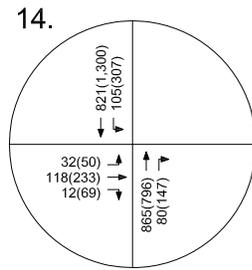
Avalon Bl & Del Amo Bl



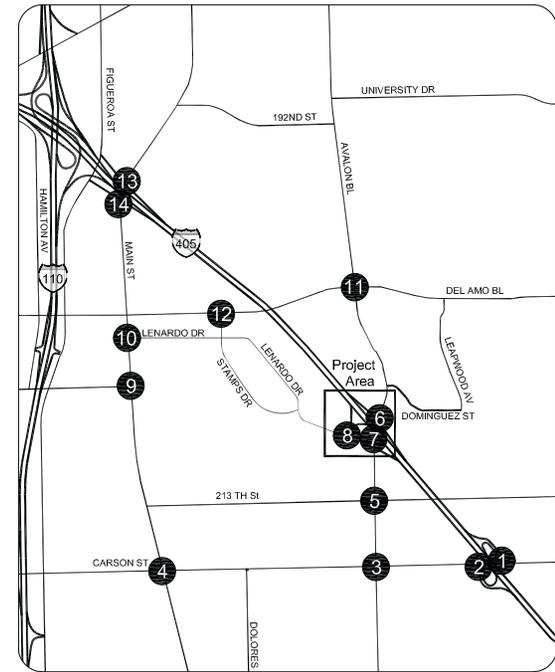
Stamps Dr & Del Amo Bl



Main St & I-405 NB Off-Ramp



Main St & I-405 SB On-Ramp



Legend

- ← ##(##) Peak Hour Volumes A.M.(P.M.)
- ← *(*) Nominal Volumes



No scale

Source: Fehr & Peers - Kaku Associates, 2007

Figure 18
Design Year (2030) - Build Alternative
Traffic Projections at Study Intersections

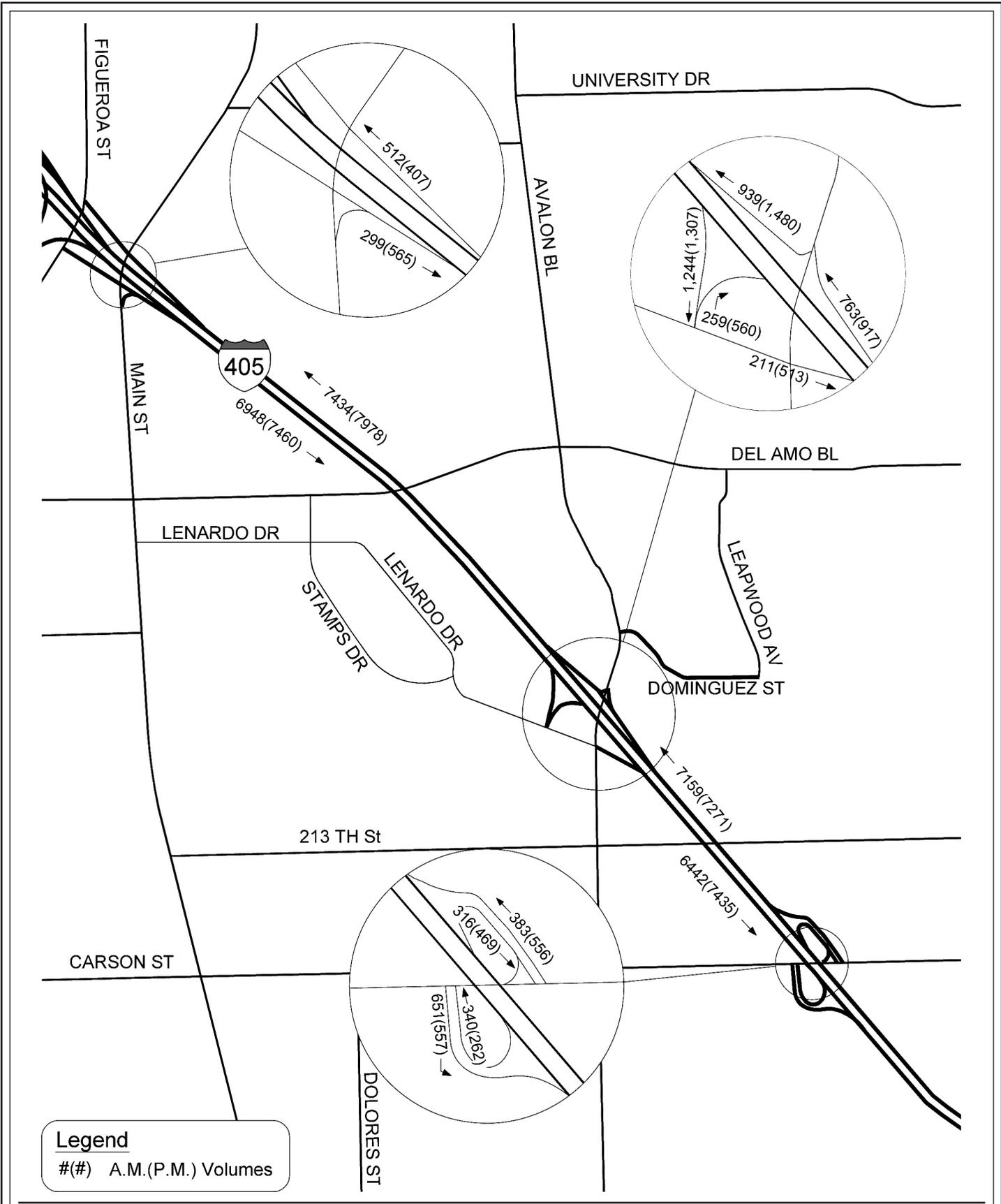


Figure 19
Design Year (2030) - Build Alternative
Traffic Projections on
Freeway Mainline and Ramps



No scale

Source: Kaku Associates, 2007

Intersection Level of Service Analysis

Build Alternative delay and level of service calculations for 2030 are presented in Table 13 on page 66. As shown, three intersections are projected to operate at LOS E or F under the Build Alternative for the design year (2030), as follows:

- Main Street & Carson Street (LOS F in the P.M. peak hour)
- Main Street & Torrance Boulevard (LOS E in the A.M. and P.M. peak hours)
- Avalon Boulevard & Del Amo Boulevard (LOS E in the P.M. peak hour)

The new I-405 southbound ramps/Lenardo Drive intersection as part of the I-405 improvement project at the Avalon Boulevard interchange is projected to operate at LOS B in the A.M. and the P.M. peak hours at the design year (2030).

The proposed improvements at the I-405/Avalon Interchange are projected to improve conditions with a reduction in vehicular delay at the following seven intersections:

- Carson Street & I-405 southbound ramps
- Avalon Boulevard & Carson Street
- Main Street & Carson Street
- Main Street & Torrance Boulevard
- Main Street & Lenardo Drive
- Avalon Boulevard & Del Amo Boulevard
- Stamps Drive & Del Amo Boulevard

In addition, five of these locations, operating under poor (LOS E or F) conditions under the No Build Scenario, would be either fully or partially alleviated by the proposed project. These intersections include:

- Avalon Boulevard & Carson Street
- Main Street & Carson Street
- Main Street & Torrance Boulevard
- Avalon Boulevard & Del Amo Boulevard
- Stamps Drive & Del Amo Boulevard

As discussed, the improvements in seconds of delay at the intersections listed above can be attributed to the shift in traffic from other neighboring ramp locations along the I-405 northbound and southbound to the I-405/Avalon Boulevard Interchange as a result of improved access to/from northbound and southbound I-405 Freeway to/from northbound and southbound Avalon Boulevard and providing additional access to the Carson Marketplace development via extension of Lenardo Drive to Avalon Boulevard.

Freeway Mainline Segments Analysis

Mainline service levels for 2030 with the Build and No Build Alternatives are shown in Table 14 on page 67. All of the analyzed freeway segments would operate with a nominal increase in

Table 13

Design Year (2030) Intersection Level of Service Analysis

	Intersection	Peak Hour	No Build Alternative		Build Alternative		Change in Delay	Significant Impact?
			Delay ^a	LOS ^b	Delay ^a	LOS ^b		
1	Carson Street & I-405 NB Ramps	A.M.	5.6	A	6.3	A	0.7	No
		P.M.	5.0	A	5.4	A	0.4	No
2	Carson Street & I-405 SB Ramps	A.M.	9.8	A	6.4	A	-3.4	No
		P.M.	16.7	B	6.9	A	-9.8	No
3	Avalon Boulevard & Carson Street	A.M.	49.4	D	29.5	C	-19.9	No
		P.M.	66.0	E	47.3	D	-18.7	No
4	Main Street & Carson Street	A.M.	44.2	D	40.2	D	-4.0	No
		P.M.	162.0	F	82.9	F	-79.1	No
5	Avalon Boulevard & 213 th Street	A.M.	17.4	B	17.5	B	0.1	No
		P.M.	25.7	C	33.4	C	7.7	No
6	Avalon Boulevard & I-405 NB Ramps	A.M.	7.0	A	12.2	B	5.2	No
		P.M.	19.7	B	21.8	C	2.1	No
7	Avalon Boulevard & I-405 SB Ramps	A.M.	13.5	B	18.8	B	5.3	No
		P.M.	10.9	B	19.4	C	8.5	No
8	Lenardo Drive & I-405 SB Ramps	A.M.	Future Intersection ^c		11.5	B	Not Applicable	
		P.M.			13.5	B		
9	Main Street & Torrance Boulevard	A.M.	85.2	E	56.7	E	-28.5	No
		P.M.	114.2	F	64.7	E	-49.5	No
10	Main Street & Lenardo Drive	A.M.	10.4	B	7.6	A	-2.8	No
		P.M.	53.8	D	16.8	B	-37.0	No
11	Avalon Boulevard & Del Amo Boulevard	A.M.	42.1	D	32.6	C	-9.5	No
		P.M.	98.4	F	71.8	E	-26.6	No
12	Stamps Drive & Del Amo Boulevard	A.M.	24.9	C	21.7	C	-3.2	No
		P.M.	77.4	E	34.1	C	-43.3	No
13	Main Street & I-405 NB Ramps	A.M.	15.7	B	15.7	B	0.0	No
		P.M.	13.6	B	13.6	B	0.0	No
14	Main Street & I-405 SB Ramps	A.M.	9.9	A	9.9	A	0.0	No
		P.M.	17.9	B	17.9	B	0.0	No

^a Average delay in seconds per vehicle.

^b Delay and level of service (LOS) calculated using 2000 Highway Capacity Manual level-of-service methodology.

^c Intersection does not exist; to be constructed as part of I-405/Avalon interchange improvement project.

Source: Traffic Technical Report for the I-405/Avalon Boulevard Interchange Improvement Project Report and Initial Study/ Environmental Assessment, Fehr & Peers/Kaku Associates, December 2007.

Table 14

Design Year (2030) Freeway Mainline and Ramp Level of Service Analysis

Segment	Basic Freeway Segment ^a								AM Change in Density	PM Change in Density
	Design Year (2030) No Build Alternative				Design Year (2030) Build Alternative					
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour			
	Density ^d	LOS	Density ^d	LOS	Density ^d	LOS	Density ^d	LOS		
Northbound - Carson St to Avalon BI	n/a	F	32.5	D	40.1	E	34.4	D	n/a	1.9
Northbound - Avalon BI to Main St	n/a	F	41.1	E	n/a	F	41.4	E	n/a	0.3
Southbound - Main St to Avalon BI	31.9	D	n/a	F	32.0	D	n/a	F	0.1	n/a
Southbound - Avalon BI to Carson St	28.4	D	n/a	F	28.8	D	n/a	F	0.4	n/a

Ramp	Ramp-Freeway Junction Areas of Influence ^b								AM Change in Density	PM Change in Density
	Design Year (2030) No Build Alternative				Design Year (2030) Build Alternative					
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour			
	Density ^d	LOS	Density ^d	LOS	Density ^d	LOS	Density ^d	LOS		
Carson St northbound off-ramp	36.0	E	n/a	F ^e	35.5	E	37.0	E	-0.5	n/a
Carson St northbound on-ramp	25.5	C	n/a	F ^e	n/a	F ^e	n/a	F ^e	n/a	n/a
Avalon BI northbound off-ramp	37.1	E	36.9	E	n/a	F ^e	n/a	F ^e	n/a	n/a
Avalon BI northbound on-ramp	n/a	F ^e	n/a	F ^e	n/a	F ^e	n/a	F ^e	n/a	n/a
Main St northbound off-ramp	31.2	D	32.5	D	31.0	D	32.4	D	-0.2	-0.1
Main St southbound on-ramp	19.5	B	21.1	C	19.6	B	21.2	C	0.1	0.1
Avalon BI southbound off-ramp	n/a	F ^e	n/a	F ^e	n/a	F ^e	n/a	F ^e	n/a	n/a
Southbound Avalon BI southbound on-ramp	25.3	C	n/a	F ^e	23.9	C	n/a	F ^e	-1.4	n/a
Northbound Avalon BI southbound on-ramp	ramp to be constructed as part of project				24.6	C	n/a	F ^e	n/a	n/a
Carson St southbound off-ramp	32.0	D	35.4	E	32.3	D	n/a	F ^e	0.3	n/a
Carson St southbound on-ramp	23.3	C	n/a	F ^e	23.6	C	n/a	F ^e	0.3	n/a

Table 14 (Continued)

Design Year (2030) Freeway Mainline and Ramp Level of Service Analysis

	Freeway Weaving Segment ^c								AM Change in Density	PM Change in Density
	Design Year (2030) No Build Alternative				Design Year (2030) Build Alternative					
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour			
Density ^d	LOS	Density ^d	LOS	Density ^d	LOS	Density ^d	LOS			
Northbound - Carson St to Avalon Bl	93.9	F	98.6	F	97.6	F	107.6	F	3.7	9.0
Southbound - Avalon Bl to Carson St	74.9	F	95.2	F	79.8	F	107.7	F	4.9	12.5

^a Basic freeway segment LOS criteria per Highway Capacity Manual, 2000, Exhibit 23-2.

^b Ramp-freeway junction LOS criteria per Highway Capacity Manual, 2000, Exhibit 25-4.

^c Freeway weaving segment LOS criteria per Highway Capacity Manual, 2000, Exhibit 24-2.

^d Basic freeway segments, ramp junctions, and weaving areas level of service are measured with density (pc/mi/ln).

^e LOS F exists when the total flow departing from the merge area exceeds the capacity of the downstream freeway segments. No density will be predicted for such cases - Exhibit 25-4, Highway Capacity Manual 2000.

Source: Traffic Technical Report for the I-405/Avalon Boulevard Interchange Improvement Project Report and Initial Study/Environmental Assessment, Fehr & Peers/Kaku Associates, December 2007.

density. As shown, the following freeway segments are projected to operate at LOS E or F under both the Build and No Build Alternative:

- I-405 northbound between Carson Street and Avalon Boulevard (A.M. peak hour)
- I-405 northbound between Avalon Boulevard and Main Street (A.M. and P.M. peak hours)
- I-405 southbound between Main Street and Avalon Boulevard (P.M. peak hour)
- I-405 southbound between Avalon Boulevard and Carson Street (P.M. peak hour)

Freeway-Ramp Junction Areas of Influence

The ramp freeway junction areas, as also shown in Table 14, would experience a decrease in density as a result of shifts in traffic with the implementation of improvements as part of the Build Alternative. The following freeway-ramp junction areas projected to experience a minor reduction in density for the Build Alternative scenario:

- Carson Street northbound off-ramp
- Main Street northbound off-ramp
- Southbound Avalon Boulevard southbound on-ramp

A minor increase in density at the other analyzed locations can be attributed to the increase in level of traffic as a result of improvements to the I-405 freeway interchange at Avalon Boulevard.

With the proposed project, the following ramp locations are projected to operate at LOS E or F at the design year (2030):

- Carson Street northbound off-ramp (LOS E in both the A.M. and P.M. peak hours)
- Carson Street northbound on-ramp (LOS F in both the A.M. and P.M. peak hours)
- Avalon Boulevard northbound off-ramp (LOS F in both the A.M. P.M. peak hours)
- Avalon Boulevard northbound on-ramp (LOS F in both A.M. and P.M. peak hours)
- Avalon Boulevard southbound off-ramp (LOS F in both A.M. and P.M. peak hours)
- Southbound on-ramp from southbound Avalon Boulevard (LOS F in the P.M. peak hour)
- Southbound on-ramp from northbound Avalon Boulevard (new ramp constructed as part of project) (LOS F in the P.M. peak hour)
- Carson Street southbound off-ramp (LOS F in the P.M. peak hour)
- Carson Street southbound on-ramp (LOS F in the P.M. peak hour)

It should be noted that LOS F represents the condition when the total flow departing from the merger area exceeds the capacity of the downstream freeway segment; therefore, no density is predicted for such cases using the HCM 2000 methodology.

Freeway Weaving Segments

Table 14 on page 67 also presents the results of density calculations and corresponding LOS for the analyzed freeway weaving segments for the Build alternative at the design year (2030). As shown, the analyzed segments along the I-405 Freeway (northbound between Carson Street

to Avalon Boulevard and southbound between Avalon Boulevard and Carson Street) are both projected to operate at LOS F during both the A.M. and P.M. peak hours at the design year (2030). Both of the analyzed freeway segments are projected to experience an increase in density with the Build Alternative. This can be attributed to the increase in level of traffic on the mainline and ramps at the I-405 interchange at Avalon Boulevard.

Bikeway/Pedestrian Access

There are no existing bikeways in the vicinity of the proposed project site. However, the Specific Plan for the Carson Marketplace project, which is located adjacent to the proposed interchange improvement, calls for a system of bikeways to be provided within the Carson Marketplace project, inclusive of a 12-foot multipurpose path for pedestrians and bikes that would provide access to the Carson Marketplace site to and from Avalon Boulevard, via Lenardo Drive. The proposed project design features include provisions for a 12 foot ADA compliant, multipurpose path which would support the proposed Carson Marketplace project. See Figure 3 on page 14. As such, the provision of the access path could be implemented and the proposed project would be consistent with the proposed adjacent uses to be introduced in the proposed project area such as the Carson Marketplace project. Therefore, impacts under the Build Alternative regarding Bikeway/ Pedestrian Access would be less than significant.

NO BUILD ALTERNATIVE

Construction

Under the No Build Alternative, there would be no changes to the ramp and intersection configurations. Construction would not occur, therefore no construction impacts regarding traffic would occur.

Accident Analysis

Under the No Build Alternative, there would be no changes to the ramp and intersection configurations, and therefore changes regarding the safety of the existing facilities would remain as it exists today. Conditions with regard to accident impacts would continue as described in the Affected Environment Section, above.

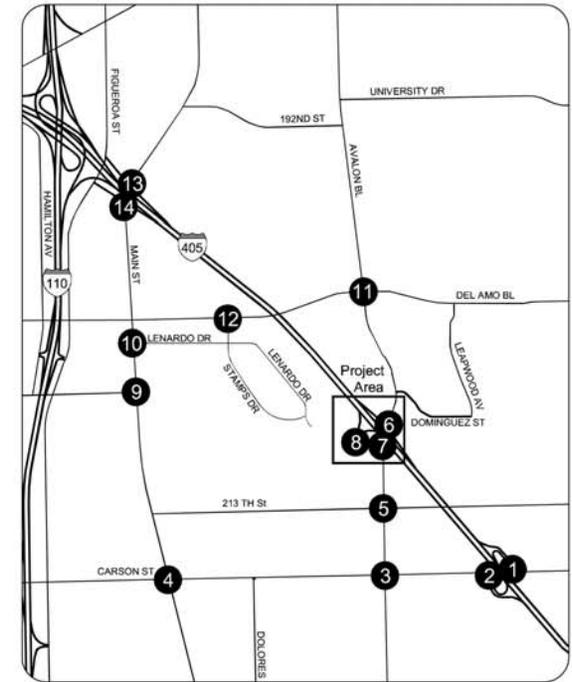
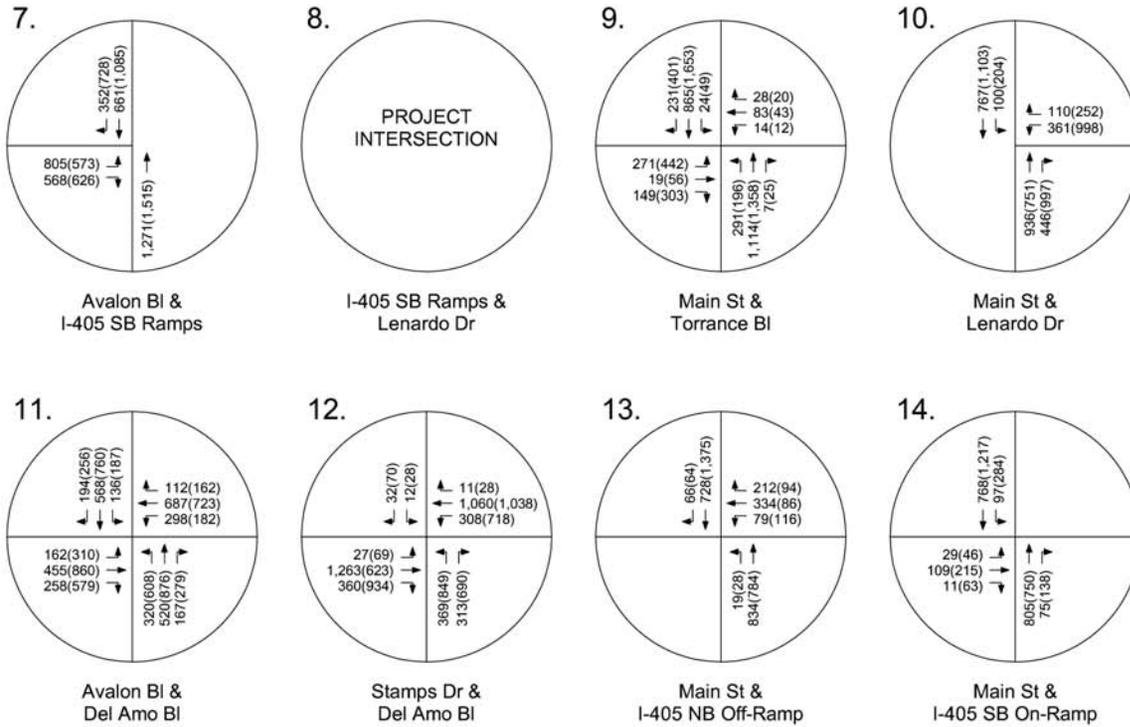
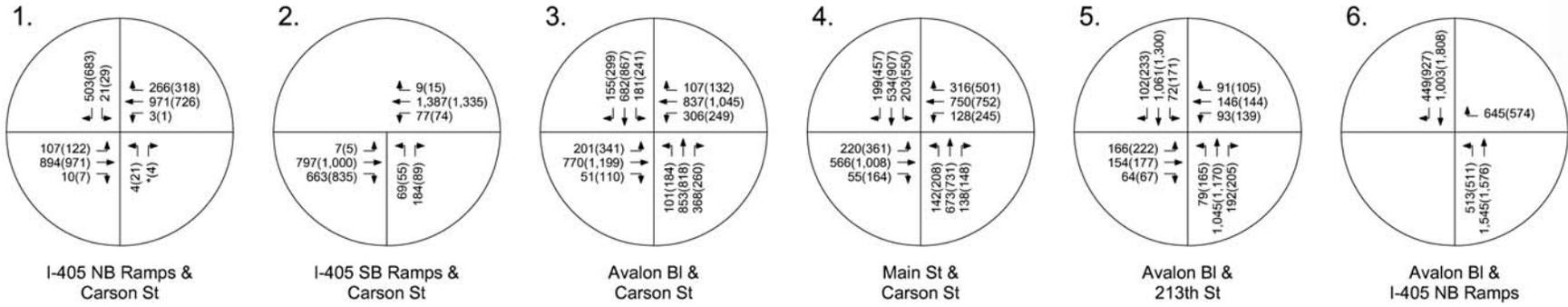
Operations

Opening Year (2010)

Figures 20 and 21 on page 71 and 72 illustrate the morning and evening peak hour traffic projections for the opening year (2010) No Build Alternative at the intersection locations and freeway/ramps respectively.

Intersection Level of Service Impacts

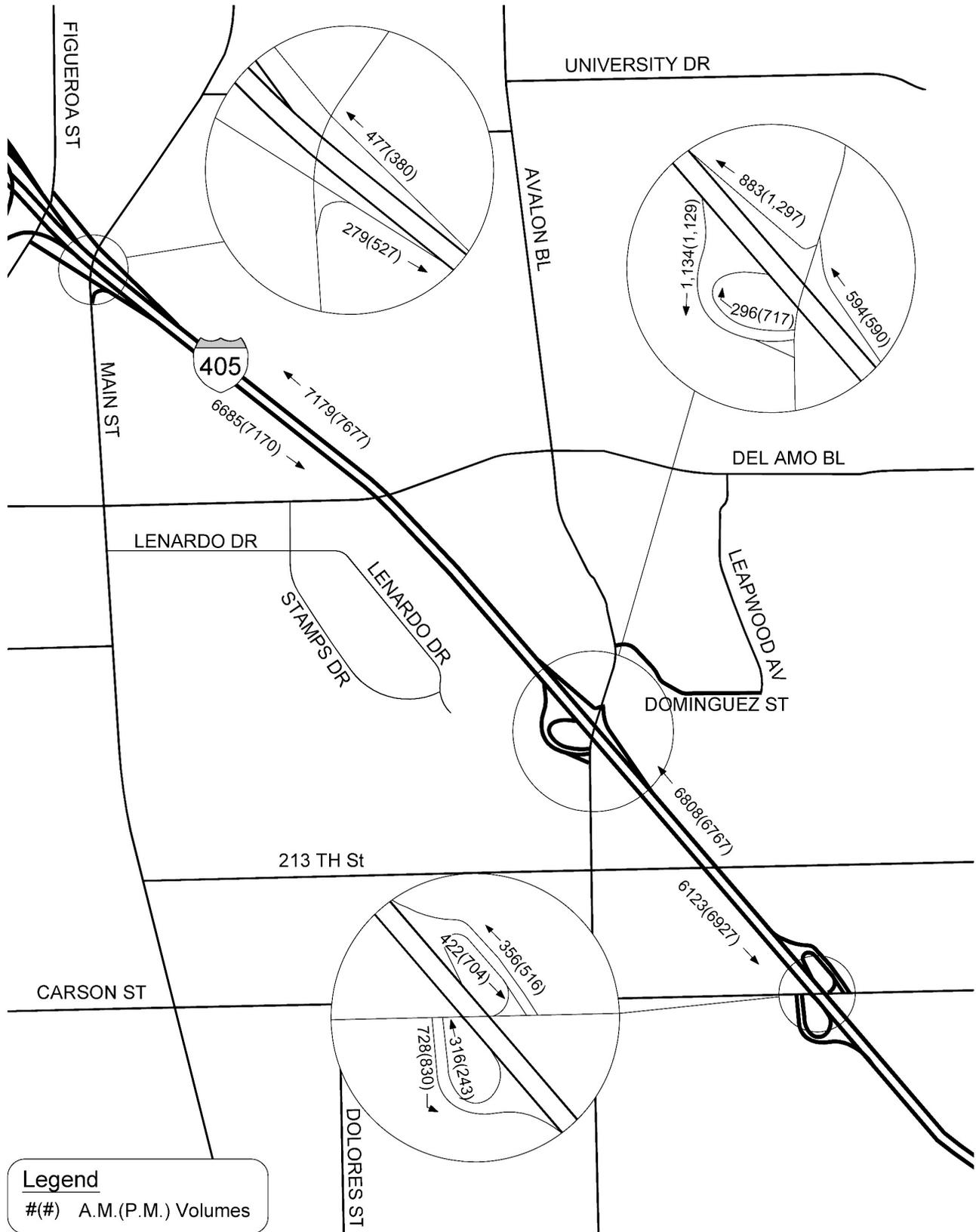
Table 11 on page 58 presents the delay LOS calculations for the No Build Alternative as well as the Build Alternative and the comparative advantages of each at the opening year (2010). The traffic conditions under the No Build Alternative are those that would occur due to growth in the area. Under the No Build Alternative, the improvements to operating conditions that would



Legend
 ← ##(##) Peak Hour Volumes A.M.(P.M.)

