IV. ENVIRONMENTAL IMPACT ANALYSIS
C. TRAFFIC, CIRCULATION AND PARKING

1. INTRODUCTION

This section is based on the technical report, *Traffic Impact Study for the Carson Marketplace,* prepared by Kaku Associates, October 2005. This Study has been reviewed and approved by the City's traffic engineer. The traffic study presented in Appendix D of this Draft EIR analyzes the potential impacts of the Project on the surrounding street and freeway system, including the Project's driveway access points, public transportation, access during construction, and parking.

2. ENVIRONMENTAL SETTING

a. Regional Network

The San Diego (I-405) and the Harbor Freeway (I-110) provide the primary regional access to the Project site via interchanges located at I-405/Avalon Boulevard, I-405/Main Street, I-110/Figueroa Street, and I-110/Hamilton Avenue. The I-405 Freeway/Avalon Boulevard interchange is located near the southeast corner of the Project site. The I-405 Freeway/Main Street interchange is located approximately 0.4 miles north of the Project site's Main Street/Del Amo Boulevard intersection. The I-110/Hamilton Avenue interchange (southbound) and the I-110/Figueroa Street interchange (northbound) are located approximately 0.3 miles southwest of the Project site's Main Street/Del Amo Boulevard intersection.

b. Local Street Network

The existing street system serving the Project site includes Avalon Boulevard, Main Street, Vermont Avenue, Hamilton Avenue, and Figueroa Street in the north-south direction and Del Amo Boulevard, Carson Street, Torrance Boulevard, 213th Street, and 190th Street in the east-west direction. Del Amo Boulevard via Stamps Drive, Main Street via Lenardo Drive, Avalon Boulevard and the I-405 southbound ramps via Lenardo Drive provide direct access to the Project site. In order to identify streets and intersections most likely to be impacted by Project traffic, in consultation with the City of Carson, the following 27 intersections were identified as part of the Project's traffic study area.

1. Figueroa Street & I-405 southbound on-ramp;

2. Figueroa Street & I-405 northbound off-ramp;
3. Main Street & I-405 southbound on-ramp;
4. Main Street & I-405 northbound off-ramp;
5. Vermont Avenue & Del Amo Boulevard;
6. Hamilton Avenue & Del Amo Boulevard;
7. Figueroa Street & Del Amo Boulevard;
8. Main Street & Del Amo Boulevard;
9. Stamps Drive & Del Amo Boulevard (future intersection);
10. Avalon Boulevard & Del Amo Boulevard;
11. Hamilton Avenue & I-110 southbound ramps;
12. Figueroa Street & I-110 northbound ramps;
13. Main Street & Lenardo Drive (future intersection);
14. Hamilton Avenue & Torrance Boulevard;
15. Figueroa Street & Torrance Boulevard;
16. Main Street & Torrance Boulevard;
17. Lenardo Drive & I-405 southbound ramps (future intersection);
18. Avalon Boulevard & I-405 southbound ramps;
19. Avalon Boulevard & I-405 northbound ramps;
20. Main Street & 213th Street;
21. Avalon Boulevard & 213th Street;
22. Vermont Avenue & Carson Street;
23. Figueroa Street & Carson Street;
24. Main Street & Carson Street;

25. Avalon Boulevard & Carson Street;

26. I-405 southbound ramps & Carson Street; and

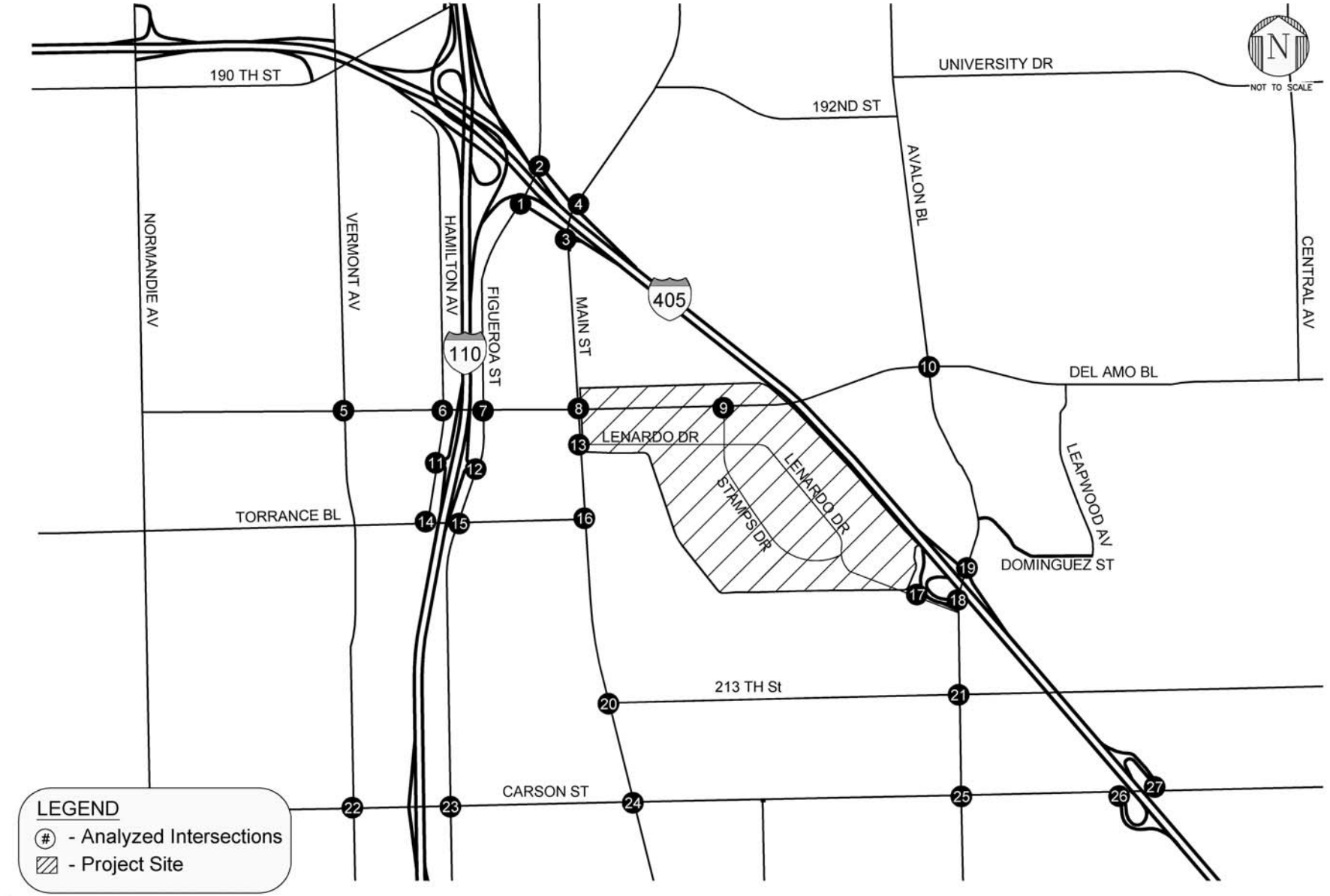
27. I-405 northbound ramps & Carson Street.

Figure 25 on page 220 shows the regional street network, the Project site, and the 27 study intersections. Figures 6A through 6C and Table 1 of the traffic technical report, presented in Appendix D of this Draft EIR, provide additional information regarding distribution patterns, median type, speed limits and parking limitations for key street segments. Appendix A of the traffic technical report also provides diagrams of the existing lane configurations for the 27 study intersections.

c. Existing Intersection Traffic Volumes and Service Levels

Existing weekday morning and afternoon peak hour intersection turning moving count data for the 27 study intersections are shown in Figure 3 of the traffic technical report (Draft EIR Appendix D). All of the study intersections are controlled by traffic signals except for the intersections of Figueroa Street & I-405 northbound off-ramp, Hamilton Avenue & Del Amo Boulevard, and Hamilton Avenue & 110 southbound ramps which are controlled by stop signs. The determination of service levels is based on the City of Carson's Intersection Capacity Utilization (ICU) method of intersection analysis. Traffic conditions and definitions associated with the range of service levels for signalized intersections are described in Table 16 on page 221. Level of service definitions for stop-controlled intersections are provided in Table 17 on page 221. As summarized in Table 18 on page 222, all of the 24 study intersections are currently in operation at Service Level D, or better, during the morning peak hour. Service Level D is considered an acceptable level of service. During the afternoon peak hour, 20 of the 24 study intersections are currently operating at acceptable levels of service better. The following four intersections are operating at LOS E during the afternoon peak hour.

- Intersection No. 6. Hamilton Avenue & Del Amo Boulevard (all-way stop-controlled);
- Intersection No. 11. Hamilton Avenue & I-110 southbound ramps (all-way strop-controlled);
- Intersection No. 19. Avalon Boulevard & I-405 northbound ramps; and
- Intersection No. 22. Vermont Avenue & Carson Street.



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Not to scale

Source: KAKU Associates, 2005

Figure 25
Street Network and Analyzed Intersections

Table 16

Level of Service Definitions for Signalized Intersections

Level of Service	Intersection Capacity Utilization	Definition
A	0.000-0.600	EXCELLENT. No Vehicle waits longer than one red light and no approach phase is fully used.
B	0.601-0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701-0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801-0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901-1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths

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

Table 17

Level of Service Definitions for Stop-Controlled Intersections

Level of Service	Average Total Delay (seconds/vehicle)
A	$\leq$ 10.0
B	> 10.0 and $\leq$ 15.0
C	> 15.0 and $\leq$ 25.0
D	> 25.0 and $\leq$ 35.0
E	> 35.0 and $\leq$ 50.0
F	> 50.0

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

Table 18

Intersection Level of Service Analysis Summary
Existing (Year 2005) Conditions

Intersection	Existing Conditions			
	AM Peak Hour		PM Peak Hour	
	V/C or Delay	LOS	V/C or Delay	LOS
1. Figueroa St & I-405 SB On-Ramp	0.385	A	0.410	A
2. Figueroa St & I-405 NB Off-Ramp [1]	22.3	C	17.3	C
3. Main St & I-405 SB On-Ramp	0.466	A	0.637	B
4. Main St & I-405 NB Off-Ramp	0.695	B	0.720	C
5. Vermont Av & Del Amo Bl	0.596	A	0.706	C
6. Hamilton Av & Del Amo Bl [2]	21.1	C	36.3	E
7. Figueroa St & Del Amo Bl	0.628	B	0.591	A
8. Main St & Del Amo Bl	0.590	A	0.635	B
9. Stamps Dr & Del Amo Bl	Future Intersection			
10. Avalon Bl & Del Amo Bl	0.557	A	0.621	B
11. Hamilton Av & 110 SB Ramps [2]	20.8	C	47.2	E
12. Figueroa St & 110 NB Ramps	0.739	C	0.742	C
13. Main St & Lenardo Dr	Future Intersection			
14. Hamilton Av & Torrance Bl	0.657	B	0.648	B
15. Figueroa St & Torrance Bl	0.743	C	0.744	C
16. Main St & Torrance Bl	0.585	A	0.652	B
17. Lenardo Dr & I-405 SB Off-Ramp	Future Intersection			
18. Avalon Bl & I-405 SB Ramps	0.750	C	0.779	C

Table 18 (Continued)

Intersection Level of Service Analysis Summary
Existing (Year 2005) Conditions

Intersection	Existing Conditions			
	AM Peak Hour		PM Peak Hour	
	V/C or Delay	LOS	V/C or Delay	LOS
19. Avalon Bl & I-405 NB Ramps	0.894	D	0.933	E
20. Main St & 213th St	0.761	C	0.681	B
21. Avalon Bl & 213th St	0.549	A	0.691	B
22. Vermont Av & Carson St	0.833	D	0.911	E
23. Figueroa St & Carson St	0.669	B	0.826	D
24. Main St & Carson St	0.558	A	0.791	C
25. Avalon Bl & Carson St	0.758	C	0.821	D
26. Main St & 213th St	0.526	A	0.500	A
27. I-405 NB Ramps & Carson St	0.623	B	0.571	A

Note: ICU Methodology used for signalized intersections.
2000 HCM Unsignalized Methodology used for unsignalized intersections.
[1] *Intersection controlled with stop signs on 2 approach directions*
[2] *Intersection controlled with stop signs on all approach directions*

Source: Kaku Associates, October 2005.

(1) Site Access

The Project site consists of two primary components divided by Del Amo Boulevard. The majority of the Project site, consisting of 157 acres, is located south of Del Amo Boulevard and an 11-acre portion is located north of Del Amo Boulevard. The Project site north of Del Amo Boulevard has direct access to both Del Amo Boulevard and Main Street, although no paved driveways or roads currently exist. The Project site south of Del Amo Boulevard contains two existing paved streets, Stamps Drive and Lenardo Drive. Lenardo Drive intersects Main Street and Stamps Drive intersects Del Amo Boulevard. In the south portion of the Project site,

Lenardo Drive currently dead ends within the Project site, short of the I-405/Avalon Boulevard southbound off ramp.

(2) Freeways

(a) Selected Freeway Segments

The Project site is located within a regional freeway network. The Project's regional commercial uses and residential uses suggest the regional nature of the Project and the potential impact on freeway segments in the area. The following freeway segments are located within the Project's freeway traffic study area:

- State Route 91
  - I-110 Interchange to Avalon Boulevard;
  - Avalon Boulevard to Central Avenue;
  - Central Avenue to Wilmington Avenue;
  - Wilmington Avenue to Alameda Street/Santa Fe Avenue; and
  - Alameda Street/Santa Fe Avenue to Long Beach Boulevard.
- Interstate Route 110
  - Anaheim Street to Pacific Coast Highway;
  - Pacific Coast Highway to Sepulveda Boulevard;
  - Sepulveda Boulevard to Carson Street;
  - Carson Street to Torrance Boulevard;
  - Torrance Boulevard to I-405 Interchange;
  - I-405 Interchange to SR-91 Interchange;
  - SR-91 Interchange to Redondo Beach Boulevard;
  - Redondo Beach Boulevard to Rosecrans Avenue; and
  - Rosecrans Avenue to El Segundo Boulevard.
- Interstate Route 405
  - Long Beach Boulevard to I-710 Interchange;
  - I-710 Interchange to Alameda Street;

- Alameda Street to Wilmington Avenue;
- Wilmington Avenue to Carson Street;
- Carson Street to Avalon Boulevard;
- Avalon Boulevard to I-110 Interchange;
- I-110 Interchange to Vermont Avenue;
- Vermont Avenue to Normandie Avenue;
- Normandie Avenue to Western Avenue;
- Western Avenue to Crenshaw Boulevard;
- Crenshaw Boulevard to Redondo Beach Boulevard; and
- Redondo Beach Boulevard to Hawthorne Boulevard.

- Interstate Route 710
  - Pacific Coast Highway to Willow Street;
  - Willow Street to I-405 Interchange;
  - I-405 Interchange to Del Amo Boulevard;
  - Del Amo Boulevard to Long Beach Boulevard;
  - Long Beach Boulevard to SR-91 Interchange; and
  - SR-91 Interchange to Alondra Boulevard.

(b) Existing Freeway Conditions

Existing freeway mainline traffic volumes were obtained from *2004 Traffic Volumes on California State Highways* (California Department of Transportation [Caltrans]). Existing conditions on the study freeway segments are as follows:

- State Route 91 - This freeway is operating at LOS E or F during the A.M. peak hour in the westbound direction from Central Avenue on the west to Alameda Street/Santa Fe Avenue on the east.

- Interstate Route 110 - This freeway is operating at LOS E or F during the A.M. peak hour in the northbound direction from Carson Street on the south to State Route 91 on the north and during the P.M. peak hour in the southbound direction.

- Interstate Route 405 - This freeway is operating at LOS E or F during the A.M. peak hour in the northbound direction from Long Beach Boulevard on the south to the I-

110 Interchange on the north. The southbound direction is operating at LOS E or F during the P.M. peak hour from the I-710 Interchange on the south to Avalon Boulevard on the north. The northbound direction of the freeway is operating at LOS E or F from Normandie Avenue on the south to Redondo Beach Boulevard on the north during both the A.M. and P.M. peak hours.

- Interstate Route 710 - This freeway is operating at LOS E or F during the A.M. and P.M. peak hours in the southbound direction from Pacific Coast Highway on the south to the I-405 Interchange on the north.

d. Public Transportation

The Project study area is served by 11 bus lines operated by two different transportation agencies. The City of Carson operates seven of the 11 bus lines. The Los Angeles County Metropolitan Transportation Authority (MTA) operates the remaining four bus lines. All of these bus lines have stops near the Project site. The bus routes serving the Project area are described as follows:

(1) City of Carson Circuit Transit System

All Carson Circuit routes run in one direction, while regional bus lines run in both directions. All buses meet every 40 minutes at the Bus Terminal just north of the South Bay Pavilion.

- CAA (Cal-State Dominguez Hills) – This line runs along Central Avenue, Avalon Boulevard, Del Amo Boulevard, Leapwood Avenue, and Dominguez Street.

- CAB (Keystone) - This line operates along Avalon Boulevard, Carson Street, Main Street, and Figueroa Street.

- CAC (Scottsdale) – This line runs north-south along Avalon Boulevard.

- CAD&G (Metro Blue Line) - These lines operate in opposite directions along Avalon Boulevard, Del Amo Boulevard, Carson Street, and Dominguez Street.

- CAE (Turmont) - This line operates along Central Avenue, Avalon Boulevard, and Del Amo Boulevard.

- CAF (Business Center South) - This line operates along Avalon Boulevard, Del Amo Boulevard, Figueroa Street, and 213th Street.

- CAH (Hemingway Park) - This line operates along Avalon Boulevard.

(2) Metropolitan Transportation Authority

- MTA Line 205 – Line 205 operates between Willowbrook and San Pedro, passing through Compton, Carson, and Wilmington. In the vicinity of the Project site, this line operates on Carson Street, Avalon Boulevard, and Vermont Avenue.

- MTA Line 445 – Line 445 is an express line that operates between San Pedro and downtown Los Angeles, passing through Wilmington and Carson on the 110 Freeway.

- MTA Lines 446/447 – Lines 446/447 operate between San Pedro and downtown Los Angeles passing through Wilmington, Carson, and Los Angeles. In the vicinity of the Project, these lines operate on Avalon Boulevard and the 110 Freeway.

- MTA Line 550 – Line 550 operates between San Pedro and West Hollywood passing through the Mid-City, Exposition Park, and Harbor City areas of the City of Los Angeles. In the vicinity of the Project site, this line operates on Normandie Avenue, Vermont Avenue, and the 110 Freeway.

3. PROJECT IMPACTS

a. Methodology

(1) Project Construction

Construction traffic, including worker traffic and hauling, and construction activities that could disrupt through traffic and emergency access are compared with existing conditions in the Project vicinity. Construction impacts are determined on a case-by-case basis according to the length of time and frequency of any street closures, the classification of the impacted street, use of the street by emergency vehicles, temporary loss of pedestrian and vehicle access to any adjacent parcels, temporary loss of access to transit stops, and the availability of alternative locations of transit stops within one-quarter mile of the Project site, should they need to be relocated due to Project construction.

(2) Project Operation

The impact of the Project's traffic on the local and regional street system are based on a comparison of the Project's traffic with future cumulative traffic conditions. In order to evaluate the potential impact of the proposed Project on the local street system, the traffic generated by the proposed Project is separately assigned to the surrounding street system and added to the

cumulative base projections to represent cumulative plus Project conditions. The Intersection Capacity Utilization (ICU) method of intersection analysis is used to determine the intersection volume-to-capacity (V/C) ratio and corresponding level of service (LOS) for each signalized study intersection. The *Highway Capacity Manual* (Transportation Research Board, 2000) methodology for analysis of unsignalized intersections, wherein the level of service is based on average delay time per vehicle entering the intersection, was used to analyze the stop-controlled intersections.

The methodology for evaluating street capacity involves several steps, including the identification of existing base year (2005) traffic conditions, the calculation of ambient growth and related projects traffic to determine future (2010) cumulative baseline conditions (without the Project's traffic), the calculation of Project traffic, the assumed distribution of Project and related projects traffic, and an evaluation of the effects of Project traffic on 2010 baseline conditions. The following traffic scenarios are evaluated in the study:

- Existing (2005) Conditions - The analysis of existing traffic conditions provides a basis for the remainder of the study. The existing conditions analysis includes an assessment of streets, traffic volumes, and operating conditions within the study area.

- Cumulative (2010) Base Conditions - The objective of this scenario is to project future traffic growth and operating conditions that could be expected to result from regional growth and related projects in the vicinity of the Project site by the year 2010.

- Cumulative (2010) plus Project Conditions – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under future conditions with the addition of Project-generated traffic. The impacts of the proposed Project on future traffic operating conditions were then identified.

Trip generation estimates for the related projects incorporate a combination of trip generation rates contained in Trip Generation, 7th Edition (Institute of Transportation Engineers [ITE], 2003). Service level analyses are based on the peak traffic periods (periods of heaviest traffic demand) are anticipated to occur during the weekday morning and afternoon peak hours.