Figure 20
 Opening Year (2010) - No Build Alternative
 Traffic Projections at Study Intersections





No scale

Source: Fehr & Peers - Kaku Associates, 2007

Figure 21
Opening Year (2010) - No Build Alternative
Traffic Projections on
Freeway Mainline and Ramps

occur at seven nearby intersections, with substantial improvement at the five intersections that will be operating at LOS E or F, would not occur. As shown, the following five intersections are projected to operate at LOS E or F under the No Build Alternative during one or both of the A.M. and P.M. peak hours at the opening year (2010):

- Avalon Boulevard & Carson Street (LOS E in the A.M. peak hour)
- Main Street & Carson Street (LOS F in the P.M. peak hour)
- Main Street & Torrance Boulevard (LOS E in the A.M. and LOS F in the P.M. peak hour)
- Avalon Boulevard & Del Amo Boulevard (LOS F in the P.M. peak hour)
- Stamps Drive & Del Amo Boulevard (LOS E in the P.M. peak hour)

Freeway Mainline Segment

Table 12 on page 60 shows the traffic operations for the No Build Alternative, as well as the Build Alternative and the comparative advantages of each. The following freeway mainline segments are projected to operate at LOS E or F under the No Build Alternative for the opening year (2010):

- I-405 northbound between Carson Street and Avalon Boulevard (A.M. peak hour)
- I-405 northbound between Avalon Boulevard and Main Street (A.M. and P.M. peak hours)
- I-405 southbound between Main Street and Avalon Boulevard (P.M. peak hour)
- I-405 southbound between Avalon Boulevard and Carson Street (P.M. peak hour)

Freeway-Ramp Junction Areas of Influence

Table 12 also presents the results of density calculations and corresponding LOS for the freeway ramp junctions at the opening year (2010). The following six ramp locations are projected to operate at LOS E or F under the No Build Alternative at year 2010:

- Carson Street northbound off-ramp (LOS E in the P.M. peak hour)
- Avalon Boulevard northbound off-ramp (LOS E in both the A.M. and P.M. peak hours)
- Avalon Boulevard northbound on-ramp (LOS F in both A.M. and P.M. peak hours)
- Avalon Boulevard southbound off-ramp (LOS F in both the A.M. and P.M. peak hours)
- Avalon Boulevard southbound on-ramp (LOS F in the P.M. peak hour)
- Carson Street southbound on-ramp (LOS F in the P.M. peak hour)

Freeway Weaving Segment

Table 12 also presents the results of density calculations and corresponding LOS for the analyzed freeway weaving segments for the No Build Alternative at the opening year (2010). As shown, the analyzed segments along the I-405 freeway northbound between Carson Street to Avalon Boulevard and the segment southbound between Avalon Boulevard and Carson Street) are projected to operate at LOS F during both the A.M. and P.M. peak hours at the opening year (2010).

DESIGN YEAR (2030)

Intersection Level of Service

Figures 22 and 23 on page 75 and 76 illustrate the peak hour traffic projections for the design year (2030) No Build Alternative.

Table 13 on page 66 shows the intersection impacts under the No Build Alternative as well as the Build Alternative, and the comparative advantages of the Build Alternative. As indicated, under the No Build Alternative, the improvement to operating condition that would occur at seven nearby intersections with substantial improvement at the five intersections that will be operating at LOS E or F, would not occur. As shown in Table 13, during one or both of the A.M. and P.M. peak hours at the design year (2030), the following five intersections are projected to operate at a LOS E or F under the No Build Alternative for the design year (2030):

- Avalon Boulevard & Carson Street (LOS E in the A.M. peak hour)
- Main Street & Carson Street (LOS F in the P.M. peak hour)
- Main Street & Torrance Boulevard (LOS E in the A.M. and LOS F in the P.M. peak hour)
- Avalon Boulevard & Del Amo Boulevard (LOS F in the P.M. peak hour)
- Stamps Drive & Del Amo Boulevard (LOS E in the P.M. peak hour)

Freeway Mainline Segments

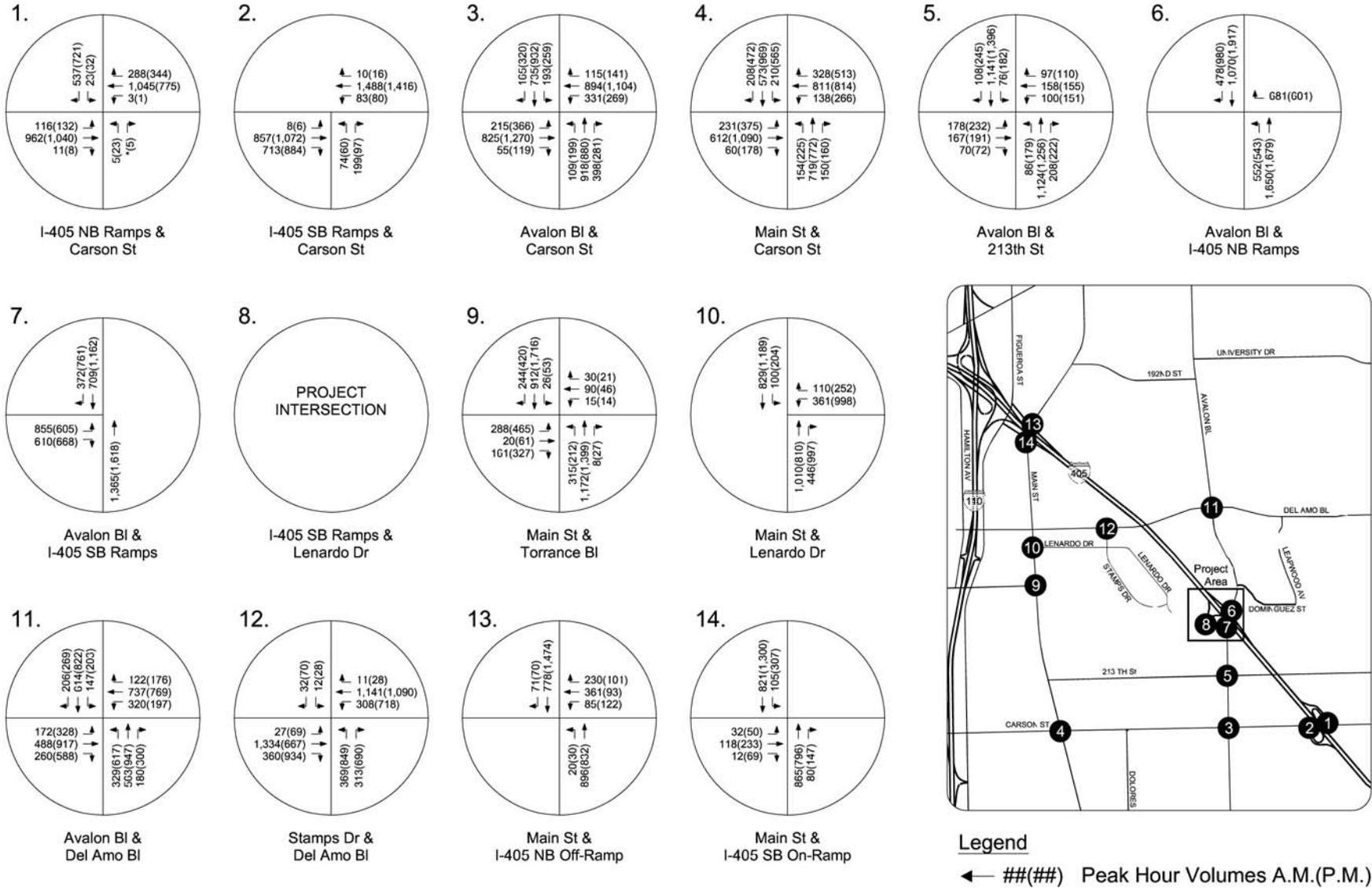
Traffic operations in 2030 on freeway mainline segments for both the No Build Alternative and the Build Alternative are shown in on page 67. As shown, the following freeway segments are projected to operate at LOS E or F under the No Build Alternative:

- I-405 northbound between Carson Street and Avalon Boulevard (A.M. peak hour)
- I-405 northbound between Avalon Boulevard and Main Street (A.M. and P.M. peak hours)
- I-405 southbound between Main Street and Avalon Boulevard (P.M. peak hour)
- I-405 southbound between Avalon Boulevard and Carson Street (P.M. peak hour)

Freeway-Ramp Junction Areas of Influence Analysis

Following is a brief summary of the freeway and ramp junction analysis Table 14 presents the freeway ramp junction analysis for the design year (2030). The following eight ramp locations are projected to operate at LOS E or F under the No Build Alternative at year 2030:

- Carson Street northbound off-ramp (LOS E in the A.M. and LOS F in the P.M. peak hour)
- Carson Street northbound on-ramp (LOS F in the P.M. peak hour)
- Avalon Boulevard northbound off-ramp (LOS E in both the A.M. and P.M. peak hours)
- Avalon Boulevard northbound on-ramp (LOS F in both the A.M. and P.M. peak hours)
- Avalon Boulevard southbound off-ramp (LOS F in both the A.M. and P.M. peak hours)
- Avalon Boulevard southbound on-ramp (LOS F in the P.M. peak hour)
- Carson Street southbound off-ramp (LOS E in the P.M. peak hour)
- Carson Street southbound on-ramp (LOS F in the P.M. peak hour)



Source: Kaku Associates, 2007

Figure 22
 Design Year (2030) - No Build Alternative
 Traffic Projections at Study Intersections

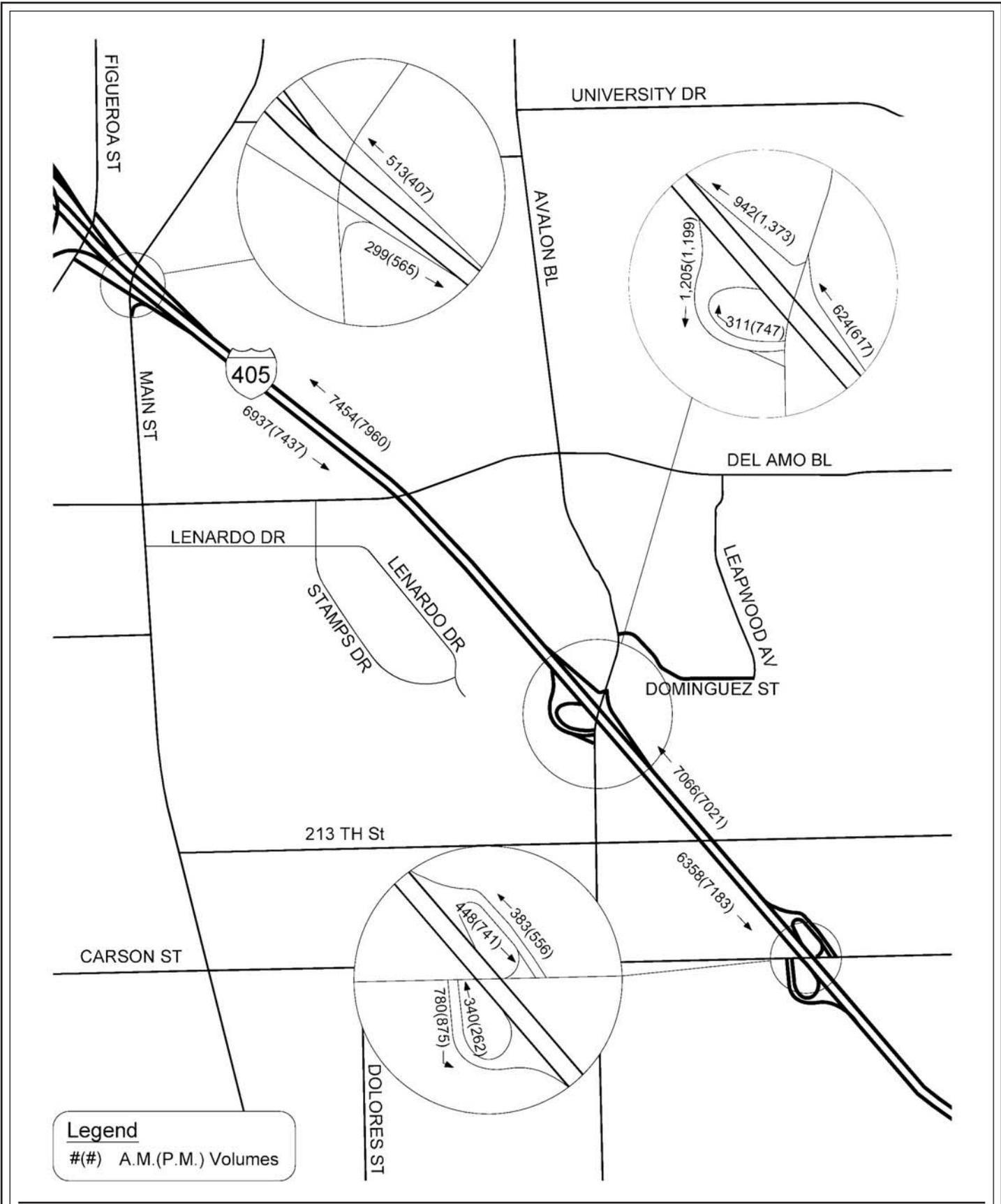


Figure 23
Design Year (2030) - No Build Alternative
Traffic Projections on
Freeway Mainline and Ramps

Source: Fehr & Peers - Kaku Associates, 2007

FREEWAY WEAVING SEGMENT ANALYSIS

Table 14 on page 67 also presents the results of density calculations and corresponding LOS for the analyzed freeway weaving segments for the No Build Alternative at 2030. As can be seen in the table, the analyzed segments along the I-405 Freeway northbound between Carson Street to Avalon Boulevard and the segment southbound between Avalon Boulevard and Carson Street) are projected to operate at LOS F during both the A.M. and P.M. peak hours.

Bikeway/ Pedestrian Access

Under the No Build Alternative the multi-purpose path included in the Carson Marketplace project to link its site activities to Avalon Boulevard would not occur. The opportunity to provide that beneficial feature of the Carson Marketplace for bicyclists and pedestrians would be lost. This would be a disadvantage of the No Build Alternative.

2.7.4 AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

BUILD ALTERNATIVE

The proposed project involves reconstruction of the existing I-405/Avalon Boulevard interchange including construction of new roadways and ramps and modification of existing ramps. To avoid adverse impacts on local roadways, e.g. Avalon Boulevard, it is anticipated that the current number of traffic lanes would be maintained at least during the weekday peak hours throughout most of the construction period.

The following measures are recommended to address potential traffic impacts and facilitate traffic flows during proposed project construction:

- Temporary Traffic Controls - Temporary traffic controls, signing, barriers, and flagmen should be employed as necessary and appropriately for the efficient movement of traffic (in accordance with standard traffic engineering practices) to facilitate construction of the project improvements while maintaining traffic flows and minimizing disruption to traffic.
- Street and Ramp Closures (General) - Construction activities should be staged in such a manner to minimize the need for street and/or ramp closures. To the extent possible, such closures (when required) should be made during off-peak and/or overnight periods. In advance of and during closure periods, appropriate temporary signage (in accordance with Caltrans and City guidelines) should be used to warn motorists of the closure and direct them to alternative routes. Details will be developed as needed during lane closures.
- Transportation Management Plan (TMP) - Notwithstanding the above, any disruption of traffic in this urbanized area would likely result in some degradation of roadway performance. Accordingly, the Supplemental Project Study Report for this project (SPSR) called for development of a Transportation Management Plan for the proposed project, and included funding in the project cost estimate for development and implementation of the TMP. The TMP would focus on informing the motoring public and

affected parties of construction dates, activities, and alternate routes. The TMP could include such elements as the following:

- Public information center
- Additional project signing
- Advertising in local and regional newspapers
- Staff attendance at local neighborhood and business association meetings to inform residents and merchants/landowners of project progress
- Project newsletter and/or articles for the local papers and associations
- Other TMP strategies such as motorist information strategies, incident management, construction strategies, and other appropriate strategies needed for traffic congestion mitigation.

NO BUILD ALTERNATIVE

Under the No Build Alternative, there would be no modifications to the proposed project site. As no impacts would occur, no avoidance, minimization, or mitigation measures are proposed.

2.8 VISUAL/AESTHETICS

2.8.1 REGULATORY SETTING

The National Environmental Policy Act of 1969 as amended (NEPA) establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings [42 U.S.C. 4331(b)(2)]. To further emphasize this point, the Federal Highway administration in its implementation of NEPA [23 U.S.C. 109(h)] directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

Likewise, the California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state “with...enjoyment of aesthetic, natural, scenic and historic environmental qualities.” [CA Public Resources Code Section 21001(b)]

2.8.2 AFFECTED ENVIRONMENT

The proposed project site is located in a built urban environment. The site conditions include existing ramps, and/or freeway/ramp edge conditions that are typical of freeway/roadway infrastructure throughout the built urban setting. None of the components of the proposed project site lie within an area containing unique scenic resources; nor are they located within an existing scenic vista. The most notable view of the general project area is from the I-405 Freeway. The proposed project’s ramps slope down from the freeway to lower elevations and out of the primary public view. The I-405 Freeway is not a designated state or local scenic

highway in the vicinity of the proposed project location. Photographs of the existing site conditions are presented in Figure 5 on page 12 and Figure 6 on page 13.

2.8.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

Public views in the proposed project area are available from the I-405 Freeway. The freeway is elevated offering views of the surrounding urban landscape. As travelers become removed from the main-line freeway (ascending to/descending from the freeway along the proposed project ramps) the longer range views are replaced by views of the surrounding, local urban neighborhoods.

Potential ramp changes would have no impacts on the view from the I-405 freeway or the proposed project ramps. Travelers would have the same long range views from the freeway, and minor changes to ramp alignment would not alter viewing conditions for travelers on the on-ramps.

As described above, the proposed project includes improvements in each of the four interchange quadrants. Each of these quadrants lies within a different view shed/viewing area with distinct conditions dictated by the I-405 as a north/south visual barrier and the separation of the east quadrants with distance on either side of Avalon Boulevard. Therefore, the aesthetic impacts for the different quadrants are addressed individually, below.

Northwest and Northeast Quadrants.

The visual conditions at this location are illustrated in Photographs 7 and 8 on Figure 6 on page 13. The only modifications at these locations would involve minor roadway modifications, with a restoration of similar land forms/slopes and vegetation. Therefore the impacts on aesthetics would be negligible, and there would be no impacts on views. Notwithstanding, standard Caltrans practices would assure that the site would not be noticeably altered and would blend with the appearance of the existing conditions in the Caltrans right-of-way adjacent to the proposed project site.

Southeast Quadrant

The visual conditions at this location are illustrated in Photographs 5 and 6 on Figure 6 on page 13. The modifications consist of a new ramp that would be set into the existing slope along the southern edge of the freeway. The ramp would be entered at Avalon Boulevard and work its way up the slope to a connection with the freeway in the approximate area of the 213th Street Bridge. The ramp would require setting a bench into the existing slope, re-contouring the slope and restoring the vegetation to an appearance that is similar to that which currently exists. The ramp would be located in an area that lies behind existing car dealerships where it cannot be readily seen.

The ramp connection at 213th Street would be more readily apparent for eastbound travelers along 213th Street and from residential units south of the freeway. These travelers and residents would see the upper end of the ramp and a rebuilt edge of the 213th Street Bridge that

would be constructed to accommodate an approximately 8-foot widening of the bridge for merging of the ramp traffic. The appearance of the bridge and merging ramp would be similar to that which exists today. As described more fully in Section 2.9, Cultural Resources, the 213th Street Bridge was built less than 50 years ago (1961) and does not possess exceptional significance as a historic structure. Rather, it has a typical freeway bridge appearance.

Therefore, the proposed modifications in the southeast quadrant would have no effects on views, and a negligible appearance on aesthetics. Notwithstanding, standard Caltrans practices would assure that the site would not be noticeably altered and would blend with the appearance of the existing conditions in the Caltrans right-of-way adjacent to the proposed project site.

Southwest Quadrant

The visual conditions at this location are illustrated in Photographs 1 through 4 on Figure 5 on page 12. The modifications consist of a realignment of the existing ramps and the construction of a new bridge that would be located across the Torrance Lateral, connecting Lenardo Drive on the Carson Marketplace site with Avalon Boulevard and the southbound ramp to the east. The change in conditions would be seen by travelers along the ramps. From these ramps, the new facilities would offer a roadway appearance that is similar to existing conditions with a similar view of surrounding locations.

Residents living in the mobile home park to the south of the proposed project site would be able to see the new bridge over the Torrance Lateral as well as its linkages with Lenardo Drive to the east and the west. There are approximately 18 mobile homes lying opposite to the proposed project site vicinity. Views from these homes are extremely limited as there is a large amount of fencing and vegetation along the edge of the mobile home park that limits views. Further, the orientation of mobile homes and site arrangements are such that the homes present sideyards toward the proposed project. Views of the proposed project site from the mobile home park are shown in Photographs 3 and 4 on Figure 5 on page 12.

Approximately five of the homes are located at the eastern end of the proposed project site, towards Avalon Boulevard. Views from this location are directly into the berm lying under the existing southbound ramps, as shown in Photographs 3 and 4. Views from these locations would remain unchanged, continuing to look into the berm which may increase in height a few feet towards the west and which would be revegetated during project implementation.

Approximately five units are located at the bend in the Torrance Lateral opposite the proposed bridge location. Viewers from this location would see a change in the appearance of the proposed project site, with the new bridge providing a horizontal span over the Channel, connecting to berms that would be increased in size over their current configurations. These views would be over the channel toward the I-405 as shown in Photograph 4. A section of the bridge and berms is shown in Figure 7 on page 14. The bridge would shorten the extent of the existing views, but would blend in with the line of the freeway beyond. The general view would continue to be of berms, channel and roadway infrastructure as it is today.

Approximately eight units in the proposed project vicinity are located further west opposite to the Carson Marketplace site. Views from that area would be of the existing berm which will underlie the future Carson Marketplace project, and in the future the buildings of the Carson

Marketplace. That berm is proposed to be vegetated to enhance its appearance. Direct views across the channel would not be altered from these locations; however viewers looking toward the east would also see the bridge.

Impacts on views and aesthetic conditions would be extremely limited. Impacts would occur for a few private locations, which have limited viewing opportunities of the proposed project and for which the general infrastructure, berm and channel appearance would be somewhat similar to the current appearance. Changes would not be substantial and impacts would be less than significant. Notwithstanding, standard Caltrans practices would assure that the site would blend with the appearance of the adjacent terrain.

Construction

During construction of the proposed project, the proposed project area would have a disturbed appearance with the presence of construction equipment and excavation activities. The disturbance would be typical of roadway construction to the extent that visual alterations would occur and their appearance would vary during the different construction phases. Construction of the proposed project would have temporary disturbances to the proposed project area until the proposed project is completed.

NO BUILD ALTERNATIVE

The No Build Alternative would cause no changes to the physical infrastructure in the proposed project area, and would therefore have no impacts on aesthetics.

2.8.4 AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

The Caltrans Project Development Procedures Manual, Chapter 29, Landscape Architecture, provides guidelines for addressing the aesthetics of Caltrans projects. Included are the following guidelines that would be followed in the design of reconfigured/new project ramps:

- The general alignment and profile of the highway should fit the character of the area traversed and follow the existing terrain as closely as possible to minimize unsightly scars caused by excavation and embankment work.
- Slopes should be rounded to blend with the surrounding topography.
- Protection of desirable vegetation (e.g., trees, specimen plants, diminishing native species, or historical plantings) is preferred wherever possible. Destruction of desirable vegetation should be avoided if possible, or minimized.
- Materials used in a project should reflect the character of the area.
- Provision for watering and establishment of replacement planting should also be considered.

These standard Caltrans practices would assure that the site would not be noticeably altered and would blend with the appearance of the existing conditions in the Caltrans right-of-way

adjacent to the proposed project site. Accordingly the following minimization measure is proposed:

- Areas adjacent to all of the project improvements, including areas affected by construction/staging activities shall be re-landscaped to an appearance similar to the existing conditions, and in a manner so as to blend with the appearance of the existing conditions in the Caltrans right-of-way adjacent to the project site, consistent with the above standard Caltrans practices.

2.9 CULTURAL RESOURCES

This cultural resources analysis is based on the Historic Property Survey Report and Archaeological Survey Report prepared by PCR Services, Inc. This document is available for review at Caltrans, Division 7 upon request.

2.9.1 REGULATORY SETTING

“Cultural Resources” as used in this document refers to all historical and archaeological resources regardless of significance. The primary laws and regulations dealing with cultural resources include:

The National Historic Preservation Act of 1966, as amended, (NHPA) sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the national Register of Historic Places. Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory Council, Federal Highway Administration (FHWA), State Historic Preservation Officer (SHPO), and the California Department of Transportation (Caltrans) went into effect for Department projects, both state and local, with FHWA involvement. The PA implements the Advisory Council’s regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to the Department. The FHWA’s responsibilities under the PA have been assigned to the Department as part of the Surface Transportation Project Delivery Pilot Program (23 CFR 773) (July 1, 2007).

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the “use” of land from historic properties. See Appendix B for specific information regarding Section 4(f).

Historical resources are considered under the California Environmental Quality Act (CEQA), as well as California Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places listing criteria. It further specifically requires the Department to inventory state-owned structures in the rights-of-way.

2.9.2 AFFECTED ENVIRONMENT

GENERAL BACKGROUND

The proposed project site is located in the northeastern portion of the Los Palos Verdes peninsula, approximately six miles east of the coast. The proposed project vicinity is relatively flat. The nearest topographic relief, the Dominguez Hills borders the proposed project area to the northeast. The area is underlain by Quaternary alluvial deposits. No native vegetation remains on the proposed project site. However, prior to its now developed uses, the proposed project area would have supported a coastal sage scrub community and an array of coastal and inland birds, mammals, and wildlife.

The proposed project site is located in the ethnographically documented territory of the Gabrielino Indians. The Gabrielino have been described as the “most powerful ethnic nationality in aboriginal Southern California” (Bean and Smith 1978:538). The Gabrielino drew a variety of resources in several ecological zones with settlement patterns corresponding with the seasonal availability of water, floral, and faunal resources. Permanent villages and base camps were occupied primarily during winter and spring months with smaller camps in the summer. The more permanent settlements tended to be near major waterways and food sources.

Historically, the City of Carson was a Spanish land grant to Juan Dominguez, in an expanse of approximately 75,000 acres named Rancho San Pedro. Land use during this time focused on cattle. In 1846, the ranch was used as a base for California Troops during the U.S. Mexican War. The City is named after John Manuel Carson, Juan Dominguez’s grandson, who was a major figure in the development of the region, and is now head of the Dominguez Water Corporation. The City of Carson was formally incorporated in 1968.

SITE SPECIFIC STUDIES

Two site specific analyses were performed for the proposed project: a Historic Property Survey Report (HPSR) and an Archaeological Survey Report (ASR). These two reports are available for review at Caltrans, District 7 offices. The Historic Property Survey Report completed in January 2007 summarizes findings regarding a search for historic properties that would be affected by the proposed project, as well as findings of no adverse effect with standard conditions, as applicable. The Archaeological Survey Report presents the results of the search for archaeological resources and likelihood of encountering archaeological resources in the proposed project area. The study followed Caltrans guidelines, with the intent of documenting both positive and negative archaeological survey results, commensurate with the scale and scope of the proposed project.⁸

Field Work

Field methods included a review of recent aerial photographs widely available through Google as well as windshield surveys of the proposed project site. The site has been previously disturbed and is without remaining native ground that could be meaningfully inspected for cultural resources.

The majority of the known and located investigations in the one-mile buffer zone around the proposed project area were conducted in the 1970s and 1980s. Only three investigations have been conducted within the past five years. Site visits to the proposed project area by PCR's Environmental Planning and archaeological staff review of current aerial photographs have determined that all ground surfaces that will be affected by the proposed development are either currently built upon or consist of fill placed in the recent past. Given the current density of development around the proposed project site, these earlier surveys are the best available illustrations of the archaeological record in the proposed project region.

Consultations

The proposed project study included a cultural resource records search, a Native American Consultation, and a review of the state agency bridge logs.

The cultural resource record search was commissioned by PCR through the California Historical Resources Information System South Central Coastal Information Center (CHRIS-SCCIC) at California State University, Fullerton on August 8, 2006. The record search was conducted by CHRIS-SCCIC staff and included a review of all recorded archaeological sites and related cultural resource reports within a one-mile radius of the proposed project site, and checking of the following lists of previously recorded cultural resources: California Points of Historical Interest (PHI), the California Historical Landmarks (CHL), the California Register of Historic Resources (CRHR), the National Register of Historic Places (NRHP), and the California State Historic Resources Inventory (HRI).

The Native American Consultation involved a Sacred Lands record search which was commissioned by PCR on August 8, 2006 through the Native American Heritage Commission (NAHC) in Sacramento. The Sacred Lands search included a review of the NAHC files of known Native American burial sites and other culturally sensitive locations by NAHC staff. As per recommendations of the NAHC, PCR conducted follow-up consultation with the Native American individuals and organizations identified by the NAHC as having affiliation with the proposed project vicinity. Letters with a brief description of the proposed project and project location and a project site map were sent via certified mail on September 22, 2006 to the identified Native Americans with a request to share any comments or concerns they might have about possible effects of the proposed project on Native American cultural resources. To date, no responses have been received.

Also, the state agency bridge logs that are maintained by Caltrans were reviewed to determine whether nearby bridges are listed as historic resources. Four bridges within the Area of Potential Effects were reviewed: Bridge 53-1164, Avalon Boulevard and I-405; Bridge 53-1263, 213th Street; Bridge 53-1513 Torrance Lateral; and Bridge 53-C0261, Avalon Boulevard and the Dominguez Channel. All four of these bridges are identified as Category 5 structures in the Caltrans Historic Bridge Inventory (1985 with 2005 updates), and as such are determined not to be important cultural resources.

⁸ Exhibit 5.1: Archaeological Survey Report (ASR) Format and Content Guide, California Department of Transportation, webpage, accessed 1/18/07; http://www.dot.ca.gov/ser/vol2/ch_5/ex_5_1_asr.htm.