(a) Cumulative Base Conditions (Future 2010 Conditions Without the Proposed Project)

Future traffic projections without the proposed Project were developed for the year 2010. The objective of this analysis is to project future traffic growth and operating conditions that are expected to result from ambient regional growth and related projects in the vicinity of the Project site by the completion of the Project. The cumulative base traffic forecasts reflect growth in

traffic from two primary sources: (a) background or ambient growth in the existing traffic volumes to reflect the effects of overall regional growth both in and outside of the study area, and (b) traffic generated by related projects located within the study area and in the vicinity of the Project site. In the analysis of cumulative base conditions, estimated trips associated with related and ambient traffic are assigned to the local street system on the basis of geographic trip distribution patterns. Related projects are anticipated for completion prior to buildout of the Project in 2010.

(i) Related Projects

Cumulative base traffic forecasts include the effect of other development projects, called related projects. Related projects are projects that are expected to be implemented in the vicinity of the Project site prior to the buildout date of the proposed Project. These related projects are taken into account in terms of the extent of growth, the location of growth, and the origins/destinations of trips. The City of Carson provided a list of 36 related or cumulative projects expected to be completed in the Project study area by year 2010. The list of related projects is presented in Table 9 on page 117 of this Draft EIR.

(ii) Ambient Growth

An ambient growth factor of 1.0 percent per year is applied to adjust the existing base year traffic volumes to reflect the effects of regional growth and development by the year 2010. The factor was developed after review of year Southern California Association of Governments (SCAG) year 2000 and year 2015 model data and the background growth rates contained in the CMP for the South Bay subregion. This adjustment is applied to the base year 2005 traffic volume data to reflect the effect of ambient growth by the year 2010. Ambient growth in traffic is due to the combined effects of continuing development outside the Project study area, intensification of existing developments, and other factors and occurs in addition to related projects and Project traffic.

(iii) Traffic Distribution

The evaluation of the geographic distribution of the traffic generated by the related projects depends on several factors. These factors include the type and density of the proposed land uses, the geographic distribution of population from which the employees and potential patrons of the proposed commercial developments would be drawn, the geographic distribution of activity centers to which residents of the proposed residential development would be drawn, and the location of the Project in relation to the surrounding street system. Using these factors, the distribution patterns were developed and used for the related projects. The estimated trips generated by the related projects are assigned to the local street system on the basis of the geographic trip distribution patterns. These volumes are then added to the existing traffic volumes and the ambient growth to represent cumulative base conditions (i.e., future conditions

without the proposed Project). Traffic distribution patterns associated with the Project's regional commercial and hotel uses; residential uses; and neighborhood commercial, entertainment, and restaurant uses are shown in Figures 6A through 6C, respectively, of the traffic technical report (see Draft EIR Appendix D)

(b) Cumulative Base with the Project (Future 2010 Conditions)

To determine the cumulative base with Project conditions, the Project-generated traffic volumes are added to the cumulative base traffic volumes to develop cumulative plus Project peak hour traffic volumes. The Project's estimated traffic is based on trip generation rates for various land uses and their geographic distribution.

(i) Trip Generation Rates

Trip generation rates for the Project's range of land uses, as shown in Table 19 on page 231, are developed in accordance with procedures established by the Institute of Transportation Engineers (ITE) Trip Generation Manual (7th Edition [2003]). In addition to trips generated by individual uses, the ITE generation rates account for additional vehicle trips that may be generated by the Project's proposed uses (e.g., employee and delivery/service trips). In estimating the Project's trips, pass-by trip reduction and internal trip credits are taken for the Project's commercial components. Pass-by credits account for trips that would have been passing by the Project site regardless of the Project, and, as such, would have not been generated specifically by the Project. These trips are not new trips generated by the Project because they are already on the adjacent roadway system. In addition, internal trips are not included in the analysis of off-site traffic impacts since these would not enter the surrounding street system. Internal trips, which are either made by walking or by vehicle, occur entirely on internal roadways and are a key characteristic of a multi-use development. Detailed ITE trip generation rates and codes for the Project's proposed land uses are listed in Tables 6 and 7 in the technical traffic report presented in Appendix D of this Draft EIR.

(ii) Mitigation Phasing

A mitigation phasing program is the methodology employed in the evaluation of the point at which significant impacts on study intersections occur. The mitigation phasing program is formulated to establish thresholds at which a development phase would trigger a significant impact at impacted intersections. The magnitude of the Project's impacts at the various impacted intersections were reviewed to determine the percentage of development at which significant impacts would be triggered. The mitigation phasing program allows the implementation of mitigation measures at the point of occurrence, rather than requiring the street improvements before they are actually needed.

Table 19

Carson Marketplace
Proposed Project Trip Generation Estimates [a]

No.	Land Use	Size	Unit	Daily	AM			PM		
					In	Out	Total	In	Out	Total
	REGIONAL RETAIL									
1	Shopping Center	500.000	KSF	19,332	251	160	411	869	942	1,811
	(Less-20% Internal)			(3,866)	(50)	(32)	(82)	(174)	(188)	(362)
	(Less-25% Pass By - PM & Daily)			(4,833)	0	0	0	(217)	(236)	(453)
	Subtotal			10,633	201	128	329	478	518	996
2	Supermarket	70.000	KSF	6,078	139	89	228	373	359	732
	(Less-20% Internal)			(1,216)	(28)	(18)	(46)	(75)	(72)	(146)
	(Less-40% Pass By)			(1,945)	(44)	(28)	(73)	(119)	(115)	(234)
	Subtotal			2,917	67	43	109	179	172	352
3	Electronic Superstore	50.000	KSF	2,252	10	4	14	110	115	225
	(Less-20% Internal)			(450)	(2)	(1)	(3)	(22)	(23)	(45)
	(Less-10% Pass By)			(180)	(1)	0	(1)	(9)	(9)	(18)
	Subtotal			1,622	7	3	10	79	83	162
4	Home Improvement Superstore	150.000	KSF	4,262	97	83	180	173	195	368
	(Less-20% Internal)			(852)	(19)	(17)	(36)	(35)	(39)	(74)
	(Less-20% Pass By)			(682)	(16)	(13)	(29)	(28)	(31)	(59)
	Subtotal			2,728	62	53	115	110	125	235
5	Discount Club	150.000	KSF	6,270	60	24	84	318	318	636
	(Less-20% Internal)			(1,254)	(12)	(5)	(17)	(64)	(64)	(127)
	(Less-30% Pass By)			(1,505)	(14)	(6)	(20)	(76)	(76)	(153)
	Subtotal			3,511	34	13	47	178	178	356
6	Home Furnishing Superstore	350.000	KSF	16,734	128	55	183	632	772	1,404
	(Less-20% Internal)			(3,347)	(26)	(11)	(37)	(126)	(154)	(281)
	(Less-20% Pass By)			(1,339)	(20)	(9)	(29)	(101)	(124)	(225)
	Subtotal			12,048	82	35	117	405	494	898
7	Office Supply Store	50.000	KSF	1,700	7	3	10	90	80	170
	(Less-20% Internal)			(340)	(1)	(1)	(2)	(18)	(16)	(34)
	(Less-20% Pass By)			(476)	(1)	0	(2)	(14)	(13)	(27)
	Subtotal			884	5	2	6	58	51	109
8	Pet Supply Superstore	50.000	KSF	2,480	11	4	15	124	124	248
	(Less-20% Internal)			(496)	(2)	(1)	(3)	(25)	(25)	(50)
	(Less-10% Pass By)			(198)	(1)	0	(1)	(10)	(10)	(20)
	Subtotal			1,786	8	3	11	89	89	178
	Subtotal for Regional Retail Center	***1,370.000***	***KSF***	***36,129***	***466***	***280***	***744***	***1,576***	***1,710***	***3,286***
	NEIGHBORHOOD RETAIL									
9	Supermarket	20.000	KSF	2,731	40	25	65	107	102	209
	(Less-20% Internal)			(546)	(8)	(5)	(13)	(21)	(20)	(42)
	(Less-40% Pass By)			(874)	(13)	(8)	(21)	(34)	(33)	(67)
	Subtotal			1,311	19	12	31	52	49	100

Table 19 (Continued)

Carson Marketplace
Proposed Project Trip Generation Estimates [a]

No.	Land Use	Size	Unit	Daily	AM			PM		
					In	Out	Total	In	Out	Total
10	Shopping Center	110.000	KSF	7,225	101	65	166	320	347	667
	(Less-20% Internal)			(1,445)	(20)	(13)	(33)	(64)	(69)	(133)
	(Less-25% Pass By - PM & Daily)			(1,806)	0	0	0	(80)	(87)	(167)
	Subtotal			3,974	81	52	133	176	191	367
	Subtotal for Neighborhood Retail Center	***130.000***	***KSF***	***5,285***	***100***	***64***	***164***	***228***	***240***	***467***
	RESIDENTIAL									
11	Apartments	400	DU	2,554	40	160	200	155	83	238
12	Condominiums	1,150	DU	5,117	62	302	364	298	147	445
	Subtotal for Residential	***1,550***	***DU***	***7,671***	***102***	***462***	***564***	***453***	***230***	***683***
	HOTEL									
13	Hotel	300	Rooms	3,058	98	62	160	94	83	177
	Subtotal for Hotel	***300***	***Rooms***	***3,058***	***98***	***62***	***160***	***94***	***83***	***177***
	RESTAURANTS									
14	High-Turnover (Sit Down) Restaurant	50.000	KSF	6,358	300	276	576	333	213	546
	(Less-20% Internal)			(1,272)	(60)	(55)	(115)	(67)	(43)	(109)
	(Less-20% Pass By)			(1,017)	(48)	(44)	(92)	(53)	(34)	(87)
	Subtotal			4,069	192	177	369	213	136	350
15	Fast Food Restaurant	15.000	KSF	10,740	395	263	658	200	192	392
	(Less-20% Internal)			(2,148)	(79)	(53)	(132)	(40)	(38)	(78)
	(Less-30% Pass By)			(2,578)	(95)	(63)	(158)	(48)	(46)	(94)
	Subtotal			6,014	221	147	368	112	108	220
16	Quality Restaurant	16.125	KSF	1,450	8	5	13	81	40	121
	(Less-20% Internal)			(290)	(2)	(1)	(3)	(16)	(8)	(24)
	(Less-10% Pass By)			(116)	(1)	0	(1)	(7)	(3)	(10)
	Subtotal			1,044	5	4	9	58	29	87
	Subtotal for Restaurants	***81.125***	***KSF***	***11,127***	***418***	***328***	***746***	***383***	***273***	***657***
	COMMERCIAL RECREATION/ENTERTAINMENT									
17	Multiplex Movie Theater	4500	Seats	3,600	12	1	13	130	230	360
	(Less-20% Internal)	110.000	KSF	(720)	(2)	0	(3)	(26)	(46)	(72)
	(Less-10% Pass By)			(288)	(1)	0	(1)	(21)	(37)	(58)
	Subtotal			2,592	9	1	9	83	147	230
18	Bowling Alley	25.000	KSF	833	47	31	78	31	44	89
	(Less-20% Internal)			(167)	(9)	(6)	(16)	(6)	(9)	(18)
	(Less-10% Pass By)			(67)	(4)	(3)	(6)	(3)	(4)	(7)
	Subtotal			599	34	22	56	22	31	64
19	Fitness Center	35.000	KSF	1,153	18	24	42	72	70	142
	(Less-20% Pass By)			(231)	(4)	(5)	(8)	(14)	(14)	(28)
	Subtotal			922	14	19	34	58	56	114

Table 19 (Continued)

Carson Marketplace
Proposed Project Trip Generation Estimates [a]

No.	Land Use	Size	Unit	Daily	AM			PM		
					In	Out	Total	In	Out	Total
20	Multi-Purpose Recreation Center	44.000	KSF	2,450	39	10	49	91	56	147
	(Less-20% Internal)			(490)	(8)	(2)	(10)	(18)	(11)	(29)
	(Less-20% Pass By)			(392)	(6)	(2)	(8)	(15)	(9)	(24)
	Subtotal			1,568	25	6	31	58	36	94
	Subtotal for Commercial Recreation/Entertainment	***214.000***	***KSF***	***5,681***	***82***	***48***	***130***	***221***	***270***	***502***
	TOTAL			**68,951**	**1,266**	**1,244**	**2,508**	**2,955**	**2,806**	**5,772**

[a] *Trip generation rates are those provide by the Institute of Traffic Engineers (ITE). The rates and Land Use Codes for each use are discussed further in the Traffic Technical Report (Appendix D).*

Source: Kaku Associates, October 2005.

The mitigation phasing program is predicated on an assumption that the Avalon Boulevard/I-405 interchange improvements, including the extension of Lenardo Drive to Avalon Boulevard, realignment of the southbound I-405 ramps to intersect the Lenardo Drive extension rather than Avalon Boulevard directly, a new southbound on-ramp at the east leg of the Avalon Boulevard/Lenardo Drive intersection, and reconfiguration of the northbound off-ramp to permit left-turns to southbound Avalon Boulevard, would be implemented concurrently with the Project and that the interchange improvements are a separate off-site project to be undertaken by an entity other than the Applicant.

(3) Freeway Traffic

(a) Freeway Level of Service

The analysis of potential impacts on the regional transportation system, including impacts on the I-110, I-405, SR-91, and I-710 freeways is conducted in accordance with the transportation impact analysis procedures outlined in the Los Angeles County Congestion Management Plan (CMP). Freeway segment levels of service are determined based on V/C ratios and the definitions shown in Table 20 on page 234. In accordance with the values established in the Highway Capacity Manual, a LOS E service capacity of approximately 2,200 vehicles per hour per lane is used for freeway mixed-flow lanes. For the purposes of the analysis, auxiliary and high-occupancy vehicle (HOV) lanes are analyzed as the equivalent of half of a mixed-flow lane.

Table 20

Level of Service Definitions for Freeway Mainline Segments

Level of Service	Volume/Capacity Ratio
A	0.00 - 0.35
B	>0.35 - 0.54
C	>0.54 - 0.77
D	>0.77 - 0.93
E	>0.93 - 1.00
F(0)	>1.00 - 1.25
F(1)	>1.25 - 1.35
F(2)	>1.35 - 1.45
F(3)	>1.45

Source: Metropolitan Transportation Authority, 2004 Congestion Management Program for Los Angeles County, Appendix B.

(b) Cumulative (2010) Conditions

Projected year 2010 cumulative base peak hour traffic volumes are developed by adjusting the existing freeway mainline traffic volumes from 2004 Traffic Volumes on California State Highways using 1.0 percent per year as the growth factor for the freeways in the region.

(4) Access

The impact of the Project's points of access on the adjacent existing streets is determined by calculating the V/C ratio to find the corresponding LOS under future cumulative base with Project conditions.

(5) Regional Transit

The analysis of Project traffic in relation to the regional transportation system is conducted according to the 2004 Congestion Management Plan (CMP) for Los Angeles County (Los Angeles County Metropolitan Transportation Authority, 2004). The CMP Section D.8.4 provides a methodology for estimating the number of transit trips expected to result from a project based on the projected number of vehicle trips. This methodology assumes an average vehicle ridership (AVR) factor of 1.4 per estimated vehicle trips in order to estimate the number of person trips to and from the Project. The CMP also provides guidance regarding the percent of person trips assigned to public transit depending on the type of use (commercial/other or

residential) and the proximity to transit services. The nearest designated CMP transit corridor is the Harbor Freeway Corridor, approximately 0.4 miles to the west. In accordance with CMP guidelines, where a site is located more than one-quarter mile boundary from existing services, approximately 3.5 percent of the project person trips may use public transit to travel to and from the site. To calculate the impact of the Project on regional transit, the projected number of person trips on transit is compared to existing conditions.

(6) Parking

The determination of the impact of the Project on parking is made according to a comparison between the City's Development Standards and the Project's estimated peak demand. The Draft EIR parking analysis recognizes that, although the City of Carson Development Standards provide peak parking ratios for individual land uses, the Development Standards do not account for combined peak parking demand. While this appropriately recognizes that separate land uses generate different parking demands on an individual basis, it does not reflect the fact that the combined peak parking demand, when a mixture of land uses shares the same parking supply, can be substantially less than the sum of the individual demands. For example, retail uses peak in the early- to mid-afternoon while restaurant uses peak in the lunchtime and/or evening hours (depending on the type of restaurant) and cinema uses peak in the evening hours.

The Project's estimated peak parking demand is based on the Urban Land Institute (ULI) Shared Parking Model. The ULI describes shared parking as a parking space that can be used to serve two or more individual land uses without conflict or encroachment. The opportunity to implement shared parking is the result of two conditions:

- Variations in the peak accumulation of parked vehicles as the result of different activity patterns of adjacent or nearby land uses (by hour, by day, by season); and
- Relationships among land use activities that result in people's attraction to two or more land uses on a single auto trip to a given area or development.

Three types of shared parking factors were considered in the parking demand analysis: (1) variations in time-of-day accumulation of parking demand, (2) seasonal variations in parking demand, and (3) internal capture between the various uses. Peak demand ratios, time-of-day variation factors, and seasonal variation factors are based on ULI research and are provided in Appendix D of the technical traffic report, which is presented in Appendix B of this Draft EIR.

The residential and commercial components of the Project are considered separately, both due to the typical approach of providing dedicated (non-shared) spaces for residents and the fact

that the residential and commercial components are physically located in different portions of the Project site.

b. Thresholds of Significance

(1) Construction Impacts

The Project would have a significant traffic and circulation impact relative to construction, if construction traffic or activities cause the following:

- Substantial delays and disruption of existing traffic flow, including emergency access.

(2) Operational Impacts

(a) Intersection Capacity

The Project would have a significant impact relative to local intersections if the following occurs:

- The increase in the V/C ratio that can be attributed to the Project is equal to or exceeds 0.020, and the intersection is projected to operate at LOS E or F (represented by a V/C ratio of 0.901 or greater) under future base plus Project conditions.

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

(b) CMP Traffic Impacts

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

- The proposed Project increases traffic demand on a CMP facility by 2 percent of capacity (i.e., V/C increase of 0.02), causing LOS F (V/C > 1.00); or

- If the facility is already at LOS F, a significant impact occurs when the proposed Project increases traffic demand on a CMP facility by 2 percent of capacity (i.e., V/C increase of 0.02).

(c) Access

Project access impacts would be considered significant under either of the following conditions:

- A new site access intersection is projected to operate at LOS E or F during one or both of the peak hours; or

- An existing site access intersection is projected to operate at LOS E or F during one or both of the peak hours and the increase in the V/C ratio at an existing site access intersection that can be attributed to the Project is equal to or exceeds 0.020.

(d) Public Transportation

The determination of significance considers the number of additional passengers expected with the implementation of the Project and the available transit capacity. A significant impact would occur if projected transit riders exceed available or projected transit capacity.

(e) Parking

The Project would have a significant impact on parking if the project provides less parking than is needed to meet the Project's parking demand.

c. Analysis of Project Impacts

(1) Project Design Features

The primary ingress and egress location for Development District 3 would be provided at the intersection of Del Amo Boulevard and Stamps Drive, where the north leg of the intersection would provide for entry and exit of vehicular traffic. The proposed design for the north leg of this intersection is two inbound (northbound) and three (southbound) lanes. This configuration would allow one left-turn lane, one shared through/right-turn lane, and one right-turn lane on the southbound approach. A second access driveway would intersect westbound Del Amo Boulevard between the intersections of Del Amo Boulevard and Stamps Drive (on the east) and Del Amo Boulevard and Main Street (on the west). This access driveway would provide right-

turn-in/right-turn-out movements only. No access to Main Street would be provided from District 3.

Access points to Development Districts 1 and 2 include the intersections of Del Amo/Stamps Drive and Main Street/Lenardo Drive. At Del Amo Boulevard and Stamps Drive, the south leg of Stamps Drive would provide vehicular access to and from the Project site. The intersection would be developed with two inbound (southbound) and five outbound (northbound) lanes on Stamps Drive, south of Del Amo Boulevard. This configuration would provide for two left-turn lanes, one through lane, and two right-turn lanes on the northbound approach. In addition, Del Amo Boulevard would be improved to provide two left-turn lanes, two through lanes, and one right-turn lane on the westbound approach and two left-turn lanes, two through lanes, and two right-turn lanes on the eastbound approach. This intersection would be signalized as part of the Project.

The Main Street at Lenardo Drive access location for Development Districts 1 and 2 would be signalized . The proposed southbound configuration would consist of one left-turn lane and two through lanes. The westbound lane configuration would consist of one left-turn lane and one right-turn lane, while the northbound lane configuration would consist of two through lanes and a right-turn lane. Proposed lane configurations for all access and egress points are illustrated in Appendix A of the traffic technical report (see Appendix D of this Draft EIR).