Area of Potential Effects (APE)

The area that could potentially be affected by the proposed project is identified as the Area of Potential Effects (APE) as illustrated in Figure 24 on page 86. The extent of the APE was determined through a joint evaluation between archaeological/historical staff members of Caltrans with the environmental consultants, PCR and project designers, DMJM Harris. Generally, the APE follows the engineering Right-of-Way from the majority of the proposed project site, as this line bounds most of the potentially disturbed area, inclusive of proposed project improvements and construction staging. In the Carson Marketplace vicinity, the APE was drawn to include the current extent of construction as illustrated in engineering drawings and the conceptual plan, plus an additional 50 feet to allow for movement and storage of equipment and possible minor future design adjustments in this area. The APE does not extend into any private property or include any standing buildings.

Study Findings

Archaeological Resources. Findings of the study indicate that no previously recorded archaeological sites have been documented within the APE. In addition, no Native American cultural resources have been identified in the APE. None of the bridges in the APE have been recommended as eligible to the NRHP and none are old enough to require re-evaluation. Recent use of the proposed project site has disturbed or covered the full extent of the proposed project site surface. Therefore, there is no potential for archaeological deposits to occur in the APE.

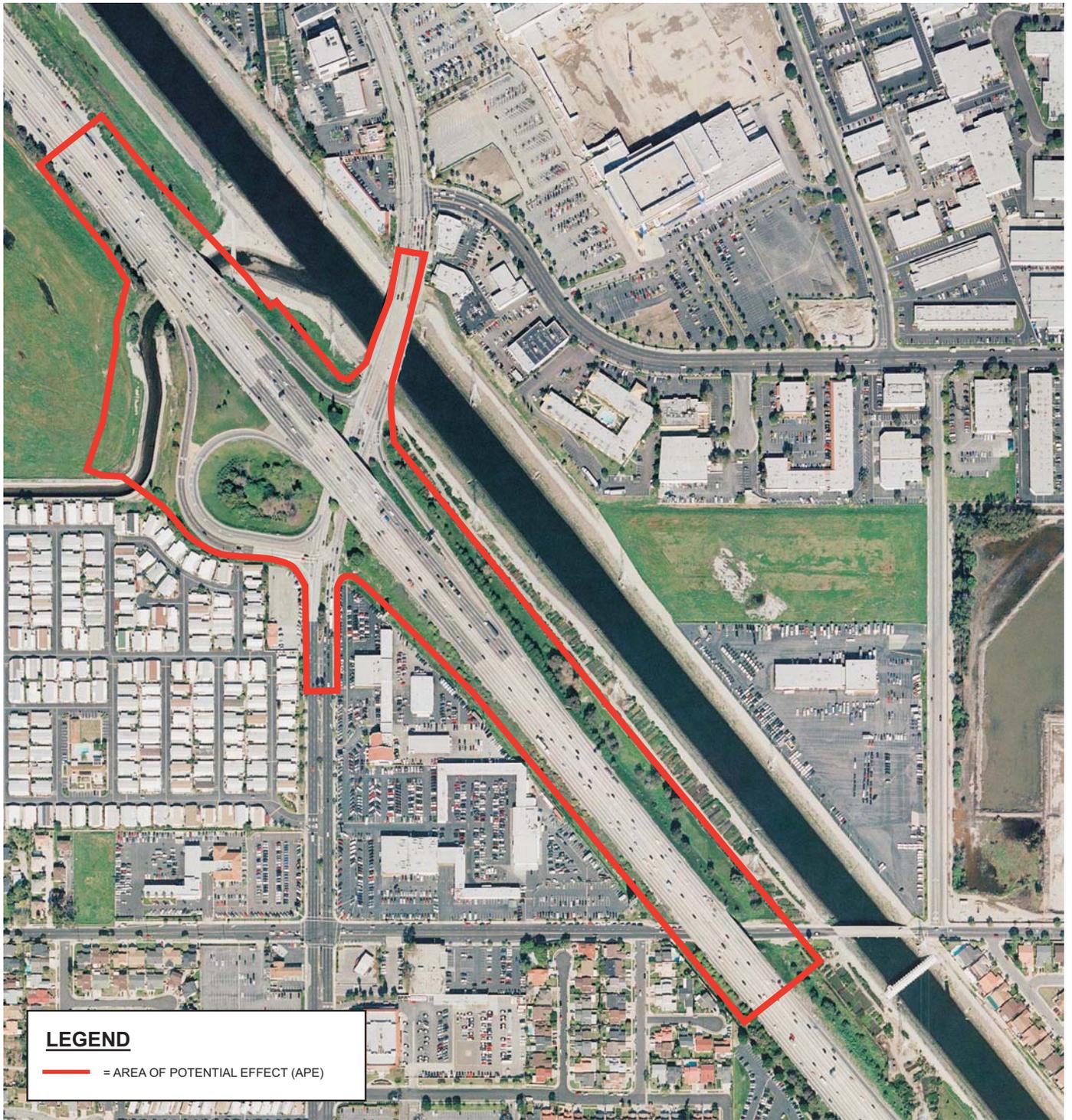
Historical Resources. No historical resources have been identified within the APE, therefore no historic properties would be affected. The resultant determination is that the proposed project will result in No Historic Property Finding as outlined in the 106PA.

2.9.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

As indicated in the HPSR and ASR report, no resources were found in the APE. The proposed project involves surficial excavation in previously disturbed soils. These facts, when combined with the fact that no detected Cultural Resources were present, led to a determination that the proposed project would not affect any cultural properties.

Section 4(f) of the Department of Transportation Act of 1966 states that “It is hereby declared to be the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.” As discussed in the Study Findings above, the study area is not located within a historic site or district. Therefore, the proposed project would not involve the historic site provision of Section 4(f) resources, and no impacts relative to Section 4(f) would occur (See Appendix B).



LEGEND

— = AREA OF POTENTIAL EFFECT (APE)



Caltrans District 7, Los Angeles County, I-405/Avalon Boulevard Interchange, PM 10.8/11.4, EA 233900
 Source: PCR Services Corporation, 2006.

Figure 24
 Area of Potential Effect
 (APE)

NO-BUILD ALTERNATIVE

If the proposed project were not built, there would be no alterations to the existing interchange. Roadway capacity would remain unchanged. There would be no changes to the physical environment and no impacts on cultural resources.

2.9.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No significant cultural resources were identified on the proposed project site, nor are cultural resources expected to be encountered. In the unanticipated situation that Cultural Resources occur, the following regulatory procedures would be applicable to the unexpected uncovering of such Cultural Resources. Accordingly, the following apply:

- If cultural materials are discovered during construction, all earth moving activity within and around the immediate discovery area will be diverted until as a qualified Caltrans archaeologist under the direction of the District Heritage Resource Coordinator (see below) can assess the nature and significance of the find. Work will only resume after approval to proceed is given by the District Heritage Coordinator.
- If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendent (MLD). Prior to this time, the person who discovered the remains will have contacted Gary Iverson, District 7, Heritage Resource Coordinator at 213-880-2010. Work will be conducted with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.
- If Cultural resources are discovered during construction, all work will be halted in the immediate vicinity and the procedures in 36CRF800.13 and all other Federal laws and regulations will be conducted under the direction of the District Heritage Resource Coordinator, or his representative. Work will only resume after approval is given by the District Heritage Coordinator.

PHYSICAL ENVIRONMENT

2.10 HYDROLOGY AND FLOODPLAIN

Information regarding hydrology and floodplains were obtained from the Report of Geologic-Seismic Evaluation prepared by Mactec Engineering and Consulting, Inc., the Safety Element of the City of Carson's General Plan, and the Storm Water Data Report prepared by DMJM - Harris.

2.10.1 REGULATORY SETTING

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 CFR 650 Subpart A.

In order to comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project.

The base floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the base floodplain.”

2.10.2 AFFECTED ENVIRONMENT

A review of FEMA flood insurance rate maps from July 1998 indicates that the proposed project site was designated Zone AR.⁹ However, as indicated in the City of Carson’s Safety Element, as of February 25, 2000, FEMA redesignated the area as not being within a flood zone due to the restoration of a section of the Los Angeles River levee system that has since provided flood protection for the City and parts of the surrounding communities. As a result of the restoration, areas in the City that were previously designated within Zone AR have been changed to the Zone X¹⁰ designation. Therefore, as indicated in the City of Carson Safety Element (2004) and the County of Los Angeles Seismic Safety Element (1990), the site is not within a flood influence area.

However, the Report of Geologic-Seismic Evaluation prepared by MACTEC Engineering and Consulting cites a foundation investigation report for the Avalon Boulevard crossing by the California Department of Transportation (Caltrans), dated August 26, 1959, which addresses identified conditions that were prevalent at that time. That foundation report indicated that in 1959 the area was extremely susceptible to flooding during the rainy season. This observation pertains to a localized condition, which may or may not have been improved with drainage

⁹ Zone AR: Special Flood Hazard Area formerly protected from the 1 percent annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1 percent annual chance of greater flood.

¹⁰ Zone X: Areas of 0.2 percent annual chance flood; areas of 1 percent annual chance flood with average depths of less than 1 foot or with drainage area less than 1 square mile; and areas protected by levees from 1 percent annual chance flood.

improvements over the years. Notwithstanding, the MACTEC report recommends that potential localized flooding be addressed during construction of the proposed project.

2.10.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

Construction

Project construction would require excavating of soils, the modifying of contours, and construction of new infrastructure. This work would occur outside of the base flood plain and would not cause adverse effects on flooding conditions. However, the work itself would be subject to localized flooding, with a potential for erosion and site materials being carried off site. This potential has been addressed in the technical studies for the proposed project and potential adverse impacts would be avoided through the implementation of Best Management Practices (BMPs) during construction. Proposed measures to avoid flooding are addressed below, and in Section 2.11, Water Quality and Storm Water Runoff.

Operation

As noted above, the proposed project is located outside of the base flood plain and would not be subject to flooding during proposed project operations. The proposed project would modify the existing ramps at the intersection of Avalon Boulevard and the I-405 interchange resulting in an increase in the volume of downstream flow, discharge to the Dominguez channel, potential sediment loading, or cause other hydraulic changes to a storm drain system that may potentially affect downstream channel stability. However, these increases would be negligible, as the modifications would be minor and the proposed project includes improvements to drainage facilities in the area to accommodate any potential changes in flows arising from proposed project implementation.

The proposed project drainage system would collect concentrated flows from the elevated structure and new road segments through new and existing surface drains located throughout the proposed project site. The proposed I-405 drainage facilities would distribute the collected runoff to the proposed permanent BMP area for water quality treatment. Upon treatment, the storm water would be routed into the existing storm drain system and ultimately drain into the Dominguez and Torrance Lateral Channels. The drainage system would be designed with Caltrans approved materials to maintain the highest water quality. At this time, no off-site surface run-on has been identified. However, any off-site run-on that may result from a malfunctioning irrigation system or from liquids released from vehicle collisions would be collected in the proposed project's drainage system and treated as described above.

As such, with implementation of the above improvements and the project design features, proposed project impacts would be negligible. Furthermore, the proposed project would not result in an increase in the base floodplain elevation nor encroach upon a floodplain area. As discussed, the proposed project would not encroach, cross, realign, or cause other hydraulic change that may affect downstream channel stability.

No Build Alternative

If the proposed project were not built, there would be no alterations to the existing interchange. Roadway capacity would remain unchanged. There would be no changes to the physical environment and no impacts would occur regarding hydrology and floodplains.

2.10.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

As discussed above, the proposed project would have minor modifications that would result in negligible impacts. However, as indicated above, the proposed project site would be subject to flooding during construction and the following impact avoidance measure should be implemented:

- During construction, the contractor will be responsible to protect the workplace from adverse effects of flooding by means such as plastic sheeting, fiber rolls, berms, minimizing earthwork during the rainy season and slope stabilization to minimize sediment from clogging the protected drainage inlet BMPs, gravel bags berms with greater porosity and structural integrity to allow runoff into drainage inlets while retaining sediment, and, pumping of flooded temporary low spots created by construction activities.

Other avoidance measures that would minimize potential impacts of the proposed project's drainage characteristics are addressed in Section 2.11, Water Quality and Storm Water Runoff.

2.11 WATER QUALITY AND STORMWATER RUNOFF

The information in this section is based on the discussion and conclusions from the May 2007 Project Planning and Design Guide Long Form – Storm Water Data Report that was prepared for this proposed project.

2.11.1 REGULATORY SETTING

Section 401 of the Clean Water Act (CWA) requires water quality certification from the State Water Resources Control Board (SWRCB) or from a Regional Water Quality Control Board (RWQCB) when the project requires a CWA Section 404 permit. Section 404 of the CWA requires a permit from the U.S. Army Corps of Engineers (Corps) to discharge dredged or fill material into waters of the United States.

Along with CWA Section 401, CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES) permit for the discharge of any pollutant into waters of the United States. The federal Environmental Protection Agency has delegated administration of the NPDES program to the SWRCB and nine RWQCBs. The SWRCB and RWQCB also regulate other waste discharges to land within California through the issuance of waste discharge requirements under authority of the Porter-Cologne Water Quality Act.

The SWRCB has developed and issued a statewide NPDES permit to regulate storm water discharges from all Department activities on its highways and facilities. Department

construction projects are regulated under the Statewide permit, and projects performed by other entities on Department right-of-way (encroachments) are regulated by the SWRCB's Statewide General Construction Permit. All construction projects in which the disturbed soil area is over 1 acre require a Storm Water Pollution Prevention Plan (SWPPP) to be prepared and implemented during construction. Department activities in which the disturbed soil area is less than 1 acre require a Water Pollution Control Program.

2.11.2 AFFECTED ENVIRONMENT

The proposed project is located within the 303 (d) Listed Dominguez Channel Watershed and within Caltrans Hydrologic Sub-Area (HSA) 411.01. Storm water runoff from the site is conveyed through a series of existing drainage facilities that ultimately drain into the Dominguez Channel and into the Pacific Ocean. The outfall to the Dominguez Channel is approximately 45.7 m (150 feet) away from the nearest proposed project limit and approximately 304.8m (1,000 feet) away from the furthest proposed project limit.

The historic high ground-water level in the site vicinity is estimated to be on the order of 10 feet beneath the existing ground surface. Based on recent investigations conducted by MACTEC Engineering and Consulting, Inc., the local groundwater table varies from 3.3m (11ft) to 9.5m (31.3 ft) below the existing surface. Shallow perched ground water was encountered at depths of 11 to 14 feet deep in some of the borings. No stained soils or odors were encountered on-site in the geotechnical borings drilled by MACTEC during its investigation. The generalized flow direction for the groundwater is estimated to be to the south-southeast.

The undeveloped and obviously elevated section of land located southwest of the I-405 Freeway and Avalon Boulevard is classified as generally flat with 2:1 (horizontal:vertical) slopes near the channels while the remaining proposed project site is highly urbanized and flat with 2 percent street grades. Slope stabilization areas of concerns are located near the channels where the ground slopes down to the channel at 2:1. The proposed project land is also divided in the east to west direction by a crushed aggregate base lined channel with sloping walls lined with rip-rap and by a smaller north to south channel lined with the same materials. Also, the I-405 runs elevated in the east to west direction with structural and earth ramps to touch down on the lower flat area.

2.11.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

Construction

Since no work would occur in the Dominguez or Torrance Lateral Channel and wetlands within the proposed project limits do not exist, the proposed project does not require Section 401 Certification.

Construction of the proposed project would require excavating, recontouring slopes, moving soil, etc., which would increase the potential for discharge of accidental pollutants into the storm drain system. However, construction would be required to implement temporary Best Management Practices (BMPs) in accordance with SWPPP and NPDES requirements. This

would reduce the potential for discharge of accidental and/ or implicit pollutants into the storm drain system during grading and construction. The BMPs would be designed to maintain construction areas in such a condition that storm flows do not carry wastes of pollutants off-site into the drainage system. The construction site BMP strategies for this proposed project are discussed under Avoidance, Minimization, and/or Mitigation Measures, below.¹¹ Implementation of the construction BMPs would avoid a significant impact.

Operation

Project operations would increase the volume of downstream flow, discharge to lined channels, potential sediment loading, and may potentially cause other hydraulic changes to the storm drain system affecting downstream channel stability. Increasing the tributary area by paving undeveloped area and draining into the existing storm drain system would increase impervious area, thus collecting more rainfall runoff. The runoff from the proposed project site, current and future, poses the threat of carrying pollutants of concern (POC's) off-site and ultimately into the Dominguez Channel. The POCs include: Ammonia, Benthic Community Effects, Benzo(a)pyrene (PAHs), Benzo(a)anthracene, Chlordane (tissue), Chrysene (C1-C4), Coliform Bacteria, DDT (tissue & sediment), Dieldrin (tissue), Lead (tissue), Polychlorinated Biphenyls (PCBs), Phenanthrene Pyrene, and Zinc (sediment).

The proposed project would channel drainage along paved surfaces and use ditches along the proposed retaining walls, concrete curbs and gutters at street level, drainage inlets, and an underground network of reinforced concrete pipes that eventually drain to the Dominguez and Torrance Lateral Channels through existing outfalls. The post construction drainage system will collect concentrated flows from the four interchange quadrants, one local low spot from the elevated structure and new road segments and drain by gravity to the Caltrans owned area bounded by I-405 to the north, Avalon Boulevard to the east, Lenardo Drive to the south and the Torrance Lateral Channel to the west. The drainage facilities will distribute the collected runoff to three small bio-filtration swales and one infiltration basin for water quality treatment. Upon treatment, the storm water will be routed into the existing storm drain system ultimately draining into the Dominguez and Torrance Lateral Channels. The proposed project does not have any existing cross drains nor does the proposed project intend to construct any new cross drains within the proposed project limits. Any off-site run-on that may result from a malfunctioning irrigation system, from liquids released from vehicle collisions, from unpermitted discharges, and/or flooding of the Torrance and Dominguez channels. Such runoff will be collected in the proposed project's proposed drainage system.

The proposed project site does not encompass any City of Carson or LA County domestic water supply reservoirs including domestic groundwater percolation facilities, therefore, direct discharge of runoff into high risk facilities is not possible in the event of a spill. There are no drinking water resources and recharge facilities within the proposed project limits.

The proposed project's design features for minimizing adverse impacts on water quality, and proposed project BMPs, some of which will protect the water quality during operations, as well

¹¹ In March 2007, a meeting was conducted with the designated District 7 Construction representative James Burt, in which he concurred on the proposed Construction Site BMP strategy for the project.

as during the construction period. With implementation of the proposed project's design features and the proposed project's BMPs, impacts would be less than significant.

NO BUILD ALTERNATIVE

Under the No Build Alternative, the existing configuration of the I-405 and Avalon interchange would remain the same. No construction impacts would occur. Operational impacts would be the same as occurring today.

2.11.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

In accordance with the Los Angeles County Municipal Storm Water NPDES Permit, the project will develop and implement a storm water management program per the Municipal Separate Storm Sewer System (MS4) permit granted to the City of Carson (CAR). Using the L.A. County Development Planning Model Program, the proposed project will develop the required Standard Urban Stormwater Mitigation Plan (SUSMP) prior to construction for those areas outside of the Caltrans right-of-way. The SUSMP will be utilized by proposed project designers, architects, engineers, and contractors to control peak storm water runoff rates, conserve natural areas, minimize pollutants of concern, protect slopes and channels, provide storm drain stenciling and signage, properly design trash storage area, provide proof of ongoing BMP operation and maintenance, and meet design standards for treatment control BMPs for areas outside of the Caltrans right-of-way.

PROJECT DESIGN FEATURES

The Storm Water Data Report identifies numerous project design features that would be protective of water quality. These include:

- The use of Caltrans approved materials.
- Backflow devices to prevent the storm drain system from backing-up, contaminating treated water and eliminating potential washouts.
- Benching, rounding or terraces to reduce concentration flows based on the project's final hydraulic report.
- Reducing slope lengths and constructing retaining walls to eliminate slopes in other areas and eradicating overtopping by stabilizing the affected slopes with the construction BMPs as mentioned below.
- Fully compacting slopes at 2:1 or flatter.
- Vegetation of all modified or new slopes. The entire vegetated slope area of approximately 2.0 ha (4.9ac) will be vegetated pursuant to an approved Caltrans landscaping plan. Early vegetation of slopes and/or slope paving will be considered and specified in the final PS&E plans.
- Implementation of treatment BMP to eliminate or at a minimum reduce potential storm water quality impact and to maximize the treatment of the water quality volume (WQV)

and water quality flow (WQF). Per Checklist T-1, Part 1, of the Storm Water Data Report, the pollutants of concern are best removed to the maximum extent practicable by infiltration basin.

CONSTRUCTION BMPS

During construction, the contractor shall be responsible to implement BMPs for the proposed project including but not limited to the following:

- Perimeter Controls: Runoff Control will be placed at the top of all excavation and embankment slopes.
- Slope Protection and Slope Interruption devices shall be implemented on applicable slopes during the construction period. Wherever possible, early implementation of permanent erosion control seeding or landscape planting shall be performed.
- At all construction site entrances, the contractor will provide construction stabilized entrances/ exits.
- Regular watering of the non-paved sites along with street sweeping and vacuuming will be required on paved surfaces.
- All slopes shall be protected with fiber rolls, silt fences, temporary slope drains and early slope paving or landscaping as defined in the approved Storm Water Pollution Prevention Plan (SWPPP) and the Water Pollution Control Plan especially during the rainy seasons of October 1 to May 1.
- During the rainy season, the total active disturbed soil area within the proposed project limits will be maintained to a minimum by focusing on construction activities that avoid earthwork and by implementing the approved Construction Site BMPs.
- The contractor will be required to manage all stock piles against wind and water erosion and contain concrete wastes with concrete washouts.
- All catch basins and drainage inlets will include gravel bag berms or storm drain inlet protection.
- For all construction equipment, fuels, and toxic chemicals spill prevention and spill control measures will be implemented before construction begins.

MAINTENANCE BMPS (DRAIN INLET STENCILING)

Drain Inlet Stenciling will be required within the city limits of Carson. In such cases, the contractor will use the City of Carson standard stenciling types unless otherwise informed by the proper City agent.

2.12 GEOLOGY/SOILS/SEISMIC/TOPOGRAPHY

Information regarding geology/ soils/ seismic topography was obtained from the Report of Geologic - Seismic Evaluation prepared by MACTEC Engineering and Consulting, Inc.

2.12.1 REGULATORY SETTING

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.” Topographic and geologic features are also protected under the California Environmental Quality Act.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and proposed project design. Earthquakes are prime considerations in the design and retrofit of structures. The Department’s Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. The current policy is to use the anticipated Maximum Credible Earthquake (MCE), from young faults in and near California. The MCE is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

2.12.2 AFFECTED ENVIRONMENT

Site Context

The proposed project site is located on the Torrance Plain in the coastal portion of California’s Peninsular Ranges geomorphic province. This province extends northwesterly from Baja California into the Los Angeles Basin and westerly into the offshore area, including Santa Catalina, Santa Barbara, San Clemente and San Nicolas islands. The northern boundary of the province is the Transverse Ranges along the Malibu, Santa Monica, Hollywood, Raymond, Sierra Madre, and Cucamonga faults. The eastern boundary of the province is the Colorado Desert geomorphic province along the San Jacinto fault system. The Peninsular Range province is characterized by northwest/ southeast trending alignments of mountains and hills and intervening basins, reflecting the influence of northwest trending major faults and folds controlling the general geologic structural fabric of the region. The Newport-Inglewood fault zone, a northwest-trending structural zone expressed at the surface by a series of discontinuous low hills, is located approximately 2 miles northeast of the site. There are no unique geologic features in the vicinity of the site.

Geologic Materials

The proposed project site is underlain by Holocene alluvium, which in turn is underlain by alluvial deposits of the Lakewood formation. The Holocene alluvium is generally composed of sand, silt, and clay which could be relatively loose or soft. The Lakewood formation generally consists of sand and silty sand with layers of clayey silt and silty clay. Artificial fill associated with the I-405, surrounding streets, and the Dominguez and Torrance Lateral channels is probably widespread throughout the proposed project area. Refuse (vegetation, wood, glass, plastic, metal, paper, concrete, etc.) overlain by variable thickness of cover fill (sandy silt, clayey silt, silty clay) is present at the prior landfill located to the west of the proposed project site, adjacent to the proposed southbound on-ramp and off-ramp in the southwest quadrant of the proposed project interchange. The sands typically have a low expansion potential however the silts and local clays could have medium to high expansion potential. The expansion potential of the onsite fills is currently unknown.

Ground Water

The historic high ground-water level in the site vicinity is estimated to be on the order of 10 feet beneath the existing ground surface. Based on recent investigations conducted by MACTEC Engineering and Consulting, Inc., the local groundwater table varies from 3.3m (11 feet) to 9.5m (31.3 feet) below the existing surface. Shallow perched ground water was encountered at depths of 11 to 14 feet deep in some of the borings. No stained soils or odors were encountered on-site in the geotechnical borings drilled by MACTEC during its investigation. The generalized flow direction for the groundwater is estimated to be to the south-southeast.

Surface Fault Rupture

The site is not within a currently established Alquist-Priolo Earthquake Fault Zone for surface fault rupture hazards. The closest active fault to the site with the potential for surface fault rupture is the Avalon-Compton segment of the Newport-Inglewood fault Zone located 2.1 miles to the northeast. The closest Alquist-Priolo Earthquake Fault Zone established for this trace of the Newport-Inglewood fault zone is located approximately 2.0 miles to the northeast.

Based on the available geologic data, active or potentially active faults with the potential for surface fault rupture are not known to be located directly beneath or projecting toward the site. Therefore, the potential for surface rupture due to fault plane displacement propagating to the surface at the site during the design life of the structures is considered low.

Seismicity and Ground Shaking

The location of the site relative to known active or potentially active faults indicates the site could be subjected to significant ground shaking. Such ground shaking is common in Southern California. The potential for ground shaking at the proposed project site is typical of the expected shaking at other locations throughout the region.

Liquefaction Potential and Seismic-Induced Settlement

The proposed project site is within an area identified as having a potential for liquefaction. Further, previous borings in the proposed project vicinity indicate that the potential for liquefaction of subsurface soils exists. The Lakewood deposits are generally dense and are not considered susceptible to liquefaction. However, the Holocene alluvium and some of the fill materials may be subject to liquefaction where the groundwater is less than 50 feet in depth, as is the case at the proposed project site.

Slope Stability

Slopes at the site consist of embankments for the existing I-405 and adjacent ramps. These slopes are at 2:1 (H:V) or flatter. Slopes are also present as the sides of the Dominguez Channel and the Torrance Lateral Channel. The channel slopes are lined with grout and some rip rap. These slopes are probably composed of artificial fill and recent alluvium. These materials are probably poorly bedded and not susceptible to land sliding. There are no known landslides at the site, nor is the site in the path of any known or potential landslides. The site is

not within a California Division of Mines and Geology (1998) Seismically Induced Landslide Hazard Zone.

Expansive Soils

As noted above, the site is underlain by sands, silts and clays. Sands typically have a low expansion potential; however silts and clays can have medium to high expansion potential and therefore must be considered in the proposed project design.

Other Potential Hazards

The Geologic-Seismic Technical Report prepared by MACTEC included an evaluation of the proposed project site for other geologic conditions that can be present at development sites. As indicated in the report, it was concluded that there are no geologic hazardous conditions pertaining to the following: tsunamis, inundation, and seiches; oil wells and methane gas; subsidence or volcanoes. Site conditions pertaining to flooding are addressed in Section 2.10, Hydrology and Floodplain.

2.12.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

The proposed project intends to realign and modify the existing northbound and southbound on- and off-ramps. In addition, the proposed project intends to extend Lenardo Drive with a bridge over the Torrance Lateral to the southbound off-ramp and Avalon Boulevard, and construct a new southbound on-ramp that is to meet the mainline freeway at 213th Street while widening the existing 213th Street Bridge. Construction of the two bridges requires the development of new structural elements with foundation work. Otherwise the proposed improvements require minor modifications to the existing bank/slopes to accommodate the modified access ramps.

As there are no unique geologic features in the vicinity of the site, construction of the proposed project improvements would not require the modification or destruction of unique geologic features. Further, there are no geologic conditions that would pose limitations on development that are not of a type commonly found on development sites throughout the region; and that are addressed through common design and engineering practices. Notwithstanding, the setting conditions described above indicate that there are a number of geologic conditions that could cause failure of structures, or a threat to the public safety if they are not addressed through proper design and engineering practices. These include the following:

- **Seismicity and Ground Shaking.** The location of the site relative to known active or potentially active faults indicates the site could be subjected to significant ground shaking. Such ground shaking could cause new structures, e.g. the new bridges to fail, unless designed to meet accepted standards for the protection of such structures. Furthermore, during a moderate to major seismic event near the proposed improvements, seismic settlement from shaking could develop within loose natural soils or within poorly compacted fills.