(2) I-405 Interchange

In addition to the Project's on-site circulation system, the City is also pursuing improvements to the Avalon Boulevard/I-405 Freeway interchange as an off-site improvement for the Carson Marketplace project. This interchange would also improve general freeway access and circulation in the Project area. In summary, the ramp improvements would allow for full freeway movements at the Avalon Boulevard/I-405 Freeway interchange (i.e., southbound and northbound on- and off-ramps). Because of the critical nature of this improvement relative to area circulation patterns, the Project's traffic analysis incorporates the assumption that the ramp improvements would be implemented concurrently with the proposed Project. Even though the ramp improvements are an off-site improvement, a mitigation measure has been included in the Draft EIR to assure that the ramp improvements actually occur. Even though the ramp improvements would be implemented as a separate project, the potential impacts of those improvements are discussed in Section VI.C., which addresses the full range of impacts that could occur with the implementation of this particular, and critical, improvement. Interchange improvements include (1) the extension of Lenardo Drive to Avalon Boulevard; (2) realignment and reconfiguration of the I-405 southbound on/off-ramps that currently intersect with Avalon Boulevard; (3) a new I-405 southbound on-ramp to be the east leg to the new Avalon Boulevard/Lenardo Drive intersection, and (4) reconfiguration of the I-405 northbound off-ramp to allow left-turn movements to southbound Avalon Boulevard.

Specific improvements to allow access at this intersection to the Project site would include the following improvements:

- Lenardo Drive would be extended to intersect with Avalon Boulevard where the new I-405 southbound on-ramp is proposed as an east leg to the intersection. The following is the lane configuration proposed at this intersection:
  - Southbound approach: one dedicated through lane, a through and right-turn lane, and a free flow right-turn lane;
  - Northbound approach: two through lanes, and a right-turn lane for traffic onto the new I-405 southbound on-ramp; and
  - Eastbound approach: two left-turn lanes, a shared through/right turn lane, and a right turn lane.

- The existing I-405 southbound on/off-ramps are proposed to intersect Lenardo Drive as a north leg to this proposed new 'T' intersection. The following is the lane configuration proposed at this intersection:
  - Southbound approach: a left-turn lane, a shared left/right-turn lane, and a right turn lane;
  - Westbound approach: one dedicated through lane, a shared through/right-turn lane, and a right-turn lane; and
  - Eastbound approach: two left-turn lanes and two through lanes.

- A part of the proposed improvements to the Avalon Boulevard/I-405 interchange is to provide left-turn capability from the I-405 northbound off-ramp to southbound Avalon Boulevard. The following is the lane configuration proposed at this intersection:
  - Southbound approach: two through lanes, and a free-flow right-turn lane onto I-405 northbound on-ramp;
  - Westbound approach: two left-turn lanes and a free-flow right-turn lane; and
  - Northbound approach: two left-turn lanes and two through lanes.

(3) Project Impacts

(a) Construction Impacts

(i) Worker Trips

Project construction would generate traffic from construction worker travel, as well as the arrival and departure of trucks delivering construction materials to the site and the hauling of debris and exported soils generated by on-site demolition and excavation activities. Both the number of construction workers and trucks would vary throughout the construction process in order to maintain a reasonable schedule of completion. The number of on-site construction workers, based on specific construction activity underway (i.e., excavation, building erection, etc.), would range from approximately 15 to almost 300. The lower number of daily workers would be associated with the implementation of the approved RAPs, whereas the higher number of daily workers would be associated with the finishing phases, including installation of drywall, electrical systems, and similar activities.

In general, the majority of the construction workers are expected to arrive and depart the Project site during off-peak hours (i.e., arrive prior to 7:00 A.M. and depart between 3:00 to 4:00 P.M.) thereby avoiding travel during the A.M. and P.M. peak traffic periods. Consequently, the impact of construction worker traffic on peak-hour traffic in the vicinity of the Project site would be limited. Given the off-peak nature of construction worker traffic, a less than significant impact is anticipated with regard to the local roadway network as well as the freeway mainline and the freeway on/off-ramps.

(ii) Hauling

Off-site truck trips generated by construction activities would include haul trucks, delivery trucks, and trash trucks. While construction workers would arrive from many parts of the region, and thus different directions, haul trucks and delivery trucks would generally travel to the Project site via the I-405 freeway ramps at Avalon Boulevard (northbound travel) and Main Street (southbound travel). Under the approved RAP, construction would require approximately 150 truck trips per 10-hour day, and 1.5 years to import the 2,000,000 cubic yards of clay required for the impermeable clay cap. Under the proposed RAP design, no importation of clay materials would be required and hauling activities during any hourly period would not generate a significant traffic increase. With the exception of clay hauling, the number of truck trips is projected to range from one to six per day, depending on the construction phase. Depending upon the specific nature of the construction activity (e.g., demolition, excavation, finish construction, landscaping), it is assumed the majority of truck traffic would be distributed evenly across the workday. Approvals required by the City of Carson for implementation of the

proposed Project include a Truck Haul Route program which would prohibit, among other things, truck traffic on local residential streets.

Because of the haul route approval requirement, and since construction truck trips would occur primarily along short stretches of Avalon Boulevard and Main Street before entering the I-405 Freeway, traffic impacts from this particular type of construction activity source are concluded to be less than significant.

(iii) Emergency Access

Short-term construction activities, such as lane closures, sidewalk closures, and utility line construction, could have implications with regard to response times for emergency vehicles. Other implications of construction include reduced travel time due to flagging or stopping of traffic to accommodate trucks entering and exiting the Project site. The blockage of off-site streets is not anticipated to be of a magnitude that would impede emergency vehicle access. Thus, the Project's construction activities would constitute a less than significant impact with regard to emergency access. In addition, traffic management personnel (flag persons) would be trained to assist in emergency response by restricting or controlling the movement of traffic that could interfere with emergency vehicle access. With implementation of the identified mitigation measures (i.e., a Construction Management Plan and coordination between the Project's construction managers and emergency services), the potential impact of Project construction on emergency access would be reduced to a less than significant level.

(iv) Pedestrian and Vehicle Access

During Project construction, sidewalk closures would occur on the north and south sides of Del Amo Boulevard along the Project site frontage. Since no businesses or residential uses are located along the Project site, the closure of the Del Amo Boulevard sidewalks would not impede any non-Project related vehicle traffic. However, if construction activities caused the concurrent closure of sidewalks on both the north and south sides of Del Amo Boulevard, the impact on through pedestrian access would be potentially significant.

(b) Operational Impacts

(i) Study Intersections

Cumulative Base Traffic (2010)

Cumulative base traffic at the 27 study intersections are based on trips generated by the identified related projects (see Section III.B of this Draft EIR) and on an ambient growth factor

of 1.0 percent per year to Year 2010. As shown in Table 5 of the Project's traffic study (see Appendix D of this Draft EIR), the identified related projects would generate approximately 4,419 A.M. and 6,879 P.M. peak hour trips. These projections do not factor in existing uses that will be removed, or the use of non-motorized travel modes (e.g., transit, walking). The distribution patterns of the cumulative trips are illustrated in Figure 5 in the traffic technical report (Draft EIR Appendix D).

Table 21 on page 243 summarizes the estimated Cumulative Base service levels in 2010. As shown in Table 21, under 2010 Cumulative Base conditions, 18 of the 24 study intersections would operate at an acceptable level of service, i.e., LOS D or better, during both the morning and afternoon peak hours. However, the following six intersections are projected to operate at LOS E or worse during one or both of the peak hours:

- Intersection No. 2: Figueroa Street & I-405 northbound off-ramp (unsignalized) would operate at LOS E during the A.M. peak hour;
- Intersection No. 6: Hamilton Avenue & Del Amo Boulevard (unsignalized) would operate at LOS F during the A.M. and P.M. peak hours;
- Intersection No. 7: Figueroa Street & Del Amo Boulevard would operate at LOS E during the P.M. peak hour;
- Intersection No. 11: Hamilton Avenue & I-110 southbound ramps (unsignalized) would operate at LOS F during the P.M. peak hour;
- Intersection No. 19: Avalon Boulevard & I-405 northbound ramps would operate at LOS F during the A.M. and P.M. peak hours; and
- Intersection No. 22: Vermont Avenue & Carson Street would operate at LOS E during the P.M. peak hour.

Cumulative Base Plus Project Traffic (2010)

Table 19 on page 231 illustrates the Project's estimated daily and peak hour trips. As shown on Table 19, the Project would generate an estimated 68,950 daily trips, including approximately 2,510 A.M. and 5,770 P.M. peak hour trips. The trips generated by the Project, in addition to the trips generated by the related projects and the one (1) percent ambient growth per year to 2010, constitute the Cumulative Base Plus Project conditions. The distribution patterns of Cumulative Base Plus Project volumes are illustrated in Figure 8 of the technical traffic report (see Draft EIR Appendix D). Cumulative Base Plus Project conditions are summarized in Table 21. As shown in Table 21, with the addition of Project trips to cumulative

Table 21

Intersection Level of Service Analysis Summary
Future (Year 2010) Conditions

Intersection	Time Period	Cumulative Base Conditions AM / PM Peak Hour V/C or Delay	LOS	Cumulative Plus Project Conditions AM / PM Peak Hour V/C or Delay	LOS	Project Increase in V/C	Significant Project Impact	Cumulative Plus Project Plus Mitigations AM / PM Peak Hour V/C	LOS	Project Increase in V/C	Significant Project Impact
1. Figueroa St & I-405 SB On-Ramp	**AM**	0.437	A	0.443	A	0.006	NO				
	PM	0.480	A	0.494	A	0.014	NO				
2. Figueroa St & I-405 NB Off-Ramp [1,3]	**AM**	40.3	E	44.5	E						
	PM	28.4	D	32.7	D						
	AM	0.560		0.566		0.006	NO				
	PM	0.510		0.525		0.015	NO				
3. Main St & I-405 SB On-Ramp	**AM**	0.496	A	0.522	A	0.026	NO				
	PM	0.686	B	0.738	C	0.052	NO				
4. Main St & I-405 NB Off-Ramp	**AM**	0.754	C	0.801	D	0.047	NO				
	PM	0.785	C	0.885	D	0.100	NO				
5. Vermont Av & Del Amo Bl	**AM**	0.625	B	0.729	C	0.104	NO	0.649	B	0.024	NO
	PM	0.775	C	0.998	E	0.223	YES	0.865	D	0.090	NO
6. Hamilton Av & Del Amo Bl [2,3]	**AM**	57.0	F	**	F		[4]				
	PM	**	F	**	F		[4]				
	AM	0.687		0.797		0.110	YES	0.626	B	-0.061	NO
	PM	0.944		1.194		0.250	YES	0.851	D	-0.093	NO
7. Figueroa St & Del Amo Bl	**AM**	0.722	C	0.938	E	0.216	YES	0.720	C	-0.002	NO
	PM	0.972	E	1.493	F	0.521	YES	0.962	E	-0.010	NO
8. Main St & Del Amo Bl	**AM**	0.732	C	0.891	D	0.159	NO	0.707	C	-0.025	NO
	PM	0.723	C	1.068	F	0.345	YES	0.876	D	0.153	NO
9. Stamps Dr & Del Amo Bl	**AM**	**Future Project**		0.773	C	N/a	n/a				
	PM	**Intersection**		0.893	D	N/a	n/a				
10. Avalon Bl & Del Amo Bl	**AM**	0.635	B	0.687	B	0.052	NO				
	PM	0.711	C	0.883	D	0.172	NO				
11. Hamilton Av & 110 SB Ramps [2,3]	**AM**	28.9	D	41.6	E		[4]				
	PM	**	F	**	F		[4]				
	AM	0.708		0.737		0.029	YES	0.674	B	-0.034	NO
	PM	0.877		0.973		0.096	YES	0.827	D	-0.050	NO