- **Liquefaction Potential and Seismic-Induced Settlement.** The Holocene alluvium and some of the fill materials that are present on the proposed project site may be subject to significant loading and seismic induced settlement. The liquefaction potential of the subsurface soils, seismic-induced settlements is anticipated at less than 1 to 1.5 inches.
- **Slope Stability.** As discussed above, there are no known landslides at the site, nor is the site in the path of any known or potential landslides. No impacts are anticipated to result with implementation of the proposed project. However, as the proposed project would be modifying existing slope conditions, improper design of the new slopes could result in future slope instability. Therefore, measures are included below to avoid such impacts.
- **Expansive Soils.** As described above, the proposed project site contains silts and local clays that could have medium to high expansion potential. Soil expansion could threaten the integrity of the new project structures and ramps.
- **Groundwater.** The structural elements for the bridge on Lenardo Drive over the Torrance Lateral and the 213th Street Bridge widening may be supported on deep foundations such as driven piles or Cast-In Drilled Hole (CIDH) concrete piles. Since groundwater may be present at these locations, construction of CIDH concrete piles would require special provisions such as the use of drilling mud to help prevent caving of shaft side walls.

NO BUILD ALTERNATIVE

If the proposed project were not built, there would be no alterations to the existing interchange. Roadway capacity would remain unchanged. There would be no changes to the physical environment and no impacts regarding geology/soils/seismic/ topography.

2.12.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

DESIGN GUIDELINES

The Geologic-Seismic Technical Report recommended certain guidelines to address potential hazards at the proposed project site. Accordingly, the following design features shall be included in the project design:

- **Seismic Activity.** In order to address potential shaking from earthquakes all new structural elements shall be designed and constructed in conformance with building codes and engineering practices that address expected shaking and meet standards for public safety. Earth material below wall footings should be compacted to not less than 95% (Section 19-5.03, Caltrans Standard Specification).
- **Liquefaction Potential and Seismic-Induced Settlement.** Site specific geotechnical investigations shall be performed to evaluate the potential for liquefaction and seismic induced settlements. If the site soils are liquefiable and subject to seismic-induced settlement, design measures such as deep foundations or ground improvement (increase the soil density) will need to be implemented. In areas where structures are

not present, repairs of damage due to liquefaction or seismic settlement may be acceptable.

- **Slope Stability.** New slopes may be constructed at gradients of 2:1 (horizontal to vertical) or flatter. If slopes steeper than 2:1 (horizontal to vertical) are required for the project, remedial measures may be taken such as: 1) Construction of the slopes in combination with retaining walls at the toe of the slope so that the slope gradients could be equal to 2:1 (horizontal to vertical) or flatter; 2) Construction of the slopes with geogrids or other georeinforcements so that the slopes will be stable.
- **Expansive Soils.** Testing of site soils and any imported soils should be performed to determine the potential for expansive soil conditions. If expansive soils are identified, structures shall be designed to mitigate expansive soils by such means as reinforcement of concrete or removal of expansive soils and replacement with non-expansive materials.
- **Ground Water.** As described above, groundwater may be present during excavation for the footings/foundations of the Lenardo Drive Bridge over the Torrance Lateral, and for the widening of the 213th Street Bridge. Construction of CIDH concrete piles will require special provisions such as the use of drilling mud to help prevent caving of shaft side walls. It should be noted that this method of drilling does not require that the groundwater be pumped out of the hole.

FURTHER SITE TESTING AND DESIGN PROCEDURES

As described above, further site investigations, and the implementation of appropriate design and engineering standards are required to assure that the proposed project improvements are safe. Subsurface explorations, laboratory testing, and engineering analyses must be performed to provide geotechnical recommendations for design of foundations, paving and grading for the proposed project. The result of these efforts shall be presented in a Foundation Report (FR) as per Caltrans' Guidelines for Foundation Investigations and Reports, version 2.0, dated March 2006. Future site and design study shall consist of the following tasks:

- Subsurface explorations to determine the nature and stratigraphy of the subsurface soils, and to obtain undisturbed and bulk samples for laboratory observation and testing.
- Site geology and subsurface conditions.
- Seismic study.
- Evaluation of the liquefaction potential of the soils underlying the site.
- Laboratory testing of soil samples for determination of the static physical soil properties.
- Corrosion studies to determine the presence of potentially corrosive soils.
- Engineering evaluation of the geotechnical data to develop recommendations for design of foundations paving and grading for the proposed project.

- Preparation of a formal report summarizing the data collected and presenting all design recommendations.
- Log of Test Borings.
- Evaluation of the existing structures for retrofitting, when widening the bridge.
- Effects of the seismic induced settlement on the foundation (e.g. down drag on piles).
- Effects of possible flooding on structure foundations and roadway.

2.13 PALEONTOLOGY

2.13.1 REGULATORY SETTING

Paleontology is the study of life in past geologic time based on fossil plants and animals. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects (e.g., the Antiquities Act of 1906 [16USC431-433] Federal Aid Highway Act of 1935 [20USC78]. Under California law, paleontological resources are protected by the California Environmental Quality Act, the California Administrative Code, Title 14, Section 4306 et seq., and Public Resources Code Section 5097.5.

2.13.2 AFFECTED ENVIRONMENT

The proposed project site is located in the northeastern portion of the Los Palos Verdes peninsula, approximately six miles east of the coast. The proposed project vicinity is relatively flat. The nearest topographic relief is the Dominguez Hills which border the proposed project area to the northeast. The area is underlain by Quaternary alluvial deposits.

The study area currently consists of urban freeway infrastructure and adjacent vegetated areas. Developed areas include paved roads, flood control channels (i.e., the Dominguez Channel and Torrance Lateral Channel), a nursery, and other graded areas that lack vegetation. The study area does not support any native vegetation due to its location within a highly urbanized area. Vegetation is limited to planted ornamental species adjacent to the freeway and freeway on- and off-ramps and ruderal (i.e., weedy) species adjacent to the freeway.

A paleontological record search through the Natural History Museum of Los Angeles County indicated that there are no known fossil localities within the proposed project area.¹² The record search did note that eight fossil vertebrate localities have been identified in a two-to-three mile radius of the proposed project area.

Sedimentary deposits of concern in the proposed project area are Older Quaternary in age. These deposits have yielded multiple species of Late Pleistocene-aged terrestrial and marine

¹² PCR commissioned a paleontological records search on August 10, 2006 through the Natural History Museum of Los Angeles County for the Carson Ramps project area.

vertebrates at depths of 5 to 30 feet below the modern ground surface. Species included mammoth, camel, bison, horse, and fossil whale.

2.13.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

No paleontological resources have been previously identified within the proposed project site, or immediate vicinity. Surface grading or shallow excavations are unlikely encounter significant fossil vertebrate remains in any case. The potential of encountering resources is reduced further due to the disturbed nature of the proposed project site, with fill replacing native soils. Therefore, the proposed project is not expected to encounter paleontologic resources.

NO-BUILD ALTERNATIVE

If the proposed project were not built, there would be no alterations to the existing intersection; and no changes to the physical environment. There would be no impacts on paleontological resources.

2.13.4 AVOIDANCE, MINIMIZATION, MITIGATION MEASURES

As indicated, the proposed project is not expected to impact paleontological resources. However, if the proposed project should result in deeper excavation into native soils there would be a potential to encounter paleontological resources. Such resources are protected under CEQA and measures are available to avoid significant impacts. Therefore, the following avoidance measure is recommended to reduce the impact to undiscovered paleontological resources to a less than significant level:

Should an excavation into deeper soils occur, and fossil resources be encountered, the following steps shall be followed:

- Construction work shall cease.
- A qualified principal paleontologist (M.S. or PhD in paleontology or geology familiar with paleontological procedures and techniques) shall be retained to recover fossil remains, and monitor further excavation activity as appropriate.
- Fossil remains collected during the monitoring and salvage operations shall be cleaned, repaired, sorted, and cataloged.
- Prepared fossils, along with copies of all pertinent field notes, photos, and maps, then be deposited in a scientific institution with paleontological collections.
- A final report shall be completed that outlines the results of the mitigation/ minimization program.

2.14 HAZARDOUS WASTE MATERIALS

Information regarding hazardous waste/ materials were obtained from the Report of Phase I Environmental Site Assessment (ESA) prepared by MACTEC Engineering and Consulting, Inc. dated January 16, 2008.

2.14.1 REGULATORY SETTING

Hazardous materials and hazardous wastes are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health and land use.

The primary federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980. The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for “cradle to grave” regulation of hazardous wastes. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the federal Resource Conservation and Recovery Act of 1976, and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during proposed project construction.

2.14.2 AFFECTED ENVIRONMENT

The proposed project site currently exists as on and off-ramps to the I-405 Freeway, banked slopes adjacent to and supporting the ramps and freeway and the existing Avalon Boulevard roadway. Prior to freeway use, the site appears to have been either undeveloped or used for agricultural activities.

The Phase I report for the proposed project included an evaluation of the geology, surface drainage, and ground-water flows to identify potential pathways of contamination. It also included a site reconnaissance to identify potential on-site contaminants, a historical review of the previous site uses to determine if hazardous conditions associated with certain uses might be present, and a review of regulatory agency lists of known sites with potential environmental contaminants. Owner interviews were also conducted to identify potential site contaminants. Coordination was carried out between Caltrans, the City of Carson and the Los Angeles County Flood Control District – South Area Maintenance Division.

The Phase I report concluded that there are no sources of environmental concern at the subject site with the exception of potential residual contaminants of a former landfill that lies adjacent to the west side of the proposed project site and potential contaminants from vehicles traveling along the freeway as it runs through the proposed project site. The freeway has been present since at least 1965 and therefore airborne contaminants such as lead from fuel exhausts may have migrated into the near surface soils along the sides of the freeway and its ramps and under the Avalon Boulevard overpass.

The former landfill site lies adjacent to the western-most edge of the proposed project site; i.e. adjacent to the Lenardo Drive extension/bridge and southbound on- and off-ramps in the southwest quadrant of the interchange. The landfill site is the future home of the Carson Marketplace. Pursuant to development of the Carson Marketplace a Remediation Action Plan (RAP) has been prepared to remedy the hazardous conditions on that site, and make the site safe for human activity. The RAP was approved by the Department of Toxic Substances Control (DTSC) in 1995, for that site's Upper Operable Unit and in 2005 for the Lower Operable Unit. Its implementation will make the site safe for the Marketplace's proposed retail and residential uses; and will also reduce the potential for off-site migration of hazardous materials, that otherwise might reach the proposed project site.

The potential concern of the proposed project regarding the landfill is the potential migration of contaminants to the proposed project site. Although groundwater under the landfill site has shown levels of contamination from the landfill, according to the Carson Marketplace EIR, the risk to groundwater in the area from the landfill is considered minimal. Nevertheless, it is possible that some groundwater contamination may have migrated to the proposed project site from the adjacent landfill. Pesticides have been detected in at least one of the soil samples tested for the Carson Marketplace. This may be a result of previous pesticide use for agricultural purposes in the area. Barium was also detected above background levels in the soils collected at the Marketplace property. However, landfill gases, pesticides, metals, and groundwater issues will be mitigated through the RAP process.

As indicated in the Phase I ESA, no above ground or underground storage tanks, hazardous substances or petroleum products, solid waste, electrical transformers, wetlands, sources of air emissions, wells or indications of mine shafts, pits, ponds and lagoons, sensitive receptors, or dry cleaning activities were observed on-site. Since the site is not developed with buildings, the presence of asbestos or lead-based paint is not considered to be an environmental issue. No other listed facilities, uses, or sites may potentially affect the proposed project site. Surrounding properties that appeared on Federal and/or State Regulatory lists include 21101 South Avalon, 21121 South Avalon, 21126 South Avalon 21243 South Avalon, 810 Dominguez Street, and the Martin Adams Dump located at 213th Street to 21111 Dolores. Although these sites appeared on the lists of potentially hazardous conditions, and the sites are located in the general vicinity of the proposed project site, these sites were determined not to be of concern as they had no contamination issues despite their listing, they were not sufficiently close to the proposed project site to pose a threat, and/or there is a lack of migration routes between these listed site and the proposed project site.

2.14.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

Construction

Construction of the proposed project would require soil excavation along all of the ramp locations that are to be improved and/or built: the I-405 northbound on-ramp and off-ramp north of the I-405, the southbound on- and off-ramp in the southwest quadrant of the interchange and the new southbound on-ramp in the southeast quadrant of the interchange. As noted above, excavation in these soils could expose workers to contaminants associated with the automobile emissions or the former landfill site, and/or contaminated materials could be further dispersed.

In addition, proposed project construction would require excavation for the footings for the new Lenardo Drive Bridge if Cast-In Drilled Hole (CIDH) concrete piles are used instead of driven piles. Groundwater may be encountered in the excavation for the CIDH piles for Lenardo Bridge adjacent to the former landfill site. Due to the potential for off-site contamination resulting from former land fill activities and the potential presence of contaminated soils in that vicinity, construction workers could be exposed to contaminated materials and/or contaminated materials could be further dispersed.

Potential impacts from exposure to contaminants can be avoided fully, or minimized as needed through further site analysis. Should contaminants be present, the construction practices and protocols for the protection of the public will be implemented. Such measures are identified below.

Operation

The proposed project would not require the use of hazards/ hazardous waste materials. Therefore, no impacts are expected to occur as a result of the new interchange modifications proposed by the project.

Impacts regarding hazardous waste/materials during the operation of the proposed project would remain similar to those occurring without implementation of the proposed project. The proposed project would not add new vehicle trips to the roadway network, but would better serve traffic occurring regardless. Vehicles that travel along I-405 create an above ground source of air pollutants. Lead is historically a common pollutant from the exhaust of motor vehicles and can be aerielly dispersed along the sides of the interstate. However, such dispersion is typical of conditions in the South Bay region and impacts would be considered negligible.

NO BUILD ALTERNATIVE

If the proposed project were not built, there would be no alterations to the existing interchange. Roadway capacity would remain unchanged. There would be no changes to the physical environment and no impacts regarding hazardous waste materials.

2.14.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

As described above, certain impact avoidance measures should be taken to avoid impacts regarding hazardous waste/ materials. In order to address the potential impacts of contaminated soils or ground water further site analyses should be performed under the protocols of a Phase II site investigation. The Phase II investigator should review available As-Built Plans of the existing project facilities prior to the on-set of activities.

Prior to implementing the Phase II program, a Phase II Workplan (including a health and safety plan) shall be prepared and approved by Caltrans prior to the completion of the Final Project Report. The Phase II Work Plan should identify the locations of each boring, sampling intervals, sample analysis, and methods to be utilized.

In addition, an encroachment permit shall be obtained for performing site investigation work within the existing Caltrans right of way.

Features of the Phase II site investigations shall include the following:

- The Phase II Site Assessment shall assess the potential for soil gases, volatile organic compounds (VOC's), semi- volatile organic compounds (SVOC's), pesticides, metals, poly-aromatic hydrocarbons (PAH's), total petroleum hydrocarbons (TPH), polychlorinated biphenyl (PCBs), and cyanide along the southwestern quadrant alignment. This testing should occur in the areas adjacent to the location where deep excavation may occur for footings for the Lenardo Bridge and along the southwestern boundary of the southbound off-ramp.
- The Phase II Site Assessment in the existing I-405 southbound off-ramp to Avalon Boulevard and the existing I-405 southbound loop on-ramp should include but may not be limited to soil borings to analyze the soil and ground water that may contain contaminants of concern that have migrated on to the Site. A soil gas survey for volatile organics, methane, and hydrogen sulfide should also be performed along the boundary of the former landfill, adjacent to the existing I-405 southbound off-ramp to Avalon Boulevard.

- In addition, soil samples should be taken along the new I-405 southbound on-ramp, the I-405 northbound off-ramp to Avalon Boulevard, and the I-405 northbound on-ramp and analyzed for lead. Some of these samples should also be analyzed for Title 22 metals.
- If review of Caltrans as built plans show that landfill material was used for construction of the Avalon Interchange, then the Phase II investigation shall include soil investigations to determine the quality of these soils with respect to suspect contaminants of concern.
- All testing should be performed in accordance with established USEPA methodology and state of California protocols for sampling and analysis of soil, soil gas, and ground water.

Should any contaminants be discovered during testing, then standard protocols for the protection of construction workers, and neighboring properties shall be implemented pursuant to state regulatory measures including but not limited to Cal OSHA standards. Project construction would be conducted with a contingency plan in place in the event that unknown hazardous materials are unexpectedly encountered during construction.

2.15 AIR QUALITY

This air quality analysis is based on the Air Quality Impacts Technical Report prepared for this Project.

2.15.1 REGULATORY SETTING

The Clean Air Act as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). Standards have been established for six criteria pollutants that have been linked to potential health concerns; the criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM) lead (Pb), and sulfur dioxide (SO₂).

Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve Federal actions to support programs or projects that are not first found to conform to the Regional Transportation Plan for achieving the goals of the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels -- first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved.

Regional level conformity is concerned with how well the region is meeting the standards set for carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), and particulate matter (PM). California is in attainment for other criteria pollutants. At the regional level, Regional Transportation Plans (RTP) are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements

of the Clean Air Act are met. If the conformity analysis is successful, the regional planning organization, the Southern California Association of Governments (SCAG) including Los Angeles County, and the appropriate federal agencies, such as the Federal Highway Administration, make the determination that the RTP is in conformity with the Regional Transportation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the RTP, then the proposed project is deemed to meet conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires “hot spot” analysis if an area is “nonattainment” or “maintenance” for carbon monoxide (CO) and/or particulate matter. A region is a “nonattainment” area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as nonattainment areas but have recently met the standard are called “maintenance” areas. “Hot spot” analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA and CEQA purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the CO standard to be violated, and in “nonattainment” areas the project must not cause any increase in the number and severity of violations. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

Table 15 on page 108, is a compiled list of federal and state standards as well as the attainment status for the South Coast Air Basin (Basin) where the project is located. As shown, the Basin is in non-attainment of federal standards for O₃, PM₁₀ and PM_{2.5} pollutants.

2.15.2 AFFECTED ENVIRONMENT

REGIONAL METEOROLOGY & CLIMATE

The proposed project is located within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The Basin is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. It includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The distinctive climate of this area is determined primarily by its terrain and geographical location. Regional meteorology is largely dominated by a persistent, high-pressure area which commonly resides over the eastern Pacific Ocean. Seasonal variations in the strength and position of this pressure cell causes changes in the weather patterns of the area. Local climatic conditions are characterized by warm summers, mild winters, infrequent rainfall, moderate daytime on-shore breezes, and moderate humidity. This normally mild climatic condition is occasionally interrupted by periods of hot weather, winter storms, and Santa Ana (hot easterly flow) winds. The Basin is an area of high air pollution potential, particularly from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds and shallow vertical atmospheric mixing. This condition, also known as an inversion layer, frequently reduces pollutant dispersion, creating an increase in air pollution levels. Pollutant concentrations in the Basin vary with location, season and the time of day. Ozone (O₃) concentrations, for example, tend to be lower along the coast,

Table 15

Ambient Air Quality Standards and Attainment Status for the Basin

Criteria Pollutant	Averaging Time	Federal Standard	Federal Attainment Status	California Standard	State Attainment Status
Ozone (O ₃)	1 Hour	N/A	N/A ^a	0.09 ppm (180 µg/m ³)	Non-attainment
	8 Hour	0.08 ppm (157 µg/m ³)	Severe-17	0.070 ppm (137 µg/m ³)	N/A
Respirable Particulate Matter (PM ₁₀)	24 Hour	150 µg/m ³	Serious	50 µg/m ³	Non-attainment
	Annual Arithmetic Mean	N/A	N/A ^c	20 µg/m ³	Non-attainment
Fine Particulate Matter (PM _{2.5})	24 Hour	35 µg/m ³	Serious	—	Non-attainment
	Annual Arithmetic Mean	15 µg/m ³		12 µg/m ³	
Carbon Monoxide (CO)	1 Hour	35 ppm (40 mg/m ³)	Attainment	20 ppm (23 mg/m ³)	Attainment ^b
				9.0 ppm (10mg/m ³)	
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.053 ppm (100 µg/m ³)	Attainment ^b	—	Attainment ^b
	1 Hour	N/A		0.18 ppm (338 µg/m ³)	
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	0.030 ppm (80 µg/m ³)	Attainment ^b	—	Attainment ^b
	24 Hour	0.14 ppm (365 µg/m ³)		0.04 ppm (105 µg/m ³)	
	1 Hour	N/A		0.25 ppm (655 µg/m ³)	
Lead 9 (Pb)	30 Day Average	N/A	Attainment ^b	1.5 µg/m ³	Attainment ^b
	Calendar Quarter	1.5 µg/m ³		—	
Sulfates (SO ₄)	24 Hour	—	N/A	25 µg/m ³	Attainment ^b

N/A = not applicable

^a The NAAQS for 1-hr ozone was revoked on June 15, 2005 for all areas except Early Action Compact (EAC) areas.

^b An air basin is designated as being in attainment for a pollutant if the standard for that pollutant was not violated at any site in that air basin during a three year period.

^c The NAAQS for annual PM₁₀ was revoked on September, 21 2006.

Source: California Air Resources Board, Ambient Air Quality Standards, November 10, 2006 and the USEPA, 2007.

higher in the near inland valleys and lower in the far inland areas of the Basin and adjacent desert.

EXISTING SETTING

Figure 25 on page 109 provides an aerial view of the proposed project area which indicates the location of the sensitive receptors within the proposed project area. As indicated sensitive receptors, residences, are located in the proposed project area.

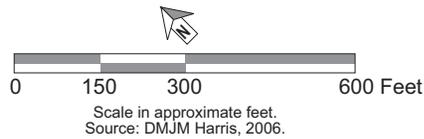
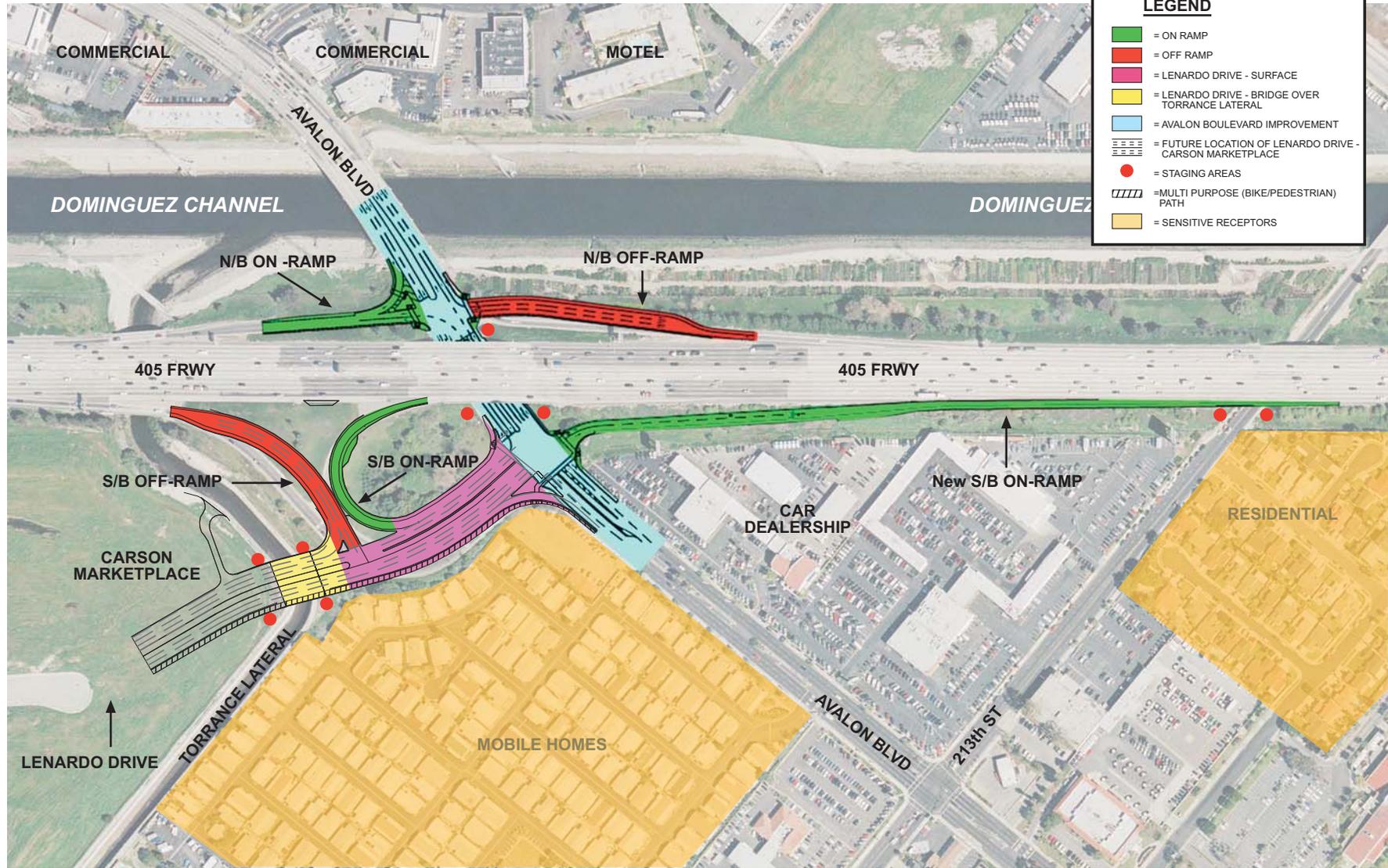


Figure 25
Sensitive Receptors - Air Quality

2.15.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

Regional Air Quality Conformity

Destination 2030, the 2004 Regional Transportation Plan was found to conform by SCAG in April of 2004, and FHWA and FTA adopted the air quality conformity finding on November 28, 2006. The proposed project is included in SCAG 2006 Regional Transportation Improvement Program, as project identifier LAE2198. The design concept and scope of the proposed project is consistent with the project description in the 2004 RTP, the 2006 RTIP and the assumptions in the SCAG's regional emissions analysis.

Project Level Conformity

Under the requirements of the Clean Air Act Amendments, proposed transportation projects must be derived from an RTP that conforms to the applicable local air quality plans in the state implementation plan. Projects must also be included in a Transportation Improvement Program (TIP) that conforms with the State Implementation Plan (SIP). The proposed ramp improvements are included in the Final Adopted 2006 Regional Transportation Improvement Program (RTIP), as project identifier LAE2198. The proposed project is described therein as "Avalon Boulevard Interchange modification at I-405 improving Avalon/I-405 Interchange by constructing a new southbound on-ramp, widening northbound off-ramp and on-ramp, providing access." It is therefore determined that the Build Alternative would be in conformance with the SIP and is consistent with the requirements of the Transportation Conformity Rule.

The USEPA specified in 40 CFR 93.123(b)(1) of the 2006 Final Rule that Projects of Air Quality Concern (POAQC) are those highway and transit projects that involve significant levels of diesel vehicle traffic, or any other project that is identified in the PM_{2.5} and PM₁₀ SIP as a localized air quality concern. Details of the project were presented to the SCAG Transportation Conformity Working Group (TCWG) on November 28, 2006. Specifically, the diesel traffic percentage is estimated to be 2.4 percent based on the 2004 truck data from the Caltrans Traffic and Vehicle Data Systems Unit.¹³ Because project-related intersections, roadways, and ramps are not predicted to involve a significant volume of diesel vehicles, major contributors to airborne particulate matter concentrations from transportation projects, and the proposed project does not meet the other criteria (see Section 3.2.2.3 of the Air Quality Technical Report), the TCWG found this proposed project not to be a POAQC. Thus, this proposed project is considered to have met regulatory requirements with respect to demonstrating conformity for PM₁₀ and PM_{2.5}.

As shown below in the localized operational impact analysis project related emissions are not predicted to cause localized concentrations of CO to exceed those existing within the region at the time of attainment demonstration. Thus, the proposed project is considered to conform with the applicable CO Air Quality Management Plans (AQMP).

¹³ Caltrans Traffic Data Systems Unit. Available online: <http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm>.

Operation

Regional

Project operations refer to activities that would occur at a project site when construction is complete and the site has been occupied with its intended use. Since there are no stationary sources associated with the construction of freeway ramps and the proposed project would not generate additional traffic volumes, the impact analysis focuses on impacts associated with the changes in configuration of the existing interchange of Avalon Boulevard at I-405.

The traffic analysis for the proposed project evaluated traffic conditions with the proposed Build Alternative at three proposed project intersections and eleven other nearby intersections in the vicinity of the proposed project interchange, to total 14 intersections. Projected traffic volumes and LOS for the intersections studied are shown in Table 16 on page 112. Projected delay times for the intersections studied in the traffic analysis are shown in Table 17 on page 113.

The proposed Build Alternative would provide new direct access routes to the I-405, allowing new, less circuitous, shorter routes for travelers accessing the freeway from locations in western Carson, particularly the site of the Carson Marketplace project.

With direct routing, certain travel routes become shorter which has the effect reducing miles traveled along those routes, reducing the number of trips through individual intersections and thereby reducing VMT and delay times. The changes in trip volumes for the 14 studied intersections with implementation of the Build Alternative are shown in Table 18 on page 114. As indicated, the traffic volumes through 13 of the 14 intersections analyzed are reduced. The net reduction in AADT through the intersections is 24,613 trips. (Note: The net reduction does not equal the sum of the trips through individual intersections because some of those net trips occur at more than one intersection.)

The changes in delay times for the 14 intersection analyzed with implementation of the Build Alternative is shown Table 19 on page 115. As indicated, the average delay time would be reduced by 11.7 seconds, a reduction of 30 percent. As further indicated, seven of the intersections have reductions, some of which are quite substantial; e.g. a P.M. peak reduction of 49.5 seconds at Main Street and Torrance Boulevard, and a P.M. peak reduction of 43.3 seconds at Stamps Drive and Del Amo Boulevard. Two intersections have no change in delay time, and the remaining intersections have only slight changes in delay time.

It may be noted in Tables 18 and 19 that the proposed project's two existing intersections (Intersection 6, Avalon Boulevard and I-405 northbound ramps, and Intersection 7, Avalon Boulevard and Lenardo Drive/I-405 southbound ramps) include an increase in trip volumes at one location and increases in delay times at both. The reason that the volumes go up at the intersection of Avalon Boulevard and Lenardo Drive/I-405 southbound on-ramp is because the trips that are taken off of the surrounding roadways are channeled to the new intersection and new southbound freeway ramp. The increased volumes and changes in signalization are responsible for the increase in delay time at this location. Changes in signalization are the cause of the increase in delay time at the Avalon Boulevard northbound ramps. However, it should be noted that even with the increase in volume at one intersection and the increase in

Table 16

**Annual Average Daily Traffic Volumes within Analyzed Intersections for 2010 and 2030 Under
the Build Alternative**

Intersection Location	2010			2030		
	LOS		AADT	LOS		AADT
	A.M.	P.M.		A.M.	P.M.	
I-405 NB Ramps & Carson Street	A	A	34,309	A	A	36,867
I-405 SB Ramps & Carson Street	A	A	37,851	A	A	40,698
Avalon Boulevard & Carson Street	C	D	66,964	C	D	72,016
Main Street & Carson Street	D	E	69,772	D	F	74,600
Avalon Boulevard & 213 th Street	B	C	51,470	B	C	55,196
Avalon Boulevard & I-405 NB Ramps	B	B	68,237	B	C	72,554
Avalon Boulevard & Lenardo Drive/I-405 SB On-Ramp	B	C	69,903	B	C	73,393
I-405 SB Ramps & Lenardo Drive	B	B	42,325	B	B	43,703
Main Street & Torrance Boulevard	D	D	48,150	E	E	50,814
Main Street & Lenardo Drive	A	B	43,926	A	B	45,828
Avalon Boulevard & Del Amo Boulevard	C	D	65,456	C	E	70,048
Stamps Drive & Del Amo Boulevard	C	C	55,589	C	C	56,849
Main Street & I-405 NB Off-Ramp	B	B	33,417	B	B	35,713
Main Street & I-405 SB On-Ramp	A	B	35,595	A	B	38,074
TOTAL			722,964			766,352

Source: PCR Services Corporation, 2006.

delay time at the two intersections, the LOS level would be an acceptable LOS C during the P.M. peak hour and LOS B during the A.M. peak hour at both intersections.

As mentioned above, with improved direct routing for many trips, certain travel routes become shorter which has the effect of reducing miles traveled along those routes, and ultimately contributing to a reduction in VMT. At the same time, the proposed project is not relocating the existing intersections, nor changing roadways in the vicinity of the proposed project, nor adding trip volumes to any intersection except the one proposed project intersection discussed above. Therefore, the proposed project would not cause any travelers to change their trip routes in ways that would increase their mileage. However, travelers located to the west of the proposed intersection would have the incentive of reduced travel distances to change their travel behavior. This is reflected in Table 18. As indicated, all of the intersections to the west of the proposed project have reductions in trip volume. This occurs because travelers from this area will can access the freeway across Lenardo Drive. In so doing, they would avoid more circuitous routes to the freeway. For example, without the Lenardo Drive bridge to access the southbound freeway directly, a traveler from a typical location on the Carson Marketplace site would need to take a circuitous north on Stamps, east on Del Amo Boulevard, and then south on Avalon Boulevard, and then pass through the proposed project's two Avalon Boulevard intersections to reach the southbound loop on-ramp, or approximately 1.5 miles more than the

Table 17

Future Delay Times for the Build Alternative

	Intersection	Peak Hour	2010 Build Alternative		2030 Build Alternative	
			Delay ^a	LOS ^b	Delay ^a	LOS ^b
1	Carson Street & I-405 NB Ramps	A.M.	5.7	A	6.3	A
		P.M.	5.1	A	5.4	A
2	Carson Street & I-405 SB Ramps	A.M.	6.4	A	6.4	A
		P.M.	6.5	A	6.9	A
3	Avalon Boulevard & Carson Street	A.M.	27	C	29.5	C
		P.M.	45.8	D	47.3	D
4	Main Street & Carson Street	A.M.	36.6	D	40.2	D
		P.M.	65.6	E	82.9	F
5	Avalon Boulevard & 213 th Street	A.M.	17.1	B	17.5	B
		P.M.	27.1	C	33.4	C
6	Avalon Boulevard & I-405 NB Ramps	A.M.	11.7	B	12.2	B
		P.M.	19.5	B	21.8	C
7	Avalon Boulevard & Lenardo Drive/I-405 SB On-Ramp	A.M.	17.7	B	18.8	B
		P.M.	22.2	C	19.4	C
8	Lenardo Drive & I-405 SB Ramps	A.M.	11.6	B	11.5	B
		P.M.	13.1	B	13.5	B
9	Main Street & Torrance Boulevard	A.M.	42.9	D	56.7	E
		P.M.	53.5	D	64.7	E
10	Main Street & Lenardo Drive	A.M.	7.5	A	7.6	A
		P.M.	14.8	B	16.8	B
11	Avalon Boulevard & Del Amo Boulevard	A.M.	28	C	32.6	C
		P.M.	53.9	D	71.8	E
12	Stamps Drive & Del Amo Boulevard	A.M.	21.6	C	21.7	C
		P.M.	32.4	C	34.1	C
13	Main Street & I-405 NB Ramps	A.M.	15	B	15.7	B
		P.M.	12.7	B	13.6	B
14	Main Street & I-405 SB Ramps	A.M.	9.6	A	9.9	A
		P.M.	16.2	B	17.9	B

^a Average delay in seconds per vehicle.

^b Delay and level of service (LOS) calculated using 2000 Highway Capacity Manual level-of-service methodology.

Source: Traffic Technical Report for the I-405/Avalon Boulevard Interchange Improvement Project Report and Initial Study/Environmental Assessment, Fehr & Peers/KAKU Associates, December 2007.

Table 18

Trip Reductions With The Build Alternative – 2030

	Intersection	2030 No Build Alternative AADT	2030 Build Alternative AADT	Reduction in Total Trips	Trip Reductions in Individual Intersections
1	I-405 NB Ramps & Carson Street	40,423	36,867		-3,556
2	I-405 SB Ramps & Carson Street	47,639	40,698		-6,941
3	Avalon Boulevard & Carson Street	80,557	72,016		-8,541
4	Main Street & Carson Street	83,955	74,600		-9,355
5	Avalon Boulevard & 213 th Street	57,610	55,196		-2,414
6	Avalon Boulevard & I-405 NB Ramps	75,046	72,554		-2,492
7	Avalon Boulevard & Lenardo Drive/ I-405 SB On-Ramp	63,160	73,393		10,233
8	I-405 SB Ramps & Lenardo Drive	NA	43,703		NA
9	Main Street & Torrance Boulevard	62,464	50,814		-11,650
10	Main Street & Lenardo Drive	58,384	45,828		-12,556
11	Avalon Boulevard & Del Amo Boulevard	80,465	70,048		-10,417
12	Stamps Drive & Del Amo Boulevard	67,476	56,849		-10,627
13	Main Street & I-405 NB Off-Ramp	35,713	35,713		0
14	Main Street & I-405 SB On-Ramp	38,074	38,074		0
	Total	790,966	766,353	-24,613	NA

Source: PCR Services Corporation, 2007.

direct route from such a location. As noted in Table 18, the trip volumes at Stamps and Del Amo and at Avalon Boulevard and Del Amo Boulevard are reduced by approximately 10,000 daily trips. For illustrative purposes, it may be noted that 10,000 daily trips generating from the center of the Carson Marketplace site would save approximately 10,000 miles of reduced travel on the local network, daily. Likewise, Table 18 indicates that there are trip reductions of approximately 12,000 trips at Main Street and Torrance Boulevard and Main Street and Lenardo Drive. The travel distance to the freeway ramps from these locations with the Build Alternative is approximately 1 mile. Alternative routes to the freeway from these two Main Street intersections via Del Amo and Avalon Boulevard of Main Street and Carson Street are approximately 1.7 miles and 2.25 miles respectively. Again, if 12,000 trips used a routing that would save in the range of 0.7 to 1.25 miles, again tens of thousands of miles would be reduced daily. Trip reductions at the remaining intersections listed in Table 18 also indicate further trips that no longer engage the intersections as they have chosen shorter travel routes. Therefore, the more direct, shorter movement reduces the mileage of individual trips and therefore reduces the regional VMT. Implementation of the Build Alternative would not add new trips to the roadway network. Further, it would not cause longer travel trips for any travelers, and as described above, would cause considerable reductions in mileage traveled. Thus, the impact of regional air pollutant emissions resulting from the Build Alternative is a net environmental benefit, which is considered less than significant.

Table 19

Delay Benefits of the Build Alternative – 2030

	Intersection	Peak Hour	No Build Alternative Delay^a	Build Alternative Delay^a	Change in Delay
1	Carson Street & I-405 NB Ramps	A.M.	5.6	6.3	0.7
		P.M.	5	5.4	0.4
2	Carson Street & I-405 SB Ramps	A.M.	9.8	6.4	-3.4
		P.M.	16.7	6.9	-9.8
3	Avalon Boulevard & Carson Street	A.M.	49.4	29.5	-19.9
		P.M.	66	47.3	-18.7
4	Main Street & Carson Street	A.M.	44.2	40.2	-4
		P.M.	162	82.9	-79.1
5	Avalon Boulevard & 213 th Street	A.M.	17.4	17.5	0.1
		P.M.	25.7	33.4	7.7
6	Avalon Boulevard & I-405 NB Ramps	A.M.	7	12.2	5.2
		P.M.	19.7	21.8	2.1
7	Avalon Boulevard & I-405 SB Ramps	A.M.	13.5	18.8	5.4
		P.M.	10.9	19.4	10
8	Lenardo Drive & I-405 SB Ramps		Not in No-Build -- NA		
9	Main Street & Torrance Boulevard	A.M.	85.2	56.7	-28.5
		P.M.	114.2	64.7	-49.5
10	Main Street & Lenardo Drive	A.M.	10.4	7.6	-2.8
		P.M.	53.8	16.8	-37
11	Avalon Boulevard & Del Amo Boulevard	A.M.	42.1	32.6	-9.5
		P.M.	98.4	71.8	-26.6
12	Stamps Drive & Del Amo Boulevard	A.M.	24.9	21.7	-3.2
		P.M.	77.4	34.1	-43.3
13	Main Street & I-405 NB Ramps	A.M.	15.7	15.7	0
		P.M.	13.6	13.6	0
14	Main Street & I-405 SB Ramps	A.M.	9.9	9.9	0
		P.M.	17.9	17.9	0
	Average		39.1	27.3	-11.8

^a Average delay in seconds per vehicle.

Source: PCR Services Corporation, 2007.

Local

CO Hotspot Analysis

A primary localized pollutant of concern regarding project operations is carbon monoxide from motor vehicles. Therefore, a CO analysis of roadway CO is recommended by Caltrans in the published document titled *Transportation Project-Level Carbon Monoxide Protocol*, December 1997. The protocol provides guidance on whether projects would require regional CEQA

analysis, conformity determination, and a localized CO analysis. A detailed discussion of the decision made to determine whether a localized CO analysis is necessary is provided in Appendix A-3 of the Air Quality Technical Report.

The analysis of roadway CO impacts followed the protocol recommended by Caltrans and published in the document titled *Transportation Project-Level Carbon Monoxide Protocol*, December 1997. The protocol provides guidance on whether projects would require a localized CO analysis. Intersections that are likely to substantially worsen air quality at signalized intersections and represent a potential for a CO violation are intersections that operate at a level of service E or F. Thus, the intersections modeled within the AQMP were of LOS F and modeled with worst case meteorological conditions at a receptor distance of 10 feet. The most congested intersection in Los Angeles County (Wilshire Boulevard and Veteran Boulevard) was modeled with 100,000 vehicles per day. Microscale modeling was performed as part of the AQMP attainment demonstration at four intersections within the Basin that would represent the greatest potential to cause an exceedance of the CO standards. These four intersections with the greatest potential for elevated CO concentrations would not result in an exceedance of the CO standards.

All intersections with proposed improvements would operate at a level of C or better and with substantially fewer vehicles than modeled in the AQMP. Modeled meteorological conditions and receptor distance would also be similar to the intersections modeled within the AQMP. Therefore, the Build alternative is not suspected of resulting in higher CO concentrations than those existing within the region at the time of attainment demonstration.

PM₁₀ and PM_{2.5} Local

The percentage of truck traffic in the area is not expected to increase as a result of the proposed project. Due to the decrease in traffic volumes through the nearby roadways and intersections due to more direct routing of traffic, improvement in traffic circulation and resulting decreases in Vehicle Miles Traveled, as well as a low percentage of diesel powered heavy duty vehicles passing through these intersections (the diesel traffic percentage is estimated to be 2.4 percent based on the 2004 truck data from the Caltrans Traffic and Vehicle Data Systems Unit), the impact to localized PM₁₀ and PM_{2.5} levels is expected to be less than significant.

Toxic Air Contaminants

Mobile source air toxic (MSAT) impacts were evaluated consistent with FHWA's Interim Guidance on Air Toxics Analysis in NEPA (February 3, 2006). The FHWA has developed a tiered approach for analyzing MSATs in NEPA documents. The proposed improvements would be classified as a Type 2 project, which is an improvement that serves to improve operations of highway, transit or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase emissions. The FHWA recommends that a qualitative assessment of emissions projections should be conducted for Type 2 projects. The qualitative assessment should compare, in narrative form, the expected effect of the project on traffic volumes, vehicle mix, or routing of traffic, and the associated changes in MSATs for the project alternatives.

As the fleet mix and vehicle miles traveled would be similar for both the Build and No Build Alternatives, the amount of mobile source air toxics (MSAT) emitted would be proportional to the average daily trips (AADT), vehicle miles traveled (VMT), and delay time. As discussed above, future 2030 LOS conditions across the 14 intersections analyzed with the proposed Build Alternative would range from A to F, with four intersections operating at D or below during at least one peak hour. The proposed project would improve or maintain LOS conditions at 12 of the 14 intersections analyzed. The AADT would increase at the intersection of Avalon Boulevard & Lenardo Drive and the intersection of I-405 Southbound Ramp and Lenardo Drive versus those of the No Build Alternative (i.e., at the reconfiguration of the southbound ramps). The AADT estimated for the Build Alternative along the proposed improvements at these two locations is slightly higher than that for the No Build Alternative because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in AADT would lead to higher MSAT emissions for the action alternative along the proposed improvements at these two locations and a corresponding decrease in overall MSAT emissions at intersections within the vicinity of the proposed improvements. As such, the proposed Build Alternative results in an approximate three percent reduction in AADT for all studied intersections. This net benefit is the result of more direct travel flow associated with accessing the 405 freeway. Although the same number of vehicles are using the freeway, the more conveniently located on and off ramps result in less overall VMT. This case is especially true for trips originating to the northwest of the proposed project site. The construction of the bridge at Lenardo Drive and I-405 Southbound on and off ramps creates a more direct route to access the freeway, which reduces regional VMT.

Because the estimated ADT under this Alternative is similar to the No Build Alternative, varying by less than three percent, it is expected there would be no appreciable difference in overall MSAT emissions among the alternatives. Regardless of the alternative chosen, emissions would likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent from 2000 to 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. In addition, DPM is one of the CARB's highest public health priorities and the focus of a comprehensive statewide control program that is reducing DPM emissions each year. The CARB's long-term goal is to reduce DPM emissions 85 percent by 2020. The magnitude of the projected reductions in MSAT and DPM is so great that MSAT emissions in the study area are likely to be lower in the future in virtually all locations. Also, the vast majority of the City of Carson is located in an area with between 500 and 750 cancers per million.¹⁴ The proposed project site is also within this range. Therefore, there is an inherent health risk associated with living in Carson and implementation of this proposed project would not substantially increase this risk.

The proposed improvements contemplated as part of the proposed project alternative would have the effect of moving some traffic closer to nearby homes and businesses; therefore, under this alternative there may be localized areas where ambient concentrations of MSATs could be higher under the Build Alternative than the No Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the expanded roadway sections of Lenardo Drive and the new I-405 Southbound Ramp. However, as discussed above, the

¹⁴ <http://www.arb.ca.gov/toxics/cti/hlthrisk/cncrinhl/riskmapviewfull.htm>.

magnitude and the duration of these potential increases compared to the No-Build Alternative cannot be accurately quantified due to the inherent deficiencies of current models. In sum, when a highway is widened and, as a result, moves closer to receptors, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to reductions in congestion (which are associated with lower MSAT emissions). Also, MSATs will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

Construction

Regional

Construction emissions are directly related to the duration and intensity of construction activities (i.e., emissions increase as the amount of construction increases). Fugitive dust emissions result from demolition, ground excavation, cut and fill operations, and equipment traffic over temporary roads at construction sites. Mobile source emissions, primarily NO_x, result from the use of construction equipment such as bulldozers, trucks, and scrapers. These emissions are highest when using heavy-duty, diesel-fueled equipment. Mobile source emissions also result from vehicle trips by construction workers to and from the proposed project site. During the finishing phase, paving operations and the application of architectural coatings (i.e., striping paints) and other building materials release volatile organic compounds. Emissions can vary substantially from day to day, depending on the level of activity, the specific type of construction activity occurring and, for dust, the prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources. Project-related factors (e.g., construction schedule, equipment usage, and earthwork volumes) used to evaluate construction air quality impacts are included in the Air Quality Technical Report.

Daily regional emissions during construction were forecast by assuming an aggressive construction schedule (i.e., assuming all construction occurs at the earliest feasible date) and applying the mobile-source and fugitive dust emissions factors derived from URBEMIS 2002.¹⁵ Emissions for PM_{2.5} are not calculated directly by URBEMIS2002. Activity specific factors need to be applied to the calculated PM₁₀ emissions.¹⁶ An emission factor of 21 percent, 89 percent and 99 percent was applied to earth moving equipment, off-road equipment, and on-road equipment, respectively.

Information regarding the estimate of potential daily emissions during construction activities is presented in Table 20 on page 119. As shown in Table 20, construction-related daily net emissions of CO, SO_x, PM₁₀, PM_{2.5}, and VOC would be considered adverse but less than their respective SCAQMD thresholds. However, maximum regional emissions would exceed the recommended SCAQMD daily thresholds for NO_x.

¹⁵ URBEMIS 2002 is an emissions estimation/evaluation model developed by the ARB that is based, in part, on SCAQMD CEQA Air Quality Handbook guidelines and methodologies.

¹⁶ PM_{2.5} Calculation Methodology was adopted by SCAQMD in October 2006.

Table 20

**Unmitigated Proposed Build Alternative-Regional Construction Emissions
(pounds per day)**

	CO	NOx	PM₁₀^a	PM_{2.5}^a	VOC	SOx
Regional Emissions						
Stage 1	222	191	25	11	28	<1
Stage 2	187	156	28	14	23	<1
Stage 3	230	210	31	17	30	<1
Stage 4	129	113	25	12	24	<1
Max Overlapping^b	327	282	32	19	50	<1
Threshold	550	100	150	55	75	150
Over/(Under)	(223)	182	(118)	(36)	(25)	(150)
Exceed Threshold?	No	Yes	No	No	No	No
Localized Emissions						
Stage 1	179	153	24	10	22	<1
Stage 2	152	136	28	13	19	<1
Stage 3	202	174	30	15	26	<1
Stage 4	99	74	25	11	20	<1
Max Overlapping^b	253	191	31	16	40	<1
Threshold (1 Acre) @ 25 m	417	125	4	4	-	-
Over/(Under)	(164)	66	27	12	-	-
Exceed Threshold?	No	Yes	Yes	Yes	-	-

^a *PM₁₀ and PM_{2.5} emissions estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.*

^b *Maximum regional emissions occur during combined Stage 3 site preparation and Stage 2 building construction during Year 2009.*

Source: PCR Services Corporation, 2007.

Local

The SCAQMD has developed a set of mass emissions rate look-up tables that can be used to evaluate localized impacts that may result from construction-period emissions. The look-up tables were used to initially screen and determine if further dispersion modeling is warranted. The thresholds are based on several factors including the size of the proposed project construction site, distance from the construction site to sensitive receptor locations, and local meteorological conditions. The thresholds for Source Receptor Area (SRA) Number 4 (South Los Angeles County Coastal), which represents conditions for the general project vicinity, are shown in the analysis below.

Emissions for the localized construction air quality analysis were compiled using the regional construction emissions less off-site emissions (e.g., construction worker, delivery, haul truck trips). Localized emissions were then compared to the localized screening tables promulgated by the SCAQMD.¹⁷ Thresholds for CO and NO₂ were derived by adding the incremental emissions from the proposed project to the peak background NO₂ and CO concentrations and by comparing the total concentration to the most stringent air quality standards. Construction

¹⁷ SCAQMD developed thresholds based upon the size or total area of the emissions source, the ambient air quality in each source receptor area, and the distance to the sensitive receptor.

PM₁₀ and PM_{2.5} thresholds were derived using a dispersion model to back-calculate the level of emissions necessary to exceed SCAQMD's Rule 403 concentration level (50 µg/m³ over five hours) for requiring implementation of best management practices for control of fugitive dust.¹⁸

Where construction emissions exceeded the screening-level look-up table values, the localized effects from the on-site construction emissions were evaluated to determine potential pollutant concentrations at sensitive receptors. The analysis was conducted using the Industrial Source Complex (ISCST3) dispersion model, a methodology that is consistent with the procedures outlined in the USEPA *1998 Guideline on Air Quality Models* and the SCAQMD *Localized Significance Threshold Methodology for CEQA Evaluations* guidance documents. The conservative estimate of maximum on-site daily emissions for CO, NO_x, PM₁₀ and PM_{2.5}, was compiled for each of the individual construction site locations and compared to the applicable screening threshold based on construction site acreage and distance to closest sensitive receptor. Individual construction projects that are expected to occur simultaneously and are adjacent to one another were considered collectively as well as individually.

As shown in Table 6, localized NO_x, PM₁₀ and PM_{2.5} emissions would exceed the applicable screening-level construction threshold. Thus, the localized effects from the on-site construction emissions of these pollutants were analyzed using the ISCST3 dispersion model. The results of the dispersion modeling are presented in Table 21 on page 121. As shown in Table 21, NO_x and PM_{2.5} localized impacts would be less than the SCAQMD recommended threshold for both individual stages and overlapping stages. However, localized PM₁₀ impacts would exceed the SCAQMD recommended threshold during site preparation/grading for Stages 2 and 4. The maximum PM₁₀ concentration of 25.7 µg/m³ occurs at residential uses directly west of the construction activity.

Toxic Air Contaminants

During demolition and site grading activities there is a potential for small amounts of VOC and related toxic air contaminants (TAC) emissions to be released into the environment. If contaminated soils are encountered during excavation/grading activities, the proposed project would be subject to SCAQMD Rule 1166 (Volatile Organic Compound Emissions from Decontamination of Soil) requirements. Among other requirements, up-wind and down-wind monitors would be used to ensure that potential toxic air concentrations remain within SCAQMD permitted levels.

The greatest potential for toxic air contaminant (TAC) emissions would be related to diesel particulate emissions associated with heavy equipment operations during grading and excavation activities. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the short duration of construction activities, the proposed project would not result in a long-term (i.e., 70 years) substantial source of TAC emissions with no residual emissions after construction and

¹⁸ The equivalent concentration for developing PM₁₀ or PM_{2.5} LSTs is 10.4 µg/m³, which is a 24-hour average.

Table 21

Estimate of Unmitigated Local Construction Impacts

Individual Stages	1-hr NO₂ (µg/m³)	24-hr PM₁₀ (µg/m³)	24-hr PM_{2.5} (µg/m³)
Stage 1 Only	48	8.4	2.0
Stage 2 Only	127	24.5	6.6
Stage 3 Only	41	8.4	2.3
Stage 4 Only	78	25.7	6.3
Max (Individual Stages)	127	25.7	6.6
Ambient Concentration (NO ₂ Only) ^a	263	-	-
Ambient + Construction Concentration (NO ₂ Only) ^a	390	-	-
Threshold	470	10.4	10.4
Over/(Under)	(80)	15.3	(3.8)
Exceed SCAQMD Recommended Threshold?	No	Yes	No
Overlapping Stages^b	1-hr NO₂ (µg/m³)	24-hr PM₁₀ (µg/m³)	24-hr PM_{2.5} (µg/m³)
Maximum Overlapping Stages	100	8.7	2.5
Ambient Concentration (NO ₂ Only) ^a	263	-	-
Ambient + Construction Concentration (NO ₂ Only) ^a	363	-	-
Threshold	470	10.4	10.4
Over/(Under)	(107)	(1.7)	(7.9)
Exceed Threshold?	No	No	No

^a NO₂ threshold based on AAQS of 470 µg/m³. Ambient background concentration is based on the measured maximum NO₂ concentration for SRA during the monitoring period from 2002 through 2005 (Year 2003 of 263 µg/m³).

^b As shown in Table 6 overlapping stages result in an increase of overall pollutant emissions in comparison to individual stages. However, pollutant concentrations for the overlapping stages decrease in comparison to individual stages because the pollutants are dispersed over a much larger area resulting in better dispersion.

Source: PCR Services Corporation, 2007.

corresponding individual cancer risk. As such, project-related toxic emission impacts during construction would not be significant.

Odors

No construction activities or materials are proposed which would create objectionable odors. As such, odor impacts during construction would not be significant.

NO BUILD ALTERNATIVE

If the proposed project were not built, there would be no alterations to the existing intersection. There would be no changes to the physical environment. Thus, no construction impacts would occur.

Operation

Regional

Any increase in regional emissions from operations would be the result of vehicular traffic that is expected to occur due to future growth. Furthermore, congestion can impact vehicular air emissions as slow and idling vehicles emit more air pollutants than free flowing vehicles. The worst-case traffic conditions were compiled for the existing and No-Build scenarios, and the traffic volumes through the analyzed intersections under the future No Build scenario are shown in Table 22 on page 123, for years 2010 and 2030, along with existing conditions (2006). The Average Daily Traffic Count (ADT) for the intersections was calculated by multiplying the peak P.M. traffic by 13.12 based on traffic studies that indicate peak hour trips comprise 7.62 percent of daily trips.¹⁹ Under the No-Build scenario in 2010 and 2030, there would be an ADT volume through the study area of 748,365 and 790,966, an increase of 285,019 and 327,620 vehicles, respectively, above existing conditions. These increases in volumes are commensurate with decreasing service levels in the future and increases in the expected delay times at the intersections analyzed. These increases are apparent in Table 23 on page 124 which shows the existing delay times and the projected delay times for 2010 and 2030. As indicated, delay times increase for all intersections over time. The increase in ADT and delay time are attributable to major planned developments, such as the Carson Marketplace, and overall growth projections. Potential impacts from the increase in ADT as compared to existing conditions resulting from these projects have been analyzed in prior environmental documentation. As demonstrated in the analysis of regional impacts above, the Build Alternative will result in a net environmental benefit, derived from decreased volumes through the intersections, move directing routing and resulting reductions in VMT. Thus, regional emissions from the No-Build Alternative were not quantified.

Local

Under the No-Build Alternative, declining traffic conditions would occur due to the projected growth in the proposed project area. Two new intersections (Main Street and Lenardo Drive and Stamps Drive and Del Amo Boulevard) would otherwise be constructed in the proposed project area. These improvements are not components of the No Build Alternative. Future LOS conditions under the No Build Alternative range from A to F with six intersections operating at D or below during at least one peak hour. The LOS would deteriorate at eight intersections, when compared to existing conditions.

The analysis of roadway CO impacts followed the protocol recommended by Caltrans and published in the document titled *Transportation Project-Level Carbon Monoxide Protocol*, December 1997. The protocol provides guidance on whether projects would require a localized CO analysis. Intersections that are likely to substantially worsen air quality at signalized intersections and represent a potential for a CO violation are intersections that operate at a level of service E or F. Thus, the intersections modeled within the AQMP were of LOS F and modeled with worst case meteorological conditions at a receptor distance of 10 feet. The most congested intersection in Los Angeles County (Wilshire Boulevard and Veteran Boulevard) was modeled with 100,000 vehicles per day. Microscale modeling was performed as part of the

¹⁹ This factor was determined based on traffic studies specific to the project area, provided by Fehr & Peers/Kaku Associates, Inc.