Table 21 (Continued)

Intersection Level of Service Analysis Summary
Future (Year 2010) Conditions

Intersection	Time Period	Cumulative Base Conditions AM / PM Peak Hour V/C or Delay	Cumulative Base Conditions AM / PM Peak Hour LOS	Cumulative Plus Project Conditions AM / PM Peak Hour V/C or Delay	Cumulative Plus Project Conditions AM / PM Peak Hour LOS	Project Increase in V/C	Significant Project Impact	Cumulative Plus Project Plus Mitigations AM / PM Peak Hour V/C	Cumulative Plus Project Plus Mitigations AM / PM Peak Hour LOS	Project Increase in V/C	Significant Project Impact
12. Figueroa St & 110 NB Ramps	**AM**	0.865	D	0.932	E	0.067	YES	0.821	D	-0.044	NO
	PM	0.865	D	1.247	F	0.382	YES	0.976	E	0.111	YES
13. Main St & Lenardo Dr	**AM**	**Future Project Intersection**		0.467	A	N/a	N/a				
	PM			0.601	B	N/a	N/a				
14. Hamilton Av & Torrance Bl	**AM**	0.687	B	0.705	C	0.018	NO				
	PM	0.680	B	0.724	C	0.044	NO				
15. Figueroa St & Torrance Bl	**AM**	0.809	D	0.863	D	0.054	NO	0.843	D	0.034	NO
	PM	0.799	C	0.929	E	0.130	YES	0.874	D	0.075	NO
16. Main St & Torrance Bl	**AM**	0.686	B	0.776	C	0.090	NO	0.765	C	0.079	NO
	PM	0.743	C	0.935	E	0.192	YES	0.900	D	0.157	NO
17. Lenardo Dr & I-405 SB Off-Ramp	**AM**	**Future Intersection**		0.746	C	N/a	N/a				
	PM			0.843	D	N/a	N/a				
18. Avalon Bl & I-405 SB Ramps	**AM**	0.826	D	0.847	D	0.021	NO				
	PM	0.833	D	0.897	D	0.064	NO				
19. Avalon Bl & I-405 NB Ramps	**AM**	1.054	F	0.988	E	-0.066	NO				
	PM	1.102	F	1.092	F	-0.010	NO				
20. Main St & 213th St	**AM**	0.809	D	0.863	D	0.054	NO				
	PM	0.723	C	0.851	D	0.128	NO				
21. Avalon Bl & 213th St	**AM**	0.600	A	0.632	B	0.032	NO				
	PM	0.753	C	0.303	D	0.077	NO				
22. Vermont Av & Carson St	**AM**	0.879	D	0.910	E	0.031	YES	0.777	C	-0.102	NO
	PM	0.963	E	1.028	F	0.065	YES	0.865	D	-0.098	NO
23. Figueroa St & Carson St	**AM**	0.740	C	0.756	C	0.016	NO	0.756	C	0.016	NO
	PM	0.876	D	0.908	E	0.032	**YES**	0.861	D	-0.015	NO
24. Main St & Carson St	**AM**	0.606	B	0.683	B	0.077	NO	0.630	B	0.024	NO
	PM	0.856	D	0.926	E	0.070	**YES**	0.842	D	-0.014	NO
25. Avalon Bl & Carson St	**AM**	0.830	D	0.875	D	0.045	NO	0.780	C	-0.050	NO
	PM	0.888	D	0.978	E	0.090	**YES**	0.872	D	-0.016	NO
[4]	**AM**							0.798	C	-0.032	NO

Table 21 (Continued)

Intersection Level of Service Analysis Summary
Future (Year 2010) Conditions

Intersection	Time Period	Cumulative Base Conditions		Cumulative Plus Project Conditions		Project Increase in V/C	Significant Project Impact	Cumulative Plus Project Plus Mitigations		Project Increase in V/C	Significant Project Impact
		AM / PM Peak Hour		AM / PM Peak Hour				AM / PM Peak Hour			
		V/C or Delay	LOS	V/C or Delay	LOS			V/C	LOS		
	PM							0.908	E	0.020	YES
26. I-405 SB Ramps & Carson St	**AM**	0.505	A	0.518	A	0.013	NO				
	PM	0.500	A	0.523	A	0.023	NO				
27. I-405 NB Ramps & Carson St	**AM**	0.661	B	0.681	B	0.020	NO				
	PM	0.618	B	0.652	B	0.034	NO				

NOTE: ICU Methodology used for signalized intersections.
2000 HCM Unsignalized Methodology used for unsignalized intersections.

[1] *Intersection controlled with stop signs on 2 approach directions.*

[2] *Intersection controlled with stop signs on all approach directions.*

[3] *The top rows show analysis using Highway Capacity Manual stop-controlled methodology, for the purpose of evaluating the operating condition of the intersection. Average intersection vehicular delay in seconds per vehicle is reported rather than V/C ratio. The bottom rows show analysis using the CMA methodology, for the purpose of application of City of Los Angeles significance criteria. V/C ratio is reported.*

[4] *The top rows in the "Plus Mitigations" columns at Avalon Bl/Carson St indicate results with full mitigation consisting of widening to provide right-turn lanes on all four approaches. The bottom rows indicate results with right-turn lanes on the northbound, southbound, and westbound approaches but not the eastbound approach.*

** *Volumes exceed the limits of the Highway Capacity Manual stop-controlled software. Average delay cannot be calculated. Indicates overloaded (LOS F) conditions.*

base conditions, 13 of the 27 study intersections would operate at an acceptable level of service, i.e., LOS D or better, during both the morning and afternoon peak hours. Thus, fourteen of the 27 study intersections would operate at LOS E or F during one or both peak hours. The following 14 intersections are projected to operate at LOS E or F during one or both peak hours:

- Intersection No. 2: Figueroa Street & I-405 northbound off-ramp (unsignalized) – LOS E during the A.M. peak hour;
- Intersection No.5: Vermont Avenue & Del Amo Boulevard – LOS E during the P.M. peak hour;
- Intersection No. 6: Hamilton Avenue & Del Amo Boulevard (unsignalized) – LOS F during the A.M. and P.M. peak hours;
- Intersection No. 7: Figueroa Street & Del Amo Boulevard – LOS E during the A.M. peak hour and LOS F during P.M. peak hour;
- Intersection No. 8: Main Street & Del Amo Boulevard – LOS F during the P.M. peak hour;
- Intersection No. 11: Hamilton Avenue & I-110 southbound ramps (unsignalized) – LOS E during the A.M. peak hour and LOS F during the P.M. peak hour;
- Intersection No. 12: Figueroa Street & I-110 northbound ramps – LOS E during the A.M. peak hour and LOS F during the P.M. peak hour;
- Intersection No. 15: Figueroa Street & Torrance Boulevard – LOS E during the P.M. peak hour;
- Intersection No. 16: Main Street & Torrance Boulevard – LOS E during the P.M. peak hour;
- Intersection No. 19: Avalon Boulevard & I-405 northbound ramps – LOS E during the A.M. peak hour and LOS F during the P.M. peak hour;
- Intersection No. 22: Vermont Avenue & Carson Street – LOS E during the A.M. peak hour and LOS F during the P.M. peak hour;
- Intersection No. 23: Figueroa Street & Carson Street – LOS E during the P.M. peak hour;
- Intersection No. 24: Main Street & Carson Street – LOS E during the P.M. peak hour; and

- Intersection No. 25: Avalon Boulevard & Carson Street – LOS E during the P.M. peak hour.

Under the significance threshold criteria of a 0.020 or greater increase in the V/C ratio at an intersection that is projected to operate at LOS E or worse, significant impacts would occur at 12 intersections under Cumulative Base Plus Project conditions. As shown in Table 21, the Project would result in these significant impacts:

- Intersection No. 5: Vermont Avenue & Del Amo Boulevard (P.M. peak hour);
- Intersection No. 6: Hamilton Avenue & Del Amo Boulevard (both A.M. and P.M. peak hours);
- Intersection No. 7: Figueroa Street & Del Amo Boulevard (both A.M. and P.M. peak hours);
- Intersection No. 8: Main Street & Del Amo Boulevard (P.M. peak hour);
- Intersection No. 11: Hamilton Avenue & I-110 southbound ramps (both A.M. and P.M. peak hours);
- Intersection No. 12: Figueroa Street & I-110 northbound ramps (both A.M. and P.M. peak hours);
- Intersection No. 15: Figueroa Street & Torrance Boulevard (P.M. peak hour;)
- Intersection No. 16: Main Street & Torrance Boulevard (P.M. peak hour);
- Intersection No. 22: Vermont Avenue & Carson Street (both A.M. and P.M. peak hours);
- Intersection No. 23: Figueroa Street & Carson Street (P.M. peak hour);
- Intersection No. 24: Main Street & Carson Street (P.M. peak hour); and
- Intersection No. 25: Avalon Boulevard & Carson Street (P.M. peak hour).

(ii) Freeways

Cumulative Base Traffic (2010)

Cumulative Base increases in traffic on the regional freeway system is projected to result in increases in the number of impacted freeway segments in 2010. Estimated future Cumulative Base traffic conditions are summarized in Table 22 on page 249. As shown in Table 22, the following segments of the freeways in the Project area operate at LOS E or F under 2010 Cumulative Base conditions:

- State Route 91 - All of this freeway's analyzed segments would operate at LOS E or F in the A.M. peak hour in the westbound direction.

- Interstate Route 110 - The freeway segment from Sepulveda Boulevard on the south to Redondo Beach Boulevard on the north would operate at LOS E or F during the A.M. peak hour in the northbound direction. The segment from Carson Street on the south to Redondo Beach Boulevard on the north would operate at LOS E or F during the P.M. peak hour in the southbound direction.

- Interstate Route 405 - Almost all of the analyzed freeway segments would operate at a LOS of E or F during the A.M. and P.M. peak hours in the northbound direction. In the southbound direction, the freeway segment from Long Beach Boulevard on the south to Avalon Boulevard on the north would operate at LOS E or F during the A.M. or P.M. or both peak hours.

- Interstate Route 710 – The freeway segment from Pacific Coast Highway on the south to the I-405 Interchange on the north would operate at LOS E or F during both the A.M. and P.M. peak hours in the southbound direction.