Table 22

Annual Average Daily Traffic Volumes within Analyzed Intersections Under the No-Build Scenario

Intersection Location	Existing			2010			2030		
	LOS		AADT	LOS		AADT	LOS		AADT
	A.M.	P.M.		A.M.	P.M.		A.M.	P.M.	
I-405 NB Ramps & Carson Street	A	A	30,465	A	A	37,812	A	A	40,423
I-405 SB Ramps & Carson Street	A	A	34,151	A	B	44,713	A	B	47,639
Avalon Boulevard & Carson Street	C	D	61,100	C	E	75,374	D	E	80,557
Main Street & Carson Street	C	D	56,311	D	F	79,140	D	F	83,955
Avalon Boulevard & 213 th Street	B	B	45,225	B	C	53,766	B	C	57,610
Avalon Boulevard & I-405 NB Ramps	A	A	50,210	A	B	70,796	A	B	75,046
Avalon Boulevard & Lenardo Drive/I-405 SB On-Ramp	A	A	44,149	B	A	59,394	B	B	63,160
I-405 SB Ramps & Lenardo Drive	-	-	-	-	-	-	-	-	-
Main Street & Torrance Boulevard	C	C	31,462	E	F	59,801	E	F	62,464
Main Street & Lenardo Drive	-	-	-	B	D	56,482	B	D	58,384
Avalon Boulevard & Del Amo Boulevard	C	C	53,910	D	F	75,860	D	F	80,465
Stamps Drive & Del Amo Boulevard	-	-	-	C	E	66,217	C	E	67,476
Main Street & I-405 NB Off-Ramp	B	B	27,316	B	B	33,417	B	B	35,713
Main Street & I-405 SB On-Ramp	A	B	29,048	A	B	35,595	A	B	38,074
TOTAL			463,346			748,365			790,966

Source: PCR Services Corporation, 2007.

AQMP attainment demonstration at four intersections within the Basin that would represent the greatest potential to cause an exceedance of the CO standards. These four intersections with the greatest potential for elevated CO concentrations would not result in an exceedance of the CO standards.

All intersections where proposed improvements would occur under the no-build condition operate at a level of C or better and with substantially fewer vehicles than modeled in the AQMP. Modeled meteorological conditions and receptor distance would also be similar to the intersections modeled within the AQMP. Therefore, the no build condition is not suspected of resulting in higher CO concentrations than those existing within the region at the time of

Table 23

Existing And Future Delay Times - No Build Alternative

	Intersection	Peak Hour	2006 Existing		2010 No - Build		2030 No Build	
			Delay ^a	LOS ^b	Delay	LOS	Delay	LOS
1	Carson Street & I-405 NB Ramps	A.M.	5.4	A	5.5	A	5.6	A
		P.M.	4.8	A	4.9	A	5	A
2	Carson Street & I-405 SB Ramps	A.M.	6.3	A	6.7	A	9.8	A
		P.M.	6.7	A	11.2	B	16.7	B
3	Avalon Boulevard & Carson Street	A.M.	30.4	C	33.3	C	49.4	D
		P.M.	42.4	D	58.1	E	66	E
4	Main Street & Carson Street	A.M.	25.4	C	37.9	D	44.2	D
		P.M.	42.5	D	142.9	F	162	F
5	Avalon Boulevard & 213 th Street	A.M.	14.7	B	15.6	B	17.4	B
		P.M.	17.9	B	22.1	C	25.7	C
6	Avalon Boulevard & I-405 NB Ramps	A.M.	7	A	6.4	A	7	A
		P.M.	7.9	A	13.7	B	19.7	B
7	Avalon Boulevard & I-405 SB Ramps	A.M.	8.9	A	11.2	B	13.5	B
		P.M.	6.3	A	9.8	A	10.9	B
8	Lenardo Drive & I-405 SB Ramps	A.M.	Future		Future – Build		Future – Build	
		P.M.	Intersection ^c		Intersection ^c		Intersection	
9	Main Street & Torrance Boulevard	A.M.	22.8	C	68.7	E	85.2	E
		P.M.	26.6	C	101.5	F	114.2	F
10	Main Street & Lenardo Drive	A.M.	Future		10.3	B	10.4	B
		P.M.	Intersection ^d		48.7	D	53.8	D
11	Avalon Boulevard & Del Amo Boulevard	A.M.	25.1	C	37.3	D	42.1	D
		P.M.	30.6	C	82.7	F	98.4	F
12	Stamps Drive & Del Amo Boulevard	A.M.	Future		22.6	C	24.9	C
		P.M.	Intersection ^d		63.1	E	77.4	E
13	Main Street & I-405 NB Ramps	A.M.	13.4	B	15	B	15.7	B
		P.M.	11.8	B	12.7	B	13.6	B
14	Main Street & I-405 SB Ramps	A.M.	9.5	A	9.6	A	9.9	A
		P.M.	15.5	B	16.2	B	17.9	B

^a Average delay in seconds per vehicle.

^b Delay and level of service (LOS) calculated using 2000 Highway Capacity Manual level-of-service methodology.

^c Intersection does not exist; to be constructed as part of I-405/Avalon interchange improvement project.

^d Intersection does not exist; to be constructed as part of Carson Marketplace project.

Source: Traffic Technical Report for the I-405/ Avalon Boulevard Interchange Improvement Project Report and Initial Study/Environmental Assessment, Fehr & Peers/KAKU Associates, December 2007.

attainment demonstration. Because the traffic in the area was found to be primarily gasoline automobiles, with a low percentage of diesel trucks (the diesel traffic percentage is estimated to be 2.4 percent based on the 2004 truck data from the Caltrans Traffic and Vehicle Data Systems Unit), the emissions are unlikely to result in localized PM₁₀ and PM_{2.5} impacts. The impact of localized PM₁₀ and PM_{2.5} emissions are predicted to be less than significant.

2.15.4 AVOIDANCE, MINIMIZATION, OR MITIGATION MEASURES

BUILD ALTERNATIVE

The following minimization measures are (1) intended to implement requirements of SCAQMD Rule 403 (Fugitive Dust) and (2) set forth a program of air pollution control strategies designed to reduce the proposed Project's air quality impacts to the extent feasible.

- Measure 1. General contractors shall implement a fugitive dust control program pursuant to the provisions of SCAQMD Rule 403.²⁰
- Measure 2. All construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.
- Measure 3. All contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would turn their engines off, when not in use, to reduce vehicle emissions. Construction emissions should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.
- Measure 4. Electricity from power poles rather than temporary diesel- or gasoline-powered generators shall be used to the extent feasible.
- Measure 5. All construction vehicles shall be prohibited from idling in excess of ten minutes, both on- and off-site.
- Measure 6. Project heavy-duty construction equipment shall use alternative clean fuels, such as low sulfur diesel or compressed natural gas with oxidation catalysts or particulate traps, to the extent feasible.
- Measure 7. The Applicant shall utilize coatings and solvents that are consistent with applicable SCAQMD rules and regulations.
- Measure 8. The Applicant shall comply with SCAQMD Rule 402 to reduce potential nuisance impacts due to odors from construction activities.
- Measure 9. All construction vehicle tires shall be washed at the time these vehicles exit the project site.
- Measure 10. All import/export soil carried by haul trucks shall be covered by a tarp or other means.

²⁰ SCAQMD Rule 403 requirements are included in the MMRP, Appendix D.

Measure 11. Any intensive dust generating activity such as grinding concrete for existing roads must be controlled to the greatest extent feasible.

NO BUILD ALTERNATIVE

Under the No Build Alternative, no avoidance, minimization, or mitigation measures would be necessary.

2.16 NOISE AND VIBRATION

This noise and vibration analysis is based on the Noise Technical Report prepared by PCR Services, Inc. The report is available for review at Caltrans, District 7, 100 South Main Street, Los Angeles, CA 90012.

2.16.1 REGULATORY SETTING

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration for noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA (and the Department, as assigned) involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). Table 24 on page 127 lists the noise abatement criteria for use in the NEPA-23 CFR 772 analysis.

Table 25 on page 128 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in this section with common activities.

In accordance with the Department's *Traffic Noise Analysis Protocol for New Highway Construction, and Reconstruction Projects, August 2006*, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA

Table 24

Noise Abatement Criteria

Activity Category	NAC, Hourly A- Weighted Noise Level, dBA L_{eq} (h)	Description of Activities
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 Exterior	Picnic areas, recreation areas, playground, active sport areas, parks, residences, motel, hotels, schools, churches, libraries, and hospitals.
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands.
E	52 Interior	Residence, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: 23 CFR 772.

or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

The Department's *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies input, newly constructed development versus development pre-dating 1978 and the cost per benefited residence.

There are no adopted State or City of Carson policies or standards for ground-borne vibration. However, Caltrans recommends that extreme care be taken when sustained pile driving occurs within 25 feet of any building, and 50-100 feet of a historic building or any building in poor

Table 25

Noise Levels of Common Activities

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 300m (1000 ft)	110	Rock Band
Gas Lawn Mower at 1 m (3 ft)	100	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)	90	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime	80	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower, 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area		Normal Speech at 1 m (3 ft)
Heavy Traffic at 90 m (300 ft)	60	Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime		Library
Quiet Rural Nighttime	30	Bedroom at Night, Concert Hall (Background)
	20	Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

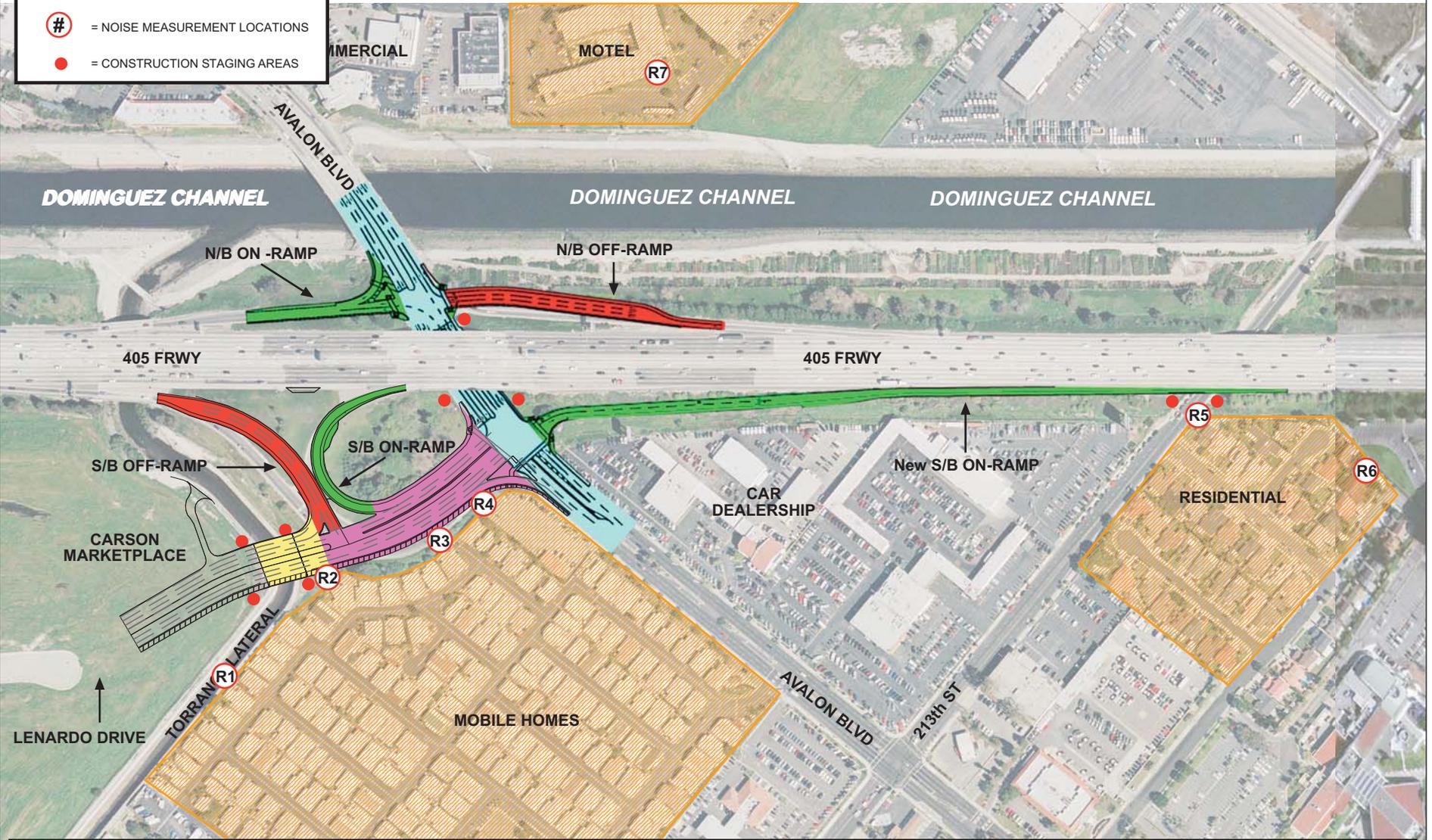
condition (Pile driving may or may not be included for bridge footings subject to final design). The only applicable policy in the City’s General Plan Noise Element is Policy N-8.1, which requires that the design of mixed-use structures incorporate techniques to prevent transfer of noise and vibration from the commercial uses to the residential uses. The Los Angeles County Noise Regulation (LAMC Section 12.08.350) provides a presumed perception limit of 0.01 inch per second for sources of ground-borne vibrations during long-term activities.

2.16.2 AFFECTED ENVIRONMENT

The proposed project site and surrounding uses are illustrated in Figure 26 on page 129. As indicated, there are two residential communities adjacent to the I-405 in the proposed project area. One is a mobile home park located just south of the Avalon Boulevard southbound off ramp. The other is a small cluster of single-family residential homes located adjacent to the I-405 southbound on the south side of 213th Street. With respect to freeway noise, the first row of homes usually has the most exposure to the traffic noise. A second and subsequent row of

LEGEND

-  = SENSITIVE LAND USE
-  = NOISE MEASUREMENT LOCATIONS
-  = CONSTRUCTION STAGING AREAS



Caltrans District 7, Los Angeles County, I-405/Avalon Boulevard Interchange, PM 10.8/11.4
 Source: DMJM Harris, 2006.

Figure 26
 Sensitive Receptors
 Noise Measurement Locations

homes are partially shielded from the freeway by the first row homes. In addition, there is also a motel located on E. Dominguez Street about 550 feet east of the existing I-405 northbound off ramp.

Based on the inventory of existing land uses in the proposed project vicinity, five locations were chosen for 24-hour noise measurements and two locations were selected for short-term (15-minute) noise measurements. Locations of the noise measurements are also shown in Figure 26. A summary of the measured existing noise levels data is included in Table 26 on page 131. It should be noted that the peak hour traffic noise levels (i.e., highest traffic noise levels) do not necessarily coincide with the peak hour traffic volume (i.e., highest traffic volume). This is because during the peak hour traffic volume, the traffic flow could be congested, resulting in lower noise levels. Peak hour traffic noise levels normally occur prior to and after traffic congestion. As such, the existing noise environment at the monitoring locations are primarily controlled by traffic on I-405.

2.16.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

Project Operations

Traffic noise impacts associated with the proposed project were evaluated using the Caltrans' "Traffic Noise Analysis Protocol for New Highway Construction, and Reconstruction Projects," August 2006, and the "Technical Noise Supplement," A Technical Supplement to the Traffic Noise Analysis Protocol, October 1998. The evaluation included a screening analysis using the Noise Analysis Screening Procedure Checklist and a detailed noise analysis using the Federal Highway Administration (FHWA) Traffic Noise Model (TNM).

The results of the detailed noise modeling analysis are presented in Table 27 on page 132. As indicated, traffic volumes for future (year 2030) conditions, Build and No-Build Alternatives, were used to predict the peak hour noise levels. Modeled noise levels are based traffic volumes, speeds, and fleet mixes as well as distance to sensitive receptors. The table also includes the existing levels as measured and modeled, as well as abated impacts per a discussion that follows below.

Future predicted peak hour noise in the proposed project area without the proposed project ranged from approximately 56.3 to 71.2 decibels. With the proposed Build Alternative, traffic noise levels at most areas of the mobile home park (represented by receptors R2 to R4) would be reduced from existing conditions because of the new Lenardo Drive bridge, which will provide partial acoustical shielding from the I-405 Freeway. The measured noise data and the predicted future traffic noise levels indicate that the existing and future conditions noise levels at the single family residential neighborhood south of 213th Street (receptors R5 and R5_b) are above Caltrans' Noise Abatement Criteria (NAC) of 67 decibels. The traffic noise analysis shows that the proposed project is expected to increase noise level at receptor R5 by a maximum of 0.7 decibels over existing levels and 0.2 decibels over the No Build alternative. At receptor R5_b, the increase is expected to increase 0.6 decibels over the existing level and 0.1 decibels over the No Build Alternative.

Table 26

Summary of Measured Ambient Noise Levels – Existing Condition, dBA, L_{eq}(h)

Receptor - Description	Measurement Date MM/DD/YY Time of Day (start-finish)	Range of Sound Levels L_{eq}(h)^a	Peak Hour Traffic Noise Levels^b L_{eq}(h)
R1 – Mobile Home Park	8/12/06 (12 A.M. to 12 A.M.)	48.7 – 59.3	56.4
R2 – Mobile Home Park	8/12/06 (12 A.M. to 12 A.M.)	55.8 – 61.8	61.8
R3 – Mobile Home Park	8/15/06 (12 A.M. to 12 A.M.)	57.0 – 63.9	63.9
R4 – Mobile Home Park	8/17/06 (12 A.M. to 12 A.M.)	57.7 – 68.3	68.3
R5 – 213 th Street Residence	8/17/06 (12 A.M. to 12 A.M.)	65.0 – 73.8	73.8
R6 – Home at the end of Desford Street ^c	11/21/06 (9:55 A.M. to 10:10 A.M.)	63.6 ^d	64.6
R7 – Quality Inn on E. Dominguez Street east of I-405	11/21/06 (11:04 A.M. to 11:19 A.M.)	62.1 ^d	63.1

Note:

^a Individual hourly data are provided in the Noise Technical Report.

^b Peak hour traffic noise level is based on the nearby 24-hour measurements, which occurred at 9:00 A.M.

^c There is an existing 8-foot high wall at the end of Desford Street, which provides shielding to the freeway sound. The microphone was placed on the residential side.

^d Short-term 15-min measurement.

Source: PCR Services Corporation, 2007.

The increase in the noise levels over existing conditions, even with the addition of future traffic volumes, would not be considered significant impacts pursuant to CEQA, as the noise increase is not substantial and would not be discernable.

However, the traffic noise levels will be above the residential NAC of 67 dBA in the 213th Street neighborhood. These noise levels are not a result of the Build Alternative, but rather existing and future predicated conditions arising from traffic not related to the proposed project. Nonetheless, the Build Alternative would need to address this condition, as discussed further in the noise abatement discussion.

Construction - Noise

The primary noise impacts from construction activities would be generated by-vehicles and equipment involved during various stages of construction activity, such as grading and excavation, which would require the use of heavy equipment (i.e., bulldozers, loaders, concrete trucks).

The proposed project construction is estimated to last less than two years. The proposed project would be constructed in four overlapping stages as described in Table 28. Based on

Table 27

Modeled Existing and Future Noise Levels (with sound wall)

Receptor	Measured	Modeled	Future	Future	Predicted Noise Level w/ Sound Wall ^a (dBA) L _{eq} (h)			Reasonable and Feasible
	Existing (2006)	Existing (2006)	(2030) No Build	(2030) Build Alternative	(6 ft) wall	(8 ft) wall	(10 ft) wall	
R1 – Mobile Home Park	56.4	55.6	56.3	57.0	N/A	N/A	N/A	N/A
R2 – Mobile Home Park	61.8	61.5	62.6	61.3	N/A	N/A	N/A	N/A
R3 – Mobile Home Park	63.9	64.6	65.8	62.8	N/A	N/A	N/A	N/A
R4 – Mobile Home Park	68.3	65.8	67	65.6	N/A	N/A	N/A	N/A
R5 – 213 th Street Residence	73.8	70.7	71.2	71.4	66.1 ^b	65.2 ^c	64.4	Yes
R5 _b – 213 th Street Residence, 2 nd Row of Homes	^d	69.5	70	70.1	66.6	66.2	65.1 ^b	Yes
R6 – Home at end of Desford Street	64.6	64.4	64.9	65.0	N/A	N/A	N/A	N/A
R7 – Quality Inn on E. Dominguez Street east of I-405	63.1	62.9	63.4	63.5	N/A	N/A	N/A	N/A

Notes: *Bold Text (sound levels) indicate receptors where noise levels exceed Caltrans Noise Abatement Criteria, 67 dBA.*

^a *Approx. 750 feet long noise barrier at the south bound freeway shoulder, from approx. Sta. 559.5 to Sta. 567.0.*

^b *Noise barrier must provide minimum 5dBA noise reduction in order to be considered feasible.*

^c *Minimum 2.4 m high wall is required to intercept the line-of-sight of truck exhaust stack 11.5 ft) to the receiver.*

^d *Existing Levels were not measured at this location.*

Source: PCR Services Corporation, 2007.

published noise data for various type of construction equipment from the FTA²¹ and based on measurement of previous projects, noise levels in the range of 75 to 85 dBA L_{eq} (at the distance of 15 m (50 feet) from center of construction activities) can be expected.

There are two residential communities near the proposed project construction site. The majority of the construction activities will be near the mobile home park, represented by receptors R1 to R4. The small cluster of homes south of 213th Street, represented by receptors R5 and R6, will be exposed to some construction noise, but with shorter duration. Estimated construction noise levels are provided in Table 29 on page 134. The residences at the mobile home park (R1 to R4) would be exposed to construction noise levels, of up to 85 dBA, as they are closest to the construction activities. Construction activities are expected to increase the ambient noise levels at nearby residential receptors. However, it would be on a short-term basis and intermittent,

²¹ Transit Noise and Vibration Impact Assessment, FTA 1995.

Table 28

Construction Phases

Stage	Description
Stage 1	Construct (1) new I-405 southbound on-ramp at Avalon Boulevard, (2) Lenardo Drive Bridge, (3) LADPW flood control access ramps, (4) Lenardo Drive from Avalon Boulevard to Carson Marketplace, and (5) widen eastside of N/B Avalon Boulevard
Stage 2	(1) complete Lenardo Drive, (2) connect Lenardo Drive to Avalon Drive, (3) reconstruct S/B I-405 On-ramp, (4) join S/B I-405 Off-ramp to Lenardo Drive, and (5) demolish existing S/B I-405 Off-ramp at Avalon Boulevard
Stage 3	Widen the existing I-405 northbound (1) on-ramp and (2) off-ramp at Avalon Boulevard
Stage 4	(1) light roadway demolition on Avalon Blvd, (2) construct medians, (3) pave Avalon Boulevard, (4) stripe, (5) Install traffic striping, lighting and signals, and (6) Reconstruct sidewalk.

Source: DMJM Harris, 2006.

during the proposed project construction duration for the construction stages occurring adjacent to those uses.

Noise abatement measures are listed below to reduce potential impacts from construction noise.

Construction - Vibration

Construction vibration impacts were evaluated based on guidelines provided by Caltrans in the "Transportation- and Construction-Induced Vibration Guidance Manual" (Jones & Stokes, 2004). This document includes vibration and annoyance criteria as presented in Table 30 on page 134 and Table 31 on page 135.

The ground vibration produced by the operation of a loaded truck, large bulldozer, and vibratory roller range from 0.04 to 0.20 inch/second (PPV) at a distance of 7.6 m (25 feet). The nearest residential receptor to the construction activity, the mobile home park, is located approximately 15 m (50 feet) from the proposed project construction area. It is estimated that the ground vibration level at that location could reach as high as 0.10 inch/second (PPV) and would be perceptible using Caltrans' guidelines. However, it would also be less than the 0.2 inch per second (PPV) damage threshold for fragile structures. (The threshold for new residential structures is substantially greater at 2.0 inch/second (PPV).

The proposed project may use CDIH piles or, as an alternative, pile driven piles for construction of the Lenardo Drive and 213th Street Bridges. Potential impact pile driving vibrations impacts on the residential housing across from the 213th Street Bridge and Mobile home park across from the Lenardo Drive Bridge are estimated to produce 0.17 inch/sec PPV and 0.13 inch/sec PPV, respectively. Again, these levels are below the 0.2 damage threshold for fragile structures such as the mobile home structures. As stated by the Caltrans Technical Advisory document (Jones & Stokes, 2004, Transportation- and Construction-Induced Guidance Manual page 12), "extreme care must be taken when sustained pile driving occurs within 7.5 m (25 ft) of any building, and 15-30 m (50-100 ft) of historical building or building in poor condition." The

Table 29

Estimated Construction Noise

Receptor	Estimated Maximum Construction Noise Levels, ^a at various stages of construction (see Table 5 for the description) dBA L _{eq} (h)			
	Stage 1	Stage 2	Stage 3	Stage 4
R1 – Mobile Home Park	80	80	50	70
R2 – Mobile Home Park	85	85	55	75
R3 – Mobile Home Park	85	85	55	75
R4 – Mobile Home Park	85	85	55	75
R5 – 213 th Street Residence	80	50	50	50
R6 – Home at end to Desford Street	70	50	50	50
R7 – Quality Inn on E. Dominguez Street east of I-405	50	50	65	50

^a Estimated noise levels are based in using CDIH piles. If impact pile driving is used, construction noise level could be 5 to 15 dBA louder, during pile driving.

Source: PCR Services Corporation, 2007.

Table 30

Vibration Annoyance Potential Criteria

Human Response	Maximum PPV (in/sec)	
	Transient ^a Sources	Continuous/Frequent Intermittent ^b Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.90	0.10
Severe	2.00	0.40

^a Transient sources create a single isolated vibration, such as blasting or drop balls.

^b Continuous/Frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Source: Caltrans, Transportation- and Construction-Induced Vibration Guidance Manual, 2004.

residential housing and the mobile home park would both be located between 50 feet and 100 feet of the potential pile driving subject to final design location of the piles. There are no historical buildings in the vicinity of the proposed project site.

In addition, if pile driving were to be selected as a construction method, such pile driving would occur in close proximity to the existing Torrance Lateral flood control channel, which may incur a high level of vibration, if the impact pile driver method is used. Current vibration damage threshold criteria as provided by Caltrans' do not address impacts for structures such as the channel retaining wall. Therefore, if impact pile driving method is selected, further study shall be conducted to evaluate any potential impact to the existing flood control channel retaining wall, or described below.

Table 31

Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient ^a Sources	Continuous/Frequent Intermittent ^b Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

^a Transient sources create a single isolated vibration, such as blasting or drop balls.

^b Continuous/Frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Source: Caltrans, Transportation- and Construction-Induced Vibration Guidance Manual, 2004.

NO BUILD ALTERNATIVE

If the proposed project were not built, there would be no alterations to the existing intersection. The roadway capacity would remain unchanged. There would be no changes to the physical environment and noise levels would be as otherwise expected with continued growth.

Under the No Build Alternative, no noise abatement would be provided, and the noise reduction benefits of the Build Alternative would not occur.

2.16.4 AVOIDANCE, MINIMIZATION, NOISE ABATEMENT MEASURES

NOISE ABATEMENT MEASURES FOR OPERATIONS

As described above, the traffic noise levels will be above the residential NAC, of 67 dBA in the 213th Street neighborhood. These noise levels are not a result of the Build Alternative, but rather existing and future predicated conditions arising from traffic not related to the proposed project. Nonetheless, the Build Alternative would need to address this condition. An analysis was performed to determine the benefits of various sound wall designs, as reflected in Table 32 on page 136. As indicated a 10 feet high sound wall would reduce the freeway noise to meet the NAC for the residential neighborhood south of 213th Street reducing the sound level by 7.0 decibels and 5.0 decibels, respectively at the two measured locations. Such a sound wall is therefore recommended, as shown on Figure 27 on page 137.

Abatement Measures for Construction Noise

As previously indicated, construction activities would increase the ambient noise levels at the nearby residential communities. The following abatement measures are recommended to minimize the potential noise impacts:

Table 32
Sound Wall Analysis, $L_{eq}(h)$

Receptor ^a	Modeled Traffic Noise Levels dBA $L_{eq}(h)$			Modeled Future (2030) Noise Level with Sound Wall ^b dBA $L_{eq}(h)$		
	Existing (2006)	Future (2030)		1.8 m (6 ft) wall	2.4 m (8 ft) wall	3.0 m (10 ft) wall
		Without Project	Future (2030) with Project			
R5 – 213 th Street Residence	70.7	71.2	71.4	66.1 ^c	65.2 ^d	64.4
R5 _b – 213 th Street Residence, 2 nd Row of Homes	69.5	70.0	70.1	66.6	66.2	65.1 ^c

^a Only residences near 213th Street (R5 and R5_b) required noise abatement measures. Therefore, other Receptors are not included in this table.

^b Approx. 230 m (750 feet) long noise barrier at the south bound freeway shoulder, from approx. Sta. 559.5 to Sta. 567.0.

^c Noise barrier must provide minimum 5dBA noise reduction in order to be considered feasible

^d Minimum 2.4 m high wall is required to intercept the line-of-sight of truck exhaust stack (3.5 m or 11.5 feet) to the receiver.