Cumulative Base Plus Project

As shown in Table 22 on page 249, with the addition of Project traffic, traffic on the analyzed CMP freeway segments would be increased by 2 percent of capacity, or greater, at three segments on the Harbor Freeway (I-110) and four segments on the San Diego Freeway (I-405). Freeway segments where the Project is forecasted to create a significant impact based on the CMP impact criteria are as follows:

- Interstate Route 110

  – Carson Street to Torrance Boulevard during the P.M. peak hour in the southbound direction;

Table 22
Freeway Mainline Level of Service Analysis

FREEWAY	SEGMENT	AM/PM	EXISTING CONDITIONS (YEAR 2005)						CUMULATIVE CONDITIONS (YEAR 2010)						PROJECT ONLY TRAFFIC		CUMULATIVE PLUS PROJECT (2035)						SIGNIFICANT IMPACT			
			North/Westbound			South/Eastbound			North/Westbound			South/Eastbound					North/Westbound			South/Eastbound			North/Westbound		South/Eastbound	
			Volume[2]	V/C	LOS**	Volume[2]	V/C	LOS**	Volume [2]	V/C	LOS**	Volume [2]	V/C	LOS**	NB/WB	SB/EB	Volume[2]	V/C	LOS**	Volume[2]	V/C	LOS**	Project V/C change	Significant Impact?	Project V/C change	Significant Impact?
SR-91	Between I-110 Interchange & Avalon Boulevard	AM	10,045	0.91	D	5,806	0.41	B	10,542	0.96	E	6,094	0.43	B	32	81	10,574	0.96	E	6,175	0.43	B	0.00	No	0.00	No
		PM	6,024	0.55	C	8,637	0.60	C	6,323	0.57	C	9,064	0.63	C	147	357	6,470	0.59	C	9,421	0.66	C	0.02	No	0.03	No
SR-91	Between Avalon Boulevard & Central Avenue	AM	10,150	0.92	D	5,867	0.53	B	10,653	0.97	E	6,158	0.56	C	120	296	10,773	0.98	E	6,454	0.59	C	0.01	No	0.03	No
		PM	6,088	0.55	C	8,728	0.79	D	6,389	0.58	C	9,160	0.83	D	119	283	6,508	0.59	C	9,443	0.86	D	0.01	No	0.03	No
SR-91	Between Central Avenue & Wilmington Avenue	AM	10,309	0.94	E	5,959	0.54	B	10,819	0.98	E	6,254	0.57	C	89	220	10,908	0.99	E	6,474	0.59	C	0.01	No	0.02	No
		PM	6,183	0.56	C	8,864	0.81	D	6,489	0.59	C	9,303	0.85	D	90	208	6,579	0.60	C	9,511	0.86	D	0.01	No	0.01	No
SR-91	Between Wilmington Avenue & Alameda Street Santa Fe Avenue	AM	10,679	0.97	E	6,173	0.56	C	11,208	1.02	F(0)	6,478	0.59	C	65	165	11,273	1.02	F(0)	6,643	0.60	C	0.00	No	0.01	No
		PM	6,405	0.58	C	9,183	0.83	D	6,722	0.61	C	9,637	0.88	D	71	155	6,793	0.62	C	9,792	0.89	D	0.01	No	0.01	No
SR-91 [3]	Between Alameda Street/Santa Fe Avenue & Long Beach Boulevard	AM	11,102	1.01	F(0)	6,417	0.65	C	11,652	1.06	F(0)	6,735	0.68	C	46	115	11,698	1.06	F(0)	6,850	0.69	C	0.00	No	0.01	No
		PM	6,658	0.61	C	9,546	0.96	E	6,988	0.64	C	10,019	1.01	F(0)	50	107	7,038	0.64	C	10,126	1.02	F(0)	0.00	No	0.01	No
I-110	Between Anaheim Street & Pacific Coast Highway	AM	5,693	0.58	C	3,888	0.39	B	5,975	0.60	C	4,080	0.41	B	27	76	6,002	0.61	C	4,156	0.42	B	0.01	No	0.01	No
		PM	3,785	0.38	B	5,344	0.54	B	3,972	0.40	B	5,608	0.57	C	32	71	4,004	0.40	B	5,679	0.57	C	0.00	No	0.00	No
I-110	Between Pacific Coast Highway & Sepulveda Boulevard	AM	7,523	0.76	C	5,138	0.58	C	7,896	0.80	D	5,392	0.61	C	39	102	7,935	0.80	D	5,494	0.62	C	0.00	No	0.01	No
		PM	5,002	0.51	B	7,062	0.80	D	5,249	0.53	B	7,412	0.84	D	41	97	5,290	0.53	B	7,509	0.85	D	0.00	No	0.01	No
I-110	Between Sepulveda Boulevard & Carson Street	AM	8,197	0.93	D	6,004	0.68	C	8,602	0.98	E	6,301	0.72	C	59	157	8,661	0.98	E	6,458	0.73	C	0.00	No	0.01	No
		PM	5,863	0.67	C	7,684	0.87	D	6,153	0.70	C	8,064	0.92	D	66	147	6,219	0.71	C	8,211	0.93	D	0.01	No	0.01	No
I-110	Between Carson Street & Torrance Boulevard	AM	9,526	1.08	F(0)	6,978	0.79	D	9,997	1.14	F(0)	7,323	0.83	D	96	254	10,093	1.15	F(0)	7,577	0.86	D	0.01	No	0.03	No
		PM	6,814	0.77	C	8,930	1.01	F(0)	7,151	0.81	D	9,372	1.07	F(0)	102	241	7,253	0.82	D	9,613	1.09	F(0)	0.01	No	0.02	***YES***
I-110	Between Torrance Boulevard & I-405 Interchange	AM	10,190	1.32	F(1)	7,464	0.85	D	10,695	1.39	F(2)	7,834	0.89	D	96	254	10,791	1.40	F(2)	8,088	0.92	D	0.01	No	0.03	No
		PM	7,289	0.95	E	9,553	1.09	F(0)	7,650	0.99	E	10,026	1.14	F(0)	102	241	7,752	1.01	F(0)	10,267	1.17	F(0)	0.02	***YES***	0.03	***YES***
I-110	Between I-405 Interchange & SR-91 Interchange	AM	12,051	1.00	E	8,828	1.00	E	12,648	1.05	F(0)	9,265	1.05	F(0)	236	527	12,884	1.06	F(0)	9,792	1.11	F(0)	0.01	No	0.06	***YES***
		PM	8,620	0.71	C	11,297	1.28	F(1)	9,047	0.75	C	11,856	1.35	F(1)	225	559	9,272	0.77	C	12,415	1.41	F(2)	0.02	No	0.06	***YES***
I-110	Between SR-91 Interchange & Redondo Beach Boulevard	AM	12,037	1.09	F(0)	8,817	0.73	C	12,561	1.14	F(0)	9,201	0.76	C	55	93	12,616	1.15	F(0)	9,294	0.77	C	0.01	No	0.01	No
		PM	8,942	0.81	D	11,719	0.97	E	9,332	0.85	D	12,230	1.01	F(0)	42	107	9,374	0.85	D	12,337	1.02	F(0)	0.00	No	0.01	No
I-110	Los Angeles - Redondo Beach Boulevard & Rosecrans Avenue	AM	9,377	0.85	D	10,518	0.87	D	9,841	0.89	D	11,039	0.91	D	39	64	9,880	0.90	D	11,103	0.92	D	0.01	No	0.01	No
		PM	8,620	0.78	D	10,014	0.83	D	9,047	0.82	D	10,509	0.87	D	28	73	9,075	0.83	D	10,582	0.87	D	0.01	No	0.00	No
I-110	Between Rosecrans Avenue & El Segundo Boulevard	AM	9,644	0.88	D	10,819	0.89	D	10,122	0.92	D	11,355	0.94	E	25	35	10,147	0.92	D	11,390	0.94	E	0.00	No	0.00	No
		PM	8,866	0.81	D	10,300	0.85	D	9,305	0.85	D	10,810	0.89	D	16	43	9,321	0.85	D	10,853	0.90	D	0.00	No	0.01	No
I-405	Between Long Beach Boulevard & I-710 Interchange	AM	12,229	1.11	F(0)	9,973	0.82	D	12,834	1.17	F(0)	10,467	0.87	D	50	127	12,884	1.17	F(0)	10,594	0.88	D	0.00	No	0.01	No
		PM	10,165	0.92	D	11,275	0.93	D	10,668	0.97	E	11,834	0.98	E	48	122	10,716	0.97	E	11,956	0.99	E	0.00	No	0.01	No
I-405 [3]	Between I-710 Interchange & Alameda Street	AM	12,271	1.01	F(0)	10,008	0.91	D	12,879	1.06	F(0)	10,503	0.95	E	70	187	12,949	1.07	F(0)	10,690	0.97	E	0.01	No	0.02	No
		PM	10,200	0.84	D	11,314	1.03	F(0)	10,705	0.88	D	11,874	1.08	F(0)	94	167	10,799	0.89	D	12,041	1.09	F(0)	0.01	No	0.01	No
I-405	Between Alameda Street & Wilmington Avenue	AM	11,950	0.99	E	10,029	0.91	D	12,528	1.04	F(0)	10,514	0.96	E	124	321	12,652	1.05	F(0)	10,835	0.99	E	0.01	No	0.03	No
		PM	9,418	0.78	D	11,299	1.03	F(0)	9,873	0.82	D	11,845	1.08	F(0)	137	302	10,010	0.83	D	12,147	1.10	F(0)	0.01	No	0.02	***YES***
I-405	Between Wilmington Avenue & Carson Street	AM	11,656	1.18	F(0)	9,782	0.99	E	12,184	1.23	F(0)	10,226	1.03	F(0)	154	406	12,338	1.25	F(0)	10,632	1.07	F(0)	0.02	***YES***	0.04	***YES***
		PM	9,185	0.93	D	11,020	1.11	F(0)	9,602	0.97	E	11,520	1.16	F(0)	164	387	9,766	0.99	E	11,907	1.20	F(0)	0.02	No	0.04	***YES***
I-405	Between Carson Street & Avalon Boulevard	AM	10,678	1.08	F(0)	8,961	0.91	D	11,196	1.13	F(0)	9,396	0.95	E	191	499	11,387	1.15	F(0)	9,895	1.00	E	0.02	***YES***	0.05	No
		PM	8,415	0.85	D	10,095	1.02	F(0)	8,823	0.89	D	10,585	1.07	F(0)	195	478	9,018	0.91	D	11,063	1.12	F(0)	0.02	No	0.05	***YES***
I-405 [3]	Between Avalon Boulevard & I-110	AM	11,255	1.14	F(0)	9,445	0.78	D	11,812	1.19	F(0)	9,913	0.82	D	191	499	12,003	1.21	F(0)	10,412	0.86	D	0.02	***YES***	0.04	No