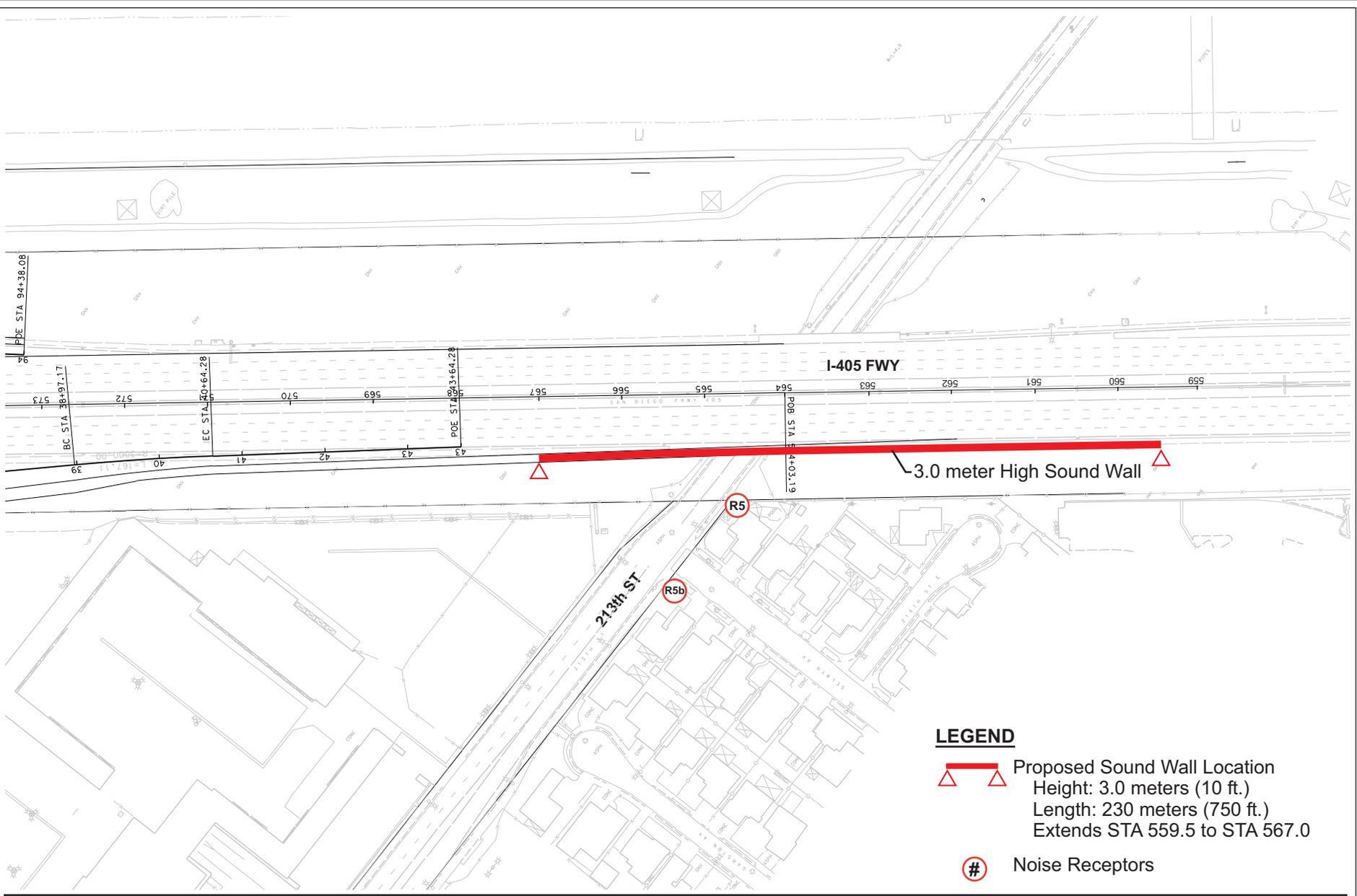
Source: PCR Services Corporation, 2007.

- Noise generating construction activities within 50 m (165 feet) of the residential units shall be restricted to hours between 7:00 A.M. and 8:00 P.M. Monday through Friday and 8:00 A.M. and 6:00 P.M. on Saturday. No noise-generating construction activities shall take place on Sundays and holidays.
- Noise-generating equipment operated at the proposed project site shall be equipped with effective noise control devices, i.e., mufflers, lagging, and/or motor enclosures. Noise from each piece of construction equipment shall not exceed 86 dBA (L_{max}) at a distance of 15 m (50 feet). All equipment shall be properly maintained to assure that no additional noise, due to worn or improperly maintained parts, would be generated.
- Effective temporary noise barriers, when they are feasible, shall be used to block the line-of-site between the construction equipment and the noise-sensitive receptors.

Abatement Measures for Construction Vibration

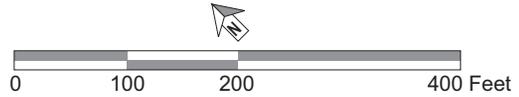
As described above, impacts from pile driving are not necessarily expected to be adverse. However, if pile driving is to be used for either the Lenardo Drive Bridge or 213th Street Bridge improvements the actual vibration occurring at neighboring structures would vary depending on the soil conditions, and the method of pile driving. There are a variety of pile driving techniques (e.g. impact, sonic, etc) and operational procedures that can cause variations in the vibration levels that they produce. The final construction method must be verified regarding conditions adjacent to any pile driving activity:

- Pile driving procedures shall only be implemented only upon further engineering review, based upon an assessment of the site soils, distance to existing structures, and review of the characteristics of the Torrance Lateral.



LEGEND

- Proposed Sound Wall Location
Height: 3.0 meters (10 ft.)
Length: 230 meters (750 ft.)
Extends STA 559.5 to STA 567.0
- # Noise Receptors



Scale in approximate feet.
Source: DMJM Harris, 2006.

Figure 27
Proposed Sound Wall

BIOLOGICAL ENVIRONMENT

2.17 NATURAL COMMUNITIES

This biological environment analysis is based on the Natural Environment Study: Biological Resources Technical Report prepared by PCR Services Corporation. This report is available for review at Caltrans, Division 7, 100 South Main Street, Los Angeles, CA 90012.

2.17.1 REGULATORY SETTING

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. As such, this section does not involve special-status plants or animals which are afforded varying levels of regulatory protection. This section includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed below in Section 2.21, Threatened and Endangered Species. Wetlands and other waters are also discussed below in Section 2.18, Wetlands and Other Waters.

2.17.2 AFFECTED ENVIRONMENT

The Natural Environment Study is based on the following: a review of relevant literature on the biological resources of the study area and the surrounding vicinity (including biological databases), a search for any applicable regional Habitat Conservation Plan or Multiple Species Conservation Plan, and a site survey by PCR biologists. Areas that were inaccessible due to the urbanized nature of the study and its proximity to the I-405 Freeway were surveyed with the use of binoculars and digital photography from safe and legal stopping points.

The study area currently consists of urban freeway infrastructure and adjacent vegetated areas. Developed areas include paved roads, flood control channels (i.e., the Dominguez Channel and Torrance Lateral Channel), a nursery, and other graded areas that lack vegetation. The study area does not support any native, natural communities or natural communities of concern due to its location within a highly urbanized area. Vegetation is limited to planted ornamental species adjacent to the freeway and freeway on- and off-ramps and ruderal (i.e., weedy) species adjacent to the freeway. Representative photographs of the vegetation found within the study area are included in Figure 28, on page 139.

Ornamental species include ice-plant (*Carpobrotus edulis*), gum tree (*Eucalyptus* sp.), pepper tree (*Schinus molle*), pine tree (*Pinus* sp.), Mexican fan palm (*Washingtonia robusta*), oleander (*Nerium oleander*), New Zealand Christmas tree (*Metrosideros excelsus*), ficus (*Ficus* sp.), yellow star-thistle (*Centaurea solstitialis*). A few native species scattered throughout these areas including cottonwood (*Populus* sp.), coyote brush (*Baccharis pilularis*), and Mexican rush (*Juncus mexicanus*) but these species do not form a dominant vegetative cover.



Photograph 1: Ornamental landscaping along the northbound on-ramp in the northwest quadrant of the study area.



Photograph 2: Ornamental landscaping and a nursery adjacent to the northbound off-ramp in the northeast quadrant of the study area.



Photograph 3: Ornamental landscaping enclosed by the southbound on-ramp in the southwest quadrant of the study area.



Photograph 4: Ornamental and ruderal vegetation in the southeast quadrant of the study area.



Ruderal species dominate the southeast quadrant of the proposed project interchange. Species include puncture vine (*Tribulus terrestris*), alkali mallow (*Malvella leprosa*), willow herb (*Epilobium ciliatum*), wild radish (*Raphanus sativus*), ripgut grass (*Bromus diandrus*), castor bean (*Ricinus communis*), telegraph weed (*Heterotheca grandiflora*), English ivy (*Hedera helix*), and wild oat (*Avena sp.*)

Wildlife species observed during the field investigation include rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), black phoebe (*Sayornis nigricans*), house finch (*Carpodacus mexicanus*), snowy egret (*Egretta thula*), double-crested cormorant (*Phalacrocorax auritus*), and American crow (*Corvus brachyrhynchos*).

2.17.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

Minor impacts may occur to the ornamental and ruderal plant communities described above. Due to the non-native nature of the plant communities within the study area, the disturbed nature, and urban setting, the habitat quality is very low.

Section 4(f) of the Department of Transportation Act of 1966 states that “It is hereby declared to be the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.” Projects with impacts on such resources require further study to identify measures to limit potential impacts. Due to the urban setting and lack of native, undisturbed habitat areas, the study area does not provide wildlife or waterfowl refuges, and no impacts relative to Section 4(f) would occur.

The study area is not within any regional conservation plans, such as a Habitat Conservation Plan (HCP) or Multiple Species Conservation Plan (MSCP); therefore the proposed project would not conflict with any such plan.

The Torrance Lateral Channel in the southwest quadrant is not perennial in nature (i.e., does not support flowing water throughout the entire year). Therefore, the likelihood of fish occurring within the channel is low. Moreover, while the proposed project includes a spanning bridge over the Torrance Lateral Channel; no structures would be placed within the channel. The proposed project would not affect the movement of any wildlife species (including fish).

Due to the urban setting, very few wildlife species are expected to occur; therefore, the chance of animal strikes on the roadways is very low.

NO BUILD ALTERNATIVE

The No Build Alternative would cause no changes to the environment. Therefore, the Build Alternative would have no impact on natural communities.

2.17.4 AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES:

Since no impacts would occur to natural communities, no measures for avoidance, minimization or mitigation are required.

2.18 WETLANDS AND OTHER WATERS

2.18.1 REGULATORY SETTING

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 U.S.C. 1344) is the primary law regulating wetlands and waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (ACOE) with oversight by the Environmental Protection Agency (EPA).

The Executive Order for the Protection of Wetlands (E.O. 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the Federal Highway Administration, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the Department of Fish and Game (CDFG) and the Regional Water Quality Control Boards (RWQCB). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission) may also be involved. Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFG before beginning construction. If DFG determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFG jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the ACOE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications in compliance with Section 401 of the Clean Water Act. Please see the Water Quality section for additional details.

2.18.2 AFFECTED ENVIRONMENT

Two channelized drainage features occur within the study area. The first channel is the Dominguez Channel, which parallels the I-405 within the study area. Avalon Boulevard spans the Dominguez Channel in the northern half of the study area and 213th Street spans the Dominguez Channel northeast of the study area. The Dominguez channel is approximately 140 feet wide at the bottom of the channel and 200 feet wide at the top of bank. These measurements would correspond to the ACOE and CDFG jurisdictional widths, respectively. However, a formal jurisdictional delineation was not conducted as a component of the Natural Environment Study. The measurements provided are approximate and based on aerial photography.

The second channel, the Torrance Lateral Channel, is tributary to the Dominguez Channel. The Torrance Lateral Channel is located in the northwestern and southwestern quadrants of the study area and confluences with the Dominguez Channel in the northwestern quadrant of the study area. The Torrance Lateral Channel is approximately 40 feet wide and has vertical walls; therefore the width for both ACOE and CDFG jurisdiction would be approximately 40 feet.

2.18.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

No impacts will occur to the Dominguez Channel as there will be no work in the bed or on the banks of the Dominguez Channel to complete the freeway ramps.

Potential impacts to the Torrance Lateral Channel were analyzed based on a review of the conceptual bridge designs for the Lenardo Drive Bridge. The construction of the bridge over the Torrance Lateral Channel in the southwestern quadrant of the proposed project interchange area would serve to connect the Carson Marketplace site with the I-405. The bridge would be a single-span structure with abutments placed behind the flood control channel walls. It would either be supported by piles or spread footings which would not require construction work within the channel. Therefore, no impacts would occur to jurisdictional areas and no permits would be required by the regulatory agencies (i.e., the ACOE, RWQCB, or CDFG). No wetlands would be affected by the proposed Build Alternative, and no public notice would need to be circulated.

Construction of the proposed project in areas adjacent to the Torrance Lateral could cause adverse impacts within the channel if appropriate measures are not taken to control the extent of construction procedures. Appropriate measures to avoid construction impacts are addressed below.

NO BUILD ALTERNATIVE

The No Build Alternative would cause no changes to the environment. Therefore, there would be no potential for construction related impacts. As is the case with the Build Alternative, there would be no long term effects on either of the two channels.

2.18.4 AVOIDANCE, MINIMIZATION, OR MITIGATION MEASURES

Construction-related Best Management Practices (BMPs) would be implemented to protect the Torrance Lateral Channel during construction. These BMPs would be addressed in the Stormwater Pollution Prevention Plan (SWPPP).

The SWPPP would identify site-specific erosion control measures and proper housekeeping practices to minimize the potential for pollutant discharge from the proposed project site. This includes (but is not limited to) storage and handling of sensitive construction materials, spill containment procedures, proper disposal procedures, employee training, and dissemination of storm water information. BMPs would be compliant with California Stormwater Quality Association's (CASQA) Storm Water Best Management Practice Handbook (Construction Handbook and New Development & Re-development Handbook). The Project Superintendent along with other designated personnel will be responsible for maintaining the erosion control measures and implementing the proper BMPs to prevent discharge of sediments and pollutants from the proposed project site. The parties responsible for the short- and long-term funding, operation, maintenance and repair will be identified in the SWPPP.

With implementation of these avoidance and minimization features, no impacts would occur. No further mitigation is required. The SWPPP and BMPs for this proposed project area addressed further in Section 2.11, Water Quality and Storm Water of this report.

2.19 PLANT SPECIES

2.19.1 REGULATORY SETTING

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) share regulatory responsibility for the protection of special-status plant species. "Special-status" species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see Section 2.21, Threatened and Endangered Species in this document for detailed information regarding these species.

This section of the document discusses all the other special-status plant species, including CDFG fully protected species and species of special concern, USFWS candidate species, and non-listed California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at United States Code 16 (USC), Section 1531, et. seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et. seq. Department projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act, Public Resources Code, Sections 2100-21177.

2.19.2 AFFECTED ENVIRONMENT

The review of sensitive plant species included three components: an assessment of relevant literature on the sensitive plant species of the study area and the surrounding vicinity, a search of the California Natural Diversity Database (CNDDDB), and a review of numerous regional flora and fauna field guides to assist in the identification of species and suitable habitats.

A number of non-listed sensitive plant species were reported in the CNDDDB as occurring within the project's Torrance quad. These sensitive plant species include: South Coast saltscale (*Atriplex pacifica*), Parish's brittlescale (*Atriplex parishii*), Davidson's saltscale (*Atriplex serenana* var. *davidsonii*), and Southern tarplant (*Centromadia parryi* ssp. *australis*), Prostrate navarretia (*Navarretia prostrate*), and Estuary seablite (*Suaeda esteroa*) and are discussed further in detail in, Section 3.2.3, Sensitive Plant Species, of the Natural Environment Study. None of these species are expected to occur within the study area due to the lack of suitable habitat.

2.19.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

A number of non-listed sensitive plant species were reported from the CNDDDB as occurring within the Torrance quad, the area in which the proposed project is located. However, as indicated above, none of the sensitive plant species discussed above are expected to occur within the study area, and therefore no project impacts would occur.

NO BUILD ALTERNATIVE

The No Build Alternative would cause no changes to the environment. However, since no sensitive plant species are present, in any case, non-impacts would be similar to those of the Build Alternative.

2.19.4 AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Since no impacts would occur, no measures for avoidance, minimization or mitigation are required.

2.20 ANIMAL SPECIES

2.20.1 REGULATORY SETTING

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service and the California Department of Fish and Game (CDFG) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.21 below.

All other special-status animal species are discussed here, including CDFG fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1601 – 1603 of the Fish and Game Code
- Section 4150 and 4152 of the Fish and Game Code

2.20.2 AFFECTED ENVIRONMENT

The California Natural Diversity Database (CNDDDB), a CDFG sensitive resources account database was reviewed for all pertinent information regarding the locations of known observations of sensitive species and habitats within the vicinity of the study area. Federal register listings, protocols, and species data provided by the USFWS and CDFG were reviewed in conjunction with anticipated federally and State listed species occurring within the vicinity. In addition, PCR biologists surveyed the proposed project site. Areas that were inaccessible due to the urbanized nature of the study area and its proximity to the 405 Freeway were surveyed with the use of binoculars and digital photography from safe and legal stopping points.

Several sensitive wildlife species were reported from the CNDDDB as occurring or potentially occurring within the Torrance quad in which the proposed project is located. These sensitive wildlife species include: Coast horned lizard (*Phrynosoma coronatum*), Tricolored blackbird (*Agelaius tricolor*), Double-crested cormorant (*Phalacrocorax auritus*), Cooper's hawk (*Accipiter cooperi*), Sharp-shinned hawk (*Accipiter striatus*), and Burrowing owl (*Athene cunicularia*) and are discussed further in detail in Section 3.2.4, Sensitive Wildlife Species, of the Natural Environment Study.

The Tri-colored blackbird and coast horned lizard were not observed and are not expected to occur within the study area due to the lack of suitable habitat.

The Cooper's hawk and sharp-shinned were not observed but have the potential to roost within trees found in the study area. They are not expected to nest within the study area.

One sensitive wildlife species was observed within the study area, the Double-crested cormorant (*Phalacrocorax auritus*), a California Special Concern (CSC) species. This species is considered sensitive where its rookery (nesting) sites occur. Due to the urban nature of the

study area and noise level from the freeway, ramps, and adjacent development, this species is not expected to nest within or adjacent to the study area.

The Burrowing owl is considered sensitive (CSC species) where its burrow sites occur. There is a potential for burrow sites to occur along the banks of the Torrance Lateral Channel in the southwestern quadrant of the study area.

Birds protected by the federal Migratory Bird Treaty Act (MBTA) may nest within the study area due to the presence of trees and shrubs; however, the potential is low due to the urban nature of the study area and constant freeway noise.

2.20.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

As indicated above, potential impacts may occur to nesting burrowing owls along the Torrance Lateral Channel. Such sites were not observed, but could occur. Disturbing or destroying active migratory bird nests is a violation of the MBTA. Nests and eggs are also protected under Fish and Game Code Section 3503. The removal of vegetation during the nesting season (February 15 through August 30), should burrowing owls choose to nest in the area adjacent to the Torrance Lateral, may result in impacts to nesting birds.

NO BUILD ALTERNATIVE

The No Build Alternative would cause no changes to the environment. Therefore, there would be no potential for construction related impacts on burrowing owl. As is the case with the Build Alternative, there would be no long term effects on sensitive animal species.

2.20.4 AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES:

Avoidance/minimization for the potential impacts to nesting birds can be accomplished in one of two ways. First, all vegetation removal can be conducted between September 1 and February 14, which is outside of the nesting season. If impacts cannot occur outside of the nesting season, then a qualified biologist will conduct a nesting bird survey within three days prior to vegetation removal. If any active nests are detected, the area shall be flagged and avoided until the nesting cycle is complete or the monitoring biologist has determined that the nest is no longer active. A buffer of at least 100 feet (as determined appropriate by the monitoring biologist) will be established around the nest to avoid disturbance.

In order to address the potential impacts on burrowing owls, the following procedures shall be followed for construction activities along the channel in the southwest quadrant of the project. These procedures shall be performed in accordance with the California Burrowing Owl Consortium's Burrowing Owl Survey Protocol and Mitigation Guidelines (April 1993). The guidelines suggest that avoidance of the burrowing owl is the preferred method of mitigation, followed by on-site passive relocation, and then off-site habitat replacement.

- A 30-day pre-construction survey shall be conducted by a qualified biologist prior to any potential construction impacts along the banks of the channel.

- If burrowing owls are present, construction may only proceed upon verification by a qualified biologist or the CDFG that the owls have not begun egg-laying and incubation or that the juveniles from those burrows are foraging independently and capable of independent survival.
 - Avoidance of occupied burrowing owl burrows entails the implementation of a 50-meter buffer around occupied burrows during the non-breeding season (September 1 through January 31) or 151 meters during the breeding season (February 1 through August 31) within which no disturbance may take place. Avoidance would also require the preservation of a minimum of 6.5 acres of contiguous foraging habitat per pair or single resident burrowing owl.
 - If avoidance is not feasible, on-site passive relocation is recommended. Any identified occupied burrows within proposed impact area, including all potential burrow sites within 50 meters, should have one-way doors installed. The area will be monitored daily for at least one week following the installation of the one-way doors to confirm that the owl(s) have left the burrows and have relocated to an adjacent natural or artificial burrow with contiguous foraging habitat. Burrows within the impact area should be excavated to prevent reentering.
 - Any areas used for mitigation/minimization, whether on site or off site, should be preserved and placed under a conservation easement.

2.21 THREATENED AND ENDANGERED SPECIES

2.21.1 REGULATORY SETTING

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): United States Code (USC), Section 1531, et seq. See also 50 CFR Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic Atmospheric Administration Fisheries Service (NOAA Fisheries) to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion or an incidental take permit. Section 3 of FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code, Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project caused losses of listed species populations and their essential habitats. The California Department of Fish and Game (CDFG) is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take"

of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFG. For projects requiring a Biological Opinion under Section 7 of the FESA, CDFG may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

2.21.2 AFFECTED ENVIRONMENT

As indicated above, the California Natural Diversity Database (CNDDDB), was reviewed for all pertinent information regarding the locations of known observations of sensitive species and habitats in the vicinity of the study area. Federal register listings, protocols, and species data provided by the USFWS and CDFG were reviewed in conjunction with anticipated federally and State listed species occurring within the vicinity. In addition, PCR biologists surveyed the proposed project site. Areas that were inaccessible due to the urbanized nature of the study area and its proximity to the I-405 Freeway were surveyed with the use of binoculars and digital photography from safe and legal stopping points.

- **Plant Species.** Three species of listed plant species are known from the Torrance quad. These plant species include: Salt marsh bird's beak (*Cordylanthus maritimus* ssp. *maritimus*), Lyon's pentachaeta (*Pentachaeta lyonii*), and Brand's phacelia (*Phacelia stellaris*) and are discussed further in detail in, Section 3.2.5.1, Plant Species, of the Natural Environment Study. The proposed project site does not include the habitat types required to support these species, and, therefore, these species are not expected to occur within the study area.
- **Wildlife Species.** Five species of listed wildlife species are known from the Torrance quad. These wildlife species include: Mohave tui chub (*Gila bicolor mohavensis*), Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*), Pacific pocket mouse (*Perognathus longimembris pacificus*), Coastal California gnatcatcher (*Polioptila californica californica*), and the California least tern (*Sterna antillarum browni*) and are discussed further in detail in Section 3.2.5.2, Wildlife Species, of the Natural Environment Study. These species are not expected to occur within the study area, due to the site's location outside of the species range or the lack of suitable habitat (i.e., the site has an urban/disturbed character).

2.21.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

As discussed above, three species of listed plant species are known from the Torrance quad. Due to the lack of suitable habitat, these species are not expected to occur within the study area.

As further discussed, five species of listed wildlife species are known from the Torrance quad. However, due to the number of factors regarding the proposed project site's lack of suitable

habitat and urban disturbed character, these species are not expected to occur within the study area.

As no threatened or endangered species are expected to occur within the study area, no proposed project impacts would occur.

NO BUILD ALTERNATIVE

The No Build Alternative would cause no changes to the environment. However, since no endangered or threatened species are present, or expected at the proposed project site, non-impacts would be similar to those of the Build Alternative.

2.21.4 AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES:

Since no impacts would occur, no measures for avoidance, minimization or mitigation are required.

2.22 INVASIVE SPECIES

2.22.1 REGULATORY SETTING

On February 3, 1999, President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration guidance issued August 10, 1999 directs the use of the state’s noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

2.22.2 AFFECTED ENVIRONMENT

The study area is dominated by non-native species, most of which are ornamental cultivars that are regularly planted along public roads for aesthetic reasons and erosion control. During site surveys, a number of non-native weedy species that are considered invasive were also observed including ice plant, English ivy, wild oat, ripgut grass, castor bean, and wild radish. These species are not on the California Noxious Weed list.

Species observed within the study area during the survey that are considered noxious weeds and are listed on the California Noxious Weed list include yellow star thistle, puncture vine, alkali mallow, bindweed, bull thistle (*Cirsium vulgare*), Bermuda grass (*Cynodon dactylon*), and sedge (*Cyperus* sp.). In addition, one non-native wildlife species was observed, the rock dove (*Columba livia*).

2.22.3 ENVIRONMENTAL CONSEQUENCES

BUILD ALTERNATIVE

Construction activities could cause the disturbance and spread of the identified invasive species to adjacent areas.

NO BUILD ALTERNATIVE

The No Build Alternative would cause no changes to the environment. Invasive species may spread through natural processes, but such spread would not be exacerbated through the disturbance of plants due to construction activity.

2.22.4 AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES:

In compliance with the Executive Order on Invasive Species, E.O. 13112, and subsequent guidance from the Federal Highway Administration, the landscaping and erosion control included in the proposed project will not use species listed as noxious weeds.

In areas of particular sensitivity, extra precaution will be taken if invasive species are found. Measures to prevent the spread of any invasive species shall include, but may not be limited to, the inspection and cleaning of construction equipment and the disposal of weedy vegetation removed during construction to prevent invasion into areas outside of the construction zone.

2.23 CUMULATIVE IMPACTS

2.23.1 REGULATORY SETTING

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the proposed project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

CEQA Guidelines, Section 15130, describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the CEQA

Guidelines. A definition of cumulative impacts, under NEPA, can be found in 40 CFR, Section 1508.7 of the CEQ Regulations.

2.23.2 AFFECTED ENVIRONMENT

The land use relationships in the proposed project vicinity are illustrated in Section 2.2, Land Use. As indicated, the nearest uses include commercial development, car dealerships, residential development south of the proposed project site, and the recently approved, to be built Carson Marketplace project west of the proposed project site. There are existing residential neighborhoods lying south of the proposed extension of Lenardo Drive and south of the 213th Street Bridge which will be widening to accept the new southbound on-ramp from Avalon Boulevard.

The circumstances of the project's setting places certain limitations on potential new development that might occur adjacent to the proposed project site and thereby contribute to cumulative impacts of the type that occur when multiple projects are located in nearby proximity. The northbound off-ramps are isolated in an open space area lying between the I-405 mainline and the Dominguez Channel. Therefore, impacts of the northbound off and on-ramps would tend to be localized, and not tied to expected new development in adjacent areas. Areas further north and the areas south of the proposed project site are currently heavily developed with urban uses.

Growth is occurring in a larger regional context that will affect the conditions at the proposed project site. Such growth will affect the future traffic conditions, and traffic related impacts regarding air quality and noise. In order account for future development, future increases in growth were incorporated into the assumption of the analysis of proposed project impacts discussed above. The traffic analysis is based on SCAG modeling that accounts for ambient growth in the region. Further, to provide a conservative analysis, the traffic study included a search for development projects in the traffic study area that may not have been fully accounted for in the regional projections. The traffic study identified four such projects as shown in Table 33 on page 152. Of these the Carson Marketplace, is located adjacent to the proposed project site and could potentially contribute to localized cumulative impacts. The remaining related projects are located approximately 1.5 to 2.5 miles from the proposed project site. The traffic study also identified three roadway intersections scheduled for minor improvements whose construction could contribute to cumulative impacts. These include intersection improvements at Main Street and Torrance Boulevard; Main Street and Carson Street; and Avalon Boulevard and Carson Street.

2.23.3 ENVIRONMENTAL CONSEQUENCES

The project's potential for cumulative impacts regarding each of the environmental topics discussed previously is as follows:

LAND USE

The proposed project is a regionally planned roadway improvement anticipated in regional and local plans; and it is intended to provide accessibility to City/regional facilities. Growth and related

Table 33

Major Development Projects in the Study Area Not Included in SCAG Data

Project Location	Name	Land-Use	Size	
19503 Normandie Avenue	Ambassador College	Shopping Center	160.000	KSF
Dominguez Technology Center	De Lacey Flats	Technology	840.997	KSF
	Green/De Lacey Mixed-use	Industrial	693.822	KSF
	215 S. Marengo Condominiums Oakland Avenue	Office	567.673	KSF
CSUDH/Home Depot Center Phase II		Hotel	200	Rooms
		Administrative Offices	30.000	KSF
		Athletic Performance Center	30.000	KSF
		Training Facilities	50.000	KSF
		Dormitories	240	Beds
Carson Marketplace		Regional Retail Center	1370.00	KSF
		Neighborhood Retail Center	130.00	KSF
		Residential	1550	DU
		Hotel	300	Rooms
		Restaurants	81.125	KSF
		Commercial Recreation/ Entertainment	214.000	KSF
Wilmington Avenue and I-405	Wilmington Avenue Interchange Project	Roadway Improvements		

Source: *Traffic Impact Study for the Carson Marketplace* (Kaku Associates, October 2005).

projects are also accounted for, and/or would be subject to separate CEQA review. Known related projects are of an in-fill nature or consist of increasing density within currently developed sites, consistent with the City of Carson General Plan.

The proposed project would have a linkage to one related project, the Carson Marketplace. These two projects would have a symbiotic relationship with the proposed project providing access to the Carson Marketplace site. The proposed project is being designed to provide a seamless interface with the Carson Marketplace roadway system, and is fully consistent with the roadway linkages anticipated in the Carson Marketplace Specific Plan.

The proposed project site is confined to existing roadway areas and their abutments. It has no off-site features and would not alter any land use relationships in the vicinity of the proposed project and therefore it would not contribute to cumulative impacts on land use patterns in the vicinity of the proposed project site.

GROWTH

The proposed project is a regionally planned roadway improvement anticipated in regional and local plans and growth projections; and it is intended to provide accessibility to City/regional facilities. Further, the proposed project is not a generator of growth, but rather a facility to accommodate otherwise anticipated growth. Therefore, the proposed project would not contribute to cumulative growth impacts. To the extent that other projects may be proposed, beyond those anticipated in existing plans, those projects would have growth impacts individually, but their effects would not be cumulative, inclusive of effects of the proposed project.

COMMUNITY IMPACTS – COMMUNITY CHARACTER

The proposed project would have a linkage to one related project, the Carson Marketplace. These two projects would have a symbiotic relationship with the proposed project serving the Carson Marketplace site. The Carson Marketplace, which has been previously approved and which is scheduled for construction in the near future, will convert a vacant parcel to a developed mixed-use project. The Carson Marketplace is an in-fill project and would not alter any land use patterns in the areas surrounding its boundaries. It will provide a range of retail and service uses for neighboring areas.

The proposed project site is confined to existing roadway areas and their abutments. It has no off-site features and would not alter any land use relationships in the vicinity of the project, and would not contribute to off-site changes in land use relationships. Further, the proposed project would not adversely affect public services in the proposed project area. Therefore, the proposed project would not contribute to cumulative impacts on community character.

COMMUNITY IMPACTS – ENVIRONMENTAL JUSTICE

The proposed project would provide community benefits and would not cause significant impacts. Therefore, the proposed project could not cause unequal distribution of significant impacts. The project's only impacts in neighboring areas are short-term construction impacts that would be typical of development throughout all portions of the City and region. The local population residing in the areas adjacent to the proposed project site have ethnic and poverty levels that are typical of those occurring City wide. Cumulative effects on environmental justice would have no impact.

UTILITIES AND EMERGENCY SERVICES/COMMUNITY SERVICES

The proposed project would have no adverse impacts on the long term operations of utilities, emergency services and/or community services. To the extent that the proposed project improves operating conditions at intersections throughout its site vicinity, it would improve the effectiveness of emergency services. Therefore, the proposed project operations would not contribute to cumulative impact conditions.

If other related projects are constructed at the same time as the proposed project, construction impacts on traffic conditions could cumulatively cause greater traffic delay than the individual projects alone, thus causing greater impacts on emergency services. However, the project's impacts on the local street network would be limited to the effects caused by minor

improvements along Avalon Boulevard. Other proposed roadway improvements in the vicinity are minor and would also occur over very short durations.

TRAFFIC AND TRANSPORTATION/BICYCLE FACILITIES

As described above, the traffic analysis for the proposed project is based on, and includes traffic from anticipated regional growth, as well as traffic from the four related projects. Therefore, the traffic study methodology is cumulative in nature and the results of the traffic analysis for the proposed project represent a cumulative analysis. As indicated, the proposed project inclusive of cumulative effects will improve traffic operations at numerous intersections in the vicinity of the proposed project and would be beneficial.

The project's impacts on traffic due to construction occur almost entirely within the existing I-405/Avalon Boulevard ramp areas. Construction associated with other related projects would not contribute to impacts in these areas. To the extent that other development occurs simultaneously, in other parts of the City traffic could be delayed at multiple locations, having a cumulative effect on travel times for longer journeys through the City. Notwithstanding, other construction on roadways in the vicinity of the proposed project are expected to be minor (restriping, curb relocations, etc.) and would be of very short duration. There are no cumulative effects that would contribute with the proposed project to causing a bottleneck in the traffic flows. Cumulative impacts associated with traffic would be less than significant.

The proposed project would not have adverse impacts on bicycle facilities and would accommodate the multi-purpose path proposed by the adjacent Carson Marketplace project. Any other changes to bicycle facilities that might occur elsewhere due to the construction of other projects, would occur as localized events and would be expected to comply with applicable bicycle plans for their respective areas. The proposed project would not contribute with other projects to cumulative impacts on bicycle facilities.

CULTURAL RESOURCES

The proposed project is not expected to have an impact on cultural resources. Notwithstanding, impact minimization measures have been identified that would be implemented if unexpected cultural resources are encountered in compliance with 36 CFR 800. These measures call for stopping construction, and implementing procedures for proper identification and treatment of such resources. These measures are based on regulatory guidelines that are followed on all construction projects.

Other related projects would therefore be expected to implement similar measures should cultural resources be encountered during construction at their sites. With implementation of such measures potential impacts would be limited. There would be cumulative adverse impacts.

HYDROLOGY AND FLOODPLAIN

Hydrology and floodplain impacts are of a localized character and cumulative impacts can occur when multiple projects occur with common drainage areas. The only related project whose drainage effects might interact with those of the proposed project is the Carson Marketplace. Both projects have been designed, with consideration of one another, to accommodate potential

drainage characteristics and avoid adverse impacts. Therefore, cumulative impacts on hydrology and floodplain would be less than significant.

WATER QUALITY AND STORM WATER RUN-OFF

The proposed project, as well as other related projects would be required to comply with the County of Los Angeles Public Works Department (LACDPW) guidelines for drainage. Further, all projects would be required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP) that specifies Best Pollutant Management Practices (BMPs) that will reduce pollution in stormwater discharges. Implementation of such procedures would minimize potential impacts on water quality, and would avoid significant cumulative impacts.

GEOLOGY/SOILS/SEISMIC/TOPOGRAPHY

Earth related impacts are of a localized character, and related to the characteristics of each development site. Further, each development project is required to meet construction regulations, and commonly accepted engineering practices for the safety of the public and property.

As noted above, the only related project in the vicinity of the proposed project is the Carson Marketplace, adjacent to the proposed project site, which has been engineered to meet the geologic conditions of its site. The adjacency of the two projects to one another does not result in additional development requirements stemming from the neighboring uses. Therefore, cumulative impacts with regard to earth and public and property safety would be less than significant.

PALEONTOLOGY

The proposed project is not expected to have an impact on paleontological resources. Notwithstanding, impact minimization measures have been identified that would be implemented if unexpected paleontological resources are encountered in deep excavations. These measures call for stopping construction, and implementing procedures for proper identification and treatment of such resources. These measures are based on regulatory guidelines that are followed on all construction projects.

Other related projects would therefore be expected to implement similar measures should paleontological resources be encountered during construction at their sites. With implementation of such measures potential impacts would be limited. There would be no cumulative adverse impacts.

HAZARDOUS WASTE/MATERIALS

The project's operations would not involve the use of hazardous materials, and would not have impacts with regard to hazardous wastes. Therefore, the proposed project operations would not contribute to cumulative effects regarding hazardous wastes.

During proposed project construction, hazardous contaminants may be encountered disposal in the soil along the freeway and/or in the soil/groundwater adjacent to the Carson Marketplace site. Contamination due to lead deposits along the freeway is addressed through soil testing

and standard mitigation measures to reduce potential impacts. Soil/groundwater contamination, if it were to occur adjacent to the Carson Marketplace site, would be due to previous use of that site for landfill purposes. The Carson Marketplace is undergoing site remediation as a component of its development program. That remediation program would reduce the potential for migration of contaminants to the proposed project site. Therefore, the cumulative impacts of the proposed project would be less as a result of activities at the Carson Marketplace site.

AIR QUALITY

Project operations would not include any new stationary sources associated with the construction of freeway ramps and the proposed project would not generate additional traffic volumes. Changes in the configuration of the existing interchange of Avalon Boulevard at Interstate 405 (I-405) in the City of Carson were evaluated and the proposed project would not contribute to any localized criteria and air toxic impacts. Regarding cumulative impacts, the proposed ramp improvements are included in the current 2006 Regional Transportation Improvement Program (RTIP), as project identifier LAE2198. Under the requirements of the CAAA, proposed transportation projects must be derived from an RTP that conforms to the applicable local air quality plans in the state implementation plan. Projects must also be included in a TIP that conforms with the State Implementation Plan (SIP). As the proposed project is included in the RTIP, the proposed project would also be in conformance with the SIP and is consistent with the requirements of the Transportation Conformity Rule. Thus, the proposed project would not result in any cumulative air quality impacts.

With respect to the project's construction-period air quality emissions and cumulative Basin-wide conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the AQMP pursuant to Federal Clean Air Act mandates. As such, the proposed project would comply with SCAQMD Rule 403 requirements, and implement all feasible mitigation/minimization measures. In addition, the proposed project would comply with adopted AQMP emissions control measures. Per SCAQMD rules and mandates as well as the CEQA requirement that significant impacts be mitigated/minimized to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation/minimization measures, and compliance with adopted AQMP emissions control measures) would also be imposed on construction projects Basin-wide, which would include each of the related projects mentioned above. As shown above, construction of the proposed project results in regional emissions impacts that are temporary short-term impacts associated with project construction and would not result in cumulatively significant impacts.

NOISE AND VIBRATION

The proposed project operations, with the inclusion of a sound wall proposed as an avoidance/minimization measure would reduce noise at sensitive receptors in the vicinity of the project. Therefore, the proposed project would not contribute to a cumulative impact on noise.

Of the related projects, the Carson Marketplace is located in proximity to the proposed project site, and the sensitive receptors located to the south of the Lenardo Drive Bridge construction. Construction activities of the proposed project may occur during the construction of the Carson Marketplace project. Joint noise effects at the sensitive receptors would be of short duration, and would require notable construction activity on the very southeast corner of the Carson

Marketplace site, on the same days of notable noise activity in the Lenardo Drive Bridge area. To the extent that such activity does occur, the project's noise level would be more dominant. Increases to that noise level caused by construction from the Carson Marketplace site would be less than three decibels, which is not a discernable difference. Cumulative construction impacts on noise would be less than significant.

BIOLOGICAL ENVIRONMENT

The proposed project would have no impacts on natural communities, plant species, or threatened and endangered species and therefore, could not contribute to cumulative effects on these topics. The proposed project could potentially have impacts on waters of U.S., animal species (burrowing owl), and the spread of invasive species. However, any potential impacts would be limited due to avoidance and/or minimization measures. These measures are all required under existing regulatory guidelines, and similar measures would be applied to other development projects. Due to the project's limited impacts on the biological environment, and the application of avoidance and minimization procedures with other development in the vicinity of the project, cumulative impacts on the biological environment would be less than significant.

CLIMATE CHANGE

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to greenhouse gas²² (GHG) emissions reduction and climate change research and policy have increased dramatically in recent years. In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and pro-active approach to dealing with GHG emissions and climate change at the state level. AB 1493 requires the Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions; these regulations will apply to automobiles and light trucks beginning with the 2009 model year.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80% below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that ARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

Climate change and GHG reduction is also a concern at the federal level; however, at this time, no legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change.

²² Greenhouse gases related to human activity include: Carbon dioxide, Methane, Nitrous oxide, Tetrafluoromethane, Hexafluoroethane, Sulfur hexafluoride, HFC-23, HFC-134a*, and HFC-152a*.

According to a recent white paper by the Association of Environmental Professionals²³, “an individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of greenhouse gases.

The Department and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California’s GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the *Climate Action Program at Caltrans* (December 2006).

One of the main strategies in the Department’s Climate Action Program to reduce GHG emissions is to make California’s transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 mph. Relieving congestion by enhancing operations and improving travel times in high congestion travel corridors will lead to an overall reduction in GHG emissions.

As described in Section 2.15 above, the proposed project would reduce traffic volumes through the intersections in the vicinity of the proposed project site, resulting in reductions in delay times and vehicle miles traveled. Therefore, the proposed project would help to reduce greenhouse gas emissions, and would benefit rather than worsen cumulative effects on climate change.

The Department recognizes the concern that carbon dioxide emissions raise for climate change. However, modeling and gauging the impacts associated with an increase in GHG emissions levels, including carbon dioxide, at the project level is not currently possible. No federal, state or regional regulatory agency has provided methodology or criteria for GHG emission and climate change impact analysis. Therefore, the Department is unable to provide a scientific or regulatory based conclusion regarding whether the project’s contribution to climate change is cumulatively considerable. Notwithstanding, as noted above, the proposed project would implement some level of reduction/improvement in greenhouse gas emissions over baseline conditions, although not quantified here.

The Department continues to be actively involved on the Governor’s Climate Action Team as ARB works to implement AB 1493 and AB 32. As part of the *Climate Action Program at Caltrans* (December 2006), the Department is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. The Department is working closely with local jurisdictions on planning activities; however, the Department does not have local land use planning authority. As described above, the proposed project has been proposed by the City of Carson to help support a development pattern that implements a smart land use strategy with cluster, high density development located adjacent to the I-405 transportation corridor. The Department is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and

²³ Recommendations by the Association of Environmental Professionals (AEP) on How to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents (March 5, 2007), p. 2.

heavy-duty trucks. However it is important to note that the control of the fuel economy standards is held by the United States Environmental Protection Agency and ARB. Lastly, the use of alternative fuels is also being considered; the Department is participating in funding for alternative fuel research at the University of California Davis.

2.23.4 AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

No cumulatively significant impacts would occur. As described above, the proposed project would include avoidance and minimization procedures to reduce potential impacts. All of those measures consist of standard construction protocols and/or regulatory measures for the protection of the environment. Accordingly, similar measures would be implemented on other construction projects. There are no cumulative impacts that would require additional mitigation, not already identified due to an increase in impacts arising from the project's relationship to other development projects.

CHAPTER 3 - COMMENTS AND COORDINATION

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures and related environmental requirements. Agency consultation and public participation for this proposed project have been accomplished through a variety of formal and informal methods, including: project development team meetings, and interagency coordination meetings. This chapter summarizes the results of the Department's efforts to fully identify, address and resolve project-related issues through early and continuing coordination.

Outreach activities for this proposed project have included coordination efforts with the eleven utilities that have interests in the proposed project area to obtain as-built plans, confirm utility locations, educate the utility companies about the proposed project and its impacts and identify any potential utility conflicts. The utility companies contacted include the following: Air Products & Chemicals Inc., ARCO Pipeline Company, BP West Coast Products, California Water Service/Dominguez Water, Pacific Pipeline Systems, AT&T (SBC Pac Bell), Southern California Gas Company, Shell Oil Pipeline – North, Time Warner Group (MediaOne Carson), Southern California Distribution, and Verizon.

Coordination activities were also carried out through contact with Los Angeles County to address issues regarding the Torrance Lateral Flood Control Channel which passes through the proposed project site and which is under the jurisdiction of LA County Flood Control. Meetings were held on November 16, 2006 and May 2, 2007 to discuss related issues.

Further, a community outreach meeting has been scheduled commensurate with the circulation of this IS/EA document to provide information regarding the proposed project and the environmental analysis. The meeting has been scheduled for Tuesday, August 12, 2008, 6:00 – 8:00 P.M., at the City of Carson, Community Center Room 123, 801 Carson Street, Carson, California 90745; and noticed to parties listed in Chapter 5, Distribution List.

CHAPTER 4 - LIST OF PREPARERS

LEAD AGENCY

California Department of Transportation (CALTRANS) District 7

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Anthony R. Baquiran	Environmental Planner, Environmental Document Reviewer
Mine Struhl	Associate Environmental Planner
Jinous Saleh	Senior Environmental Planner
Gary Iverson	Senior Environmental Planner (Cultural)
Michelle Goossens	Environmental Planner/ Assistant Archaeologist
Steve Chan, P.E., STE	District Hazardous Waste Coordinator
Jin S. Lee P.E., PMP	Senior Transportation Engineer (Noise)
Paul Caron	Senior Environmental Planner (District Biologist)
Hamid Toossi	Senior Transportation Engineer (Project Manager)

PCR SERVICES CORPORATION

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Henry Mateo	Graphics Specialist
Terry Keelan	Publications Manager
Natasha Mapp	Publications Specialist

Air Quality Technical Report

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Mark Hagmann, P.E.	Associate Director of Air Quality Services
Everest Yan	Engineer
Jeff Baldino	Associate Engineer

Biological Technical Report

Kristin Szabo	Senior Biologist
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Archaeological Survey Report/ Historic Property Survey Report

Marcy Rockman, Ph.D.	Principal Archaeologist
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Noise Technical Report

Amir Yazdanniyaz, P.E.	Associate Principal
Sean Bui, P.E.	Principal Acoustics Consultant

DMJM HARRIS/AECOM

Storm Water Data Report

Ray Fares
Ignacio Roman

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MACTEC ENGINEERING AND CONSULTING, INC.

**Report of Geologic- Seismic Evaluation
Phase I Environmental Site Assessment Report**

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FEHR & PEERS/KAKU ASSOCIATES

Traffic Technical Report

Tom Gaul, P.E.
Anjum Bawa
Sarah Brandenburg

Vice President; Principal
Transportation Engineer
Transportation Planner

CHAPTER 5 - DISTRIBUTION LIST

The following officials, agency representatives and interested parties have received either a copy of the draft environmental document or a notice informing them of its availability.

FEDERAL AGENCIES

- U.S. Senate The Honorable Barbara Boxer
- U.S. Senate Office of Senator Feinstein
- U.S. Congress District 33, The Honorable Lucille Roybal-Allard
- U.S. Congress District 30, The Honorable Xavier Becerra
- U.S. Army Corps of Engineers, District Engineer
- U.S. Fish and Wildlife Service Environmental Review Section
- U.S. Federal Emergency Management Agency
- U.S. Environmental Protection Agency Region 9, Office of Planning and Public Affairs
- U.S. Department of Transportation, Federal Highway Administration
- Mr. Martin Alcala, Native American Tribal Councils
- Department of Housing and Urban Development, Los Angeles Field Office
- U.S. Department of Energy
- U.S. Department of Interior
- U.S. Department of Agriculture
- U.S. Department of Commerce
- U.S. Department of Transportation, Federal Highway Administration, Region 9
- Steve Healow, Federal Highway Administration

STATE AGENCIES

- State Clearinghouse Office of Planning & Research
- California Department of Transportation, Headquarters
- California State Assembly District 28, The Honorable Jenny Oropeza
- California State Senate District 55, The Honorable Laura Richardson
- California Air Resources Board
- California Highway Patrol (Torrance)
- State of California Resources Agency
- California Regional Water Quality Control Board-Los Angeles Region
- California Department of Fish and Game
- California Transportation Commission
- California Native American Heritage Commission
- California Native Plant Society

REGIONAL AGENCIES

- Southern California Associations of Government
- South Bay Cities Council of Governments
- South Coast Air Quality Management District

LOS ANGELES COUNTY

- County Sanitation District-Compton
- Los Angeles County Board of Supervisors, 1st District
- Los Angeles County Board of Supervisors, 2nd District
- Los Angeles County Board of Supervisors, 3rd District
- Los Angeles County Board of Supervisors, 4th District
- County of Los Angeles, Department of Public Works
- County of Los Angeles Fire Department
- County of Los Angeles Sheriff's Department, Carson Station
- County of Los Angeles Department of Regional Planning
- County of Los Angeles Metropolitan Transportation Authority

CITY OF CARSON

- Central Region Carson, City Fire Department
- City of Carson City Council, The Honorable Mike A. Gibson
- City of Carson City Council, The Honorable Elito M. Santarina
- City of Carson , Helen S. Kawagoe, Clerk
- City of Carson City Council, The Honorable Mayor Jim Dear
- City of Carson City Council, The Honorable Mayor Pro Tempore Julie Ruiz-Raber
- City of Carson City Council, The Honorable Harold C. Williams
- City of Carson, Jerome G. Grooms, City Manager
- City of Carson, Housing and Neighborhood Development
- City of Carson, Department of Developmental Services: Public Works, Planning, Building Safety, Engineering, and Transportation
- City of Carson, Department of Transportation
- City of Carson, Planning Department
- City of Carson, Economic Development Commission
- City of Carson Environmental Commission
- City of Carson, Parks & Recreation Commission
- City of Carson , Public Safety Commission
- City of Carson, Public Works Commission
- City of Carson, Planning Commission
- Carson Community Development Center, Inc

OTHER CITIES

- City of Gardena, Community Development and Planning
- City of Torrance, Community Development Department
- City of Long Beach, Planning & Building Department
- City of Signal Hill, Community Development
- City of Compton, Planning Department
- City of Los Angeles, The Honorable Mayor Antonio Villaraigosa
- City of Los Angeles, Planning Department
- City of Los Angeles Department of Transportation
- L A City Dept Of Water And Power
- City of Los Angeles, Bureau of Engineering

OTHER

- Sierra Club
- South Bay of Economic Development Partnership, Inc
- Carson Marketplace, LLC
- New Horizons Land Co, LLC
- Terminal Car Leasing Inc
- Kott, Donald G and Margaret C
- 405 Avalon LLC
- Globe Associates
- Sigalos, Anthony
- Nosrati, David and Atusa
- P Kohn CO
- Pep Properties Inc
- Carson Hospitality Group Inc
- Inter Group Investment Inc
- Bloom, Frances E
- Macewen, Malcolm Co
- Chang Ta Huang et a
- Carson Plaza Holdings LP
- Huang, Eva Y
- Sazerac Historic Building

LIBRARIES

- Carson Branch County of Los Angeles Public Library
- Victoria Park Public Library

LOCAL OWNERS/OCCUPANTS

- In addition, notices were sent to approximately 275 residents located within 500 feet of the proposed project site.

CHAPTER 6 - REFERENCES

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Southern California Association of Governments, Regional Comprehensive Plan and Guide.

Southern California Association of Governments, Regional Housing Needs Assessment.

Southern California Association of Governments, Regional Transportation Improvement Program, 2006.

Transportation Research Board, 2000 Highway Capacity Manual 2000.

United States Bureau of the Census, 2000.

United States Environmental Protection Agency (USEPA), 1998 Guideline on Air Quality Models.

**Appendix A
CEQA Checklist**

Appendix A

CEQA Checklist

1. **Project title:** I-405/Avalon Boulevard Interchange
2. **Lead agency name and address:**

CALTRANS-District 7	CALTRANS-Headquarters
100 S. Main Street	P.O. Box 942873
Los Angeles, CA 90012	Sacramento, CA 94273-0001
3. **Contact person and phone number:** Anthony R. Baquiran (213) 897-0674
4. **Project location:** Avalon Boulevard and I-405 Interchange
5. **Project sponsor's name and address:**

City of Carson
701 E. Carson Street
Carson, CA 90745
6. **General plan designation:** Caltrans right-of-way
7. **Zoning:** N/A
8. **Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)**

The project proposes to modify the existing interchange of Avalon Boulevard at Interstate 405 (I-405) in the City of Carson to reduce congestion. The proposed modifications would widen the existing entrance and exit ramps, reconfigure the southbound I-405 exit ramp, construct a new southbound I-405 entrance ramp east of Avalon Boulevard, and connect the Carson Marketplace site to Avalon Boulevard by extending Lenardo Drive westward bridging over the Torrance Lateral Channel, and modify Avalon Boulevard to accommodate the new ramp configuration. See Section 1.3 above for further discussion.
9. **Surrounding land uses and setting: Briefly describe the project's surroundings:**

The project site is situated in a built urban area, surrounded by an array of commercial uses, with residential and service uses lying in a large perimeter. A large vacant parcel lies adjacent to the project site which is designated for development as the Carson Marketplace mixed use (residential, retail, entertainment) project. Residential Neighborhoods lie adjacent to the project's Lenardo Drive extension and new southbound on-ramp components. See Section 2.2.2 above for further discussion.
10. **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)**

City of Carson

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

-

Signature

-

Date

-

Printed Name

-

For

Issues:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

See Section 2.8 above for further discussion.

II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:</p>				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

See Section 2.15 above for further discussion.

<p>IV. BIOLOGICAL RESOURCES -- Would the project:</p>				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

See Sections 2.17 through 2.22 above for further discussion.

V. CULTURAL RESOURCES -- Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

See Sections 2.9 and 2.13 above for further discussion.

VI. GEOLOGY AND SOILS -- Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

See Section 2.12 above for further discussion.

VII. HAZARDS AND HAZARDOUS MATERIALS --
Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

See Section 2.14 above for further discussion.

VIII. HYDROLOGY AND WATER QUALITY --
Would the project:

a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

See Sections 2.10 and 2.11 above for further discussion.

IX. LAND USE AND PLANNING - Would the project:

a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

See Sections 2.2 through 2.4 above for further discussion.

X. MINERAL RESOURCES -- Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XI. NOISE -- Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

See Section 2.16 above for further discussion.

XII. POPULATION AND HOUSING -- Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

See Sections 2.2 through 2.4 above for further discussion.

XIII. PUBLIC SERVICES

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

See Section 2.6 above for further discussion.

XIV. RECREATION

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

See Section 2.6 above for further discussion.

XV. TRANSPORTATION/TRAFFIC -- Would the project:

a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

See Section 2.7 above for further discussion.

XVI. UTILITIES AND SERVICE SYSTEMS -- Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

See Sections 2.6 and 2.10 above for further discussion.

XVII. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				

See Sections 2.17 through 2.22 above for further discussion.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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See Section 2.23 above for further discussion.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Sections 21080(c), 21080.1, 21080.3, 21082.1, 21083, 21083.3, 21093, 21094, 21151, Public Resources Code; Sundstrom v. County of Mendocino, 202 Cal.App.3d 296 (1988); Leonoff v. Monterey Board of Supervisors, 222 Cal.App.3d 1337 (1990).

Appendix B
Resources Evaluated Relative to the Requirements of Section 4 (f)

**APPENDIX B
RESOURCES EVALUATED
RELATIVE TO THE REQUIREMENTS OF SECTION 4(F)**

This section of the document discusses the project's potential relationship to parks, recreational facilities, wildlife refuges and historic properties to disclose whether such facilities could be present within or adjacent to the project, and/or if present why such facilities would not trigger Section 4(f) protection either because: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, 4) the project does not permanently use the property and does not hinder the preservation of the property, or 5) the proximity impacts do not result in constructive use.

Section 4(f) of the Department of Transportation Act of 1966 states that "It is hereby declared to be the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." When projects have a potential to impact 4(f) resources, Section 4(f) Evaluations are required to identify impact avoidance and minimization opportunities, and/or the unavailability of such opportunities pursuant to the provisions of 23 CFR 771.135.

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been carried-out by the Department under its assumption of responsibility pursuant to 23 U.S.C. 327.

The project's potential impacts on 4(f) resource have been addressed in the above analyses in Sections 2.2, Land Use; 2.9, Cultural Resources; and 2.17 through 2.23, Biological Environment. The discussion of potential 4(f) impacts in those sections is summarized below. As indicated, the project would have no impacts on 4(f) resources and further 4(f) Evaluations are not required.

Parks and Recreational Facilities

The project would have no impacts on any park and recreation facilities. The nearest recreational facilities to the project interchange are the Victoria Golf Course and Park, Dominguez Hills Golf Course, Del Amo Park and Carson Park. These facilities are generally located more than 0.5 miles from the project interchange; and are served via it. (From the nearest park edge at Victoria Park to the nearest project component is approximately 0.5 miles, and separated from the project's nearest edge by the Dominguez Channel.) As indicated above, the proposed project is located on land which consists of existing ramps and/or adjacent fill areas and contains no parks or recreational facilities.

Biological Resources (Wildlife Refuges)

The project area is set in a disturbed setting, urbanized, with low habitat quality. The study area is not within any regional conservation plans such as a Habitat Conservation Plan (HCP) or Multiple Species Conservation Plan (MSCP). The nearest channel, the Torrance Lateral Channel is not perennial in nature. Therefore, the likelihood of fish occurring within the area is low. No sensitive plant species are expected to occur within the project area. In addition, the project would not affect the movement of any wildlife species.

Historic Properties

The project would not have impacts to any historic properties as there are no previously identified or recently identified archaeological or historical resources within the APE (Area of Potential Effect). All ground surface areas within the project site are either currently built upon or consist of fill placed in the recent past. There were two archaeological sites identified within a one-mile radius of the Carson Ramp project. However, no previously recorded archaeological sites have been documented within the APE. No Native American cultural resources have been identified in the APE. None of the bridges in the APE have been recommended as eligible to the NRHP and none are old enough to require re-evaluation.

Appendix C
Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE DIRECTOR
1120 N STREET
P. O. BOX 942873
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5267
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July 26, 2000

**TITLE VI
POLICY STATEMENT**

The California State Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, sex and national origin be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

A handwritten signature in cursive script that reads "Jeff Morales".

JEFF MORALES
Director