Table 22 (Continued)

Freeway Mainline Level of Service Analysis

FREEWAY	SEGMENT	AM/PM	EXISTING CONDITIONS (YEAR 2005)						CUMULATIVE CONDITIONS (YEAR 2010)						PROJECT ONLY TRAFFIC		CUMULATIVE PLUS PROJECT (2035)						SIGNIFICANT IMPACT			
			North/Westbound			South/Eastbound			North/Westbound			South/Eastbound					North/Westbound			South/Eastbound			North/Westbound		South/Eastbound	
			Volume[2]	V/C	LOS**	Volume[2]	V/C	LOS**	Volume[2]	V/C	LOS**	Volume[2]	V/C	LOS**	NB/WB	SB/EB	Volume[2]	V/C	LOS**	Volume[2]	V/C	LOS**	Project V/C change	Significant Impact?	Project V/C change	Significant Impact?
	Interchange	PM	8,869	0.90	D	10,641	0.88	D	9,308	0.94	E	11,168	0.92	D	195	499	9,503	0.96	E	11,667	0.96	E	0.02	No	0.04	No
I-405	Between I-110 Interchange & Vermont Avenue	AM	9,975	0.91	D	7,149	0.72	C	10,451	0.95	E	7,491	0.76	C	164	382	10,615	0.97	E	7,873	0.80	D	0.02	No	0.04	No
		PM	9,806	0.89	D	7,733	0.78	D	10,274	0.93	D	8,102	0.82	D	160	402	10,434	0.95	E	8,504	0.86	D	0.02	No	0.04	No
I-405	Between Vermont Avenue & Normandie Avenue	AM	9,906	0.75	C	7,100	0.72	C	10,396	0.79	D	7,451	0.75	C	141	310	10,537	0.80	D	7,761	0.78	D	0.01	No	0.03	No
		PM	9,738	0.74	C	7,679	0.78	D	9,642	0.73	C	7,603	0.77	C	130	330	9,772	0.74	C	7,933	0.80	D	0.01	No	0.03	No
I-405	Between Normandie Avenue & Western Avenue	AM	9,903	1.00	E	7,098	0.72	C	10,381	1.05	F(0)	7,440	0.75	C	112	236	10,493	1.06	F(0)	7,676	0.78	D	0.01	No	0.03	No
		PM	9,736	0.98	E	7,677	0.78	D	9,642	0.97	E	7,603	0.77	C	99	254	9,741	0.98	E	7,857	0.79	D	0.01	No	0.02	No
I-405	Between Western Avenue & Crenshaw Boulevard	AM	9,648	0.97	E	6,915	0.70	C	10,109	1.02	F(0)	7,246	0.73	C	88	180	10,197	1.03	F(0)	7,426	0.75	C	0.01	No	0.02	No
		PM	9,484	0.96	E	7,479	0.76	C	9,393	0.95	E	7,408	0.75	C	73	195	9,466	0.96	E	7,603	0.77	C	0.01	No	0.02	No
I-405	Between Crenshaw Boulevard & Redondo Beach Boulevard	AM	9,320	0.94	E	6,680	0.67	C	9,769	0.99	E	7,002	0.71	C	63	124	9,832	0.99	E	7,126	0.72	C	0.00	No	0.01	No
		PM	9,162	0.93	D	7,225	0.73	C	9,074	0.92	D	7,156	0.72	C	48	137	9,122	0.92	D	7,293	0.74	C	0.00	No	0.02	No
I-405	Between Redondo Beach Boulevard & Hawthorne Boulevard	AM	9,104	0.92	D	6,525	0.66	C	9,555	0.97	E	6,848	0.69	C	46	94	9,601	0.97	E	6,942	0.70	C	0.00	No	0.01	No
		PM	8,950	0.90	D	7,058	0.71	C	8,862	0.90	D	6,988	0.71	C	35	102	8,897	0.90	D	7,090	0.72	C	0.00	No	0.01	No
I-710	Between Pacific Coast Highway & Willow Street	AM	5,497	0.83	D	6,448	0.98	E	5,769	0.87	D	6,767	1.03	F(0)	13	30	5,782	0.88	D	6,797	1.03	F(0)	0.01	No	0.00	No
		PM	5,355	0.81	D	6,281	0.95	E	5,302	0.80	D	6,219	0.94	E	12	28	5,314	0.81	D	6,247	0.95	E	0.01	No	0.01	No
I-710 [3]	Between Willow Street & I-405 Interchange	AM	5,892	0.77	C	6,911	1.05	F(0)	6,184	0.80	D	7,254	1.10	F(0)	19	50	6,203	0.81	D	7,304	1.11	F(0)	0.01	No	0.01	No
		PM	5,740	0.75	C	6,733	1.02	F(0)	5,683	0.74	C	6,666	1.01	F(0)	20	49	5,703	0.74	C	6,715	1.02	F(0)	0.00	No	0.01	No
I-710	Between I-405 Interchange & Del Amo Boulevard	AM	6,395	0.65	C	7,501	0.85	D	6,712	0.68	C	7,873	0.89	D	31	76	6,743	0.68	C	7,949	0.90	D	0.00	No	0.01	No
		PM	6,230	0.63	C	7,307	0.83	D	6,168	0.62	C	7,235	0.82	D	28	75	6,196	0.63	C	7,310	0.83	D	0.01	No	0.01	No
I-710 [3]	Between Del Amo Boulevard & Long Beach Boulevard	AM	6,431	0.58	C	7,544	0.86	D	6,750	0.61	C	7,917	0.90	D	0	0	6,750	0.61	C	7,917	0.90	D	0.00	No	0.00	No
		PM	6,265	0.57	C	7,349	0.84	D	6,203	0.56	C	7,276	0.83	D	0	0	6,203	0.56	C	7,276	0.83	D	0.00	No	0.00	No
I-710	Between Long Beach Boulevard & SR-91 Interchange	AM	6,791	0.62	C	7,965	0.80	D	7,127	0.65	C	8,360	0.84	D	0	0	7,127	0.65	C	8,360	0.84	D	0.00	No	0.00	No
		PM	6,615	0.60	C	7,759	0.78	D	6,550	0.60	C	7,682	0.78	D	0	0	6,550	0.60	C	7,682	0.78	D	0.00	No	0.00	No
I-710	Between SR-91 Interchange & Alondra Boulevard	AM	7,832	0.65	C	9,187	0.76	C	8,220	0.68	C	9,642	0.80	D	28	75	8,248	0.68	C	9,717	0.80	D	0.00	No	0.00	No
		PM	7,630	0.63	C	8,949	0.74	C	7,554	0.62	C	8,861	0.73	C	31	76	7,585	0.63	C	8,937	0.74	C	0.01	No	0.01	No

* *A half-lane indicates an auxiliary lane or HOV lane in this section of freeway.*
** *F(0) through F(3) represent gradations of LOS F.*
[1] *Capacity of 2,200 vehicles per hour per lane assumed.*
[2] *A growth factor of 1% per year was applied to grow the data available from Caltrans 2004 Traffic Volumes on California State Highways for Existing (Year 2005) and Future (Year 2010) projections.*
[3] *CMP freeway monitoring stations.*

Source: Kaku Associates, October 2005

  - Torrance Boulevard to the I-405 Interchange during the P.M. peak hour for both northbound and southbound directions; and
  - I-405 Interchange to the SR-91 Interchange during both A.M. and P.M. peak hours in the southbound direction.

- Interstate Route 405

  - Alameda Street to Wilmington Avenue during the P.M. peak hour in the southbound direction;
  - Wilmington Avenue to Carson Street during the A.M. peak hour in the northbound direction and during both A.M. and P.M. peak hours in the southbound direction;
  - Carson Street to Avalon Boulevard during the A.M. peak hour in the northbound direction and during the P.M. peak hour in the southbound direction; and
  - Avalon Boulevard to the I-110 Interchange during the A.M. peak hour in the northbound direction.

(iii) Access

Access to the Project site would be provided via several new intersections and/or existing intersections. Intersection access points serving the Project site include Del Amo and Stamps Drive, Lenardo Drive and Main Street, and Lenardo Drive and the I-405 interchange. Projected service levels of the access locations serving the Project site are as follows:

- Del Amo Boulevard and Stamps Drive: This intersection is projected to operate at a volume/capacity (V/C) ratio of 0.773 and service level (LOS) C during the A.M. peak hour and at a V/C of 0.893 and LOS D during the P.M. peak hour.

- Lenardo Drive and Main Street: This intersection is projected to operate at a V/C ratio of 0.467 and LOS A during the A.M. peak hour and at a V/C of 0.601 and LOS B during the P.M. peak hour.

- Lenardo Drive and Avalon Boulevard/I-405 Southbound On-Ramp: This intersection, which would be part of the Avalon Boulevard/I-405 interchange improvements, is projected to operate at a V/C of 0.847 and a LOS D in the A.M. peak hour. During the P.M. peak hour, this intersection is projected to operate at a V/C of 0.897 and a LOS D.

- Lenardo Drive and I-405 Southbound On/Off-Ramps: This intersection, which would also be part of the Avalon Boulevard/I-405 interchange improvements, is projected to

operate at a V/C of 0.746 and LOS C in the A.M. peak hour. During the P.M. peak hour the intersection is projected to operate at a V/C of 0.843 and LOS D.

- Avalon Boulevard and I-405 Northbound Off-Ramp: This intersection, which would also be part of the Avalon Boulevard/I-405 interchange improvements, is projected to operate at a V/C 0.988 and LOS E in the A.M. peak hour. During the P.M. peak hour the intersection is projected operate at a V/C of 1.092 and LOS F. This represents an improvement over the projected baseline conditions, without the Project and the Avalon Boulevard/I-405 interchange improvements.

Project access impacts are considered significant if the primary site access intersections are projected to operate at an unacceptable LOS E or F during one or both of the peak hours, under Cumulative Plus Project conditions. Although the intersection of Avalon Boulevard and I-405 Northbound Ramps would operate at LOS F during the A.M. peak hour, this would not constitute a significant access impact since this is an existing intersection and the Project would not cause the V/C ratio at this location to be increased by 0.02 or more. Less than significant impacts would occur at the Stamps Drive and Del Amo Boulevard access point during the A.M. peak hour or at any of the other access points described above, during either the A.M. or P.M. peak hours.

(iv) Public Transportation

The estimated number of potential transit riders is based on a percentage of the Project's total person trips, which are calculated as 1.4 persons per vehicle trip. Since the Project's peak hour trips are approximately 2,508 vehicle trips in the A.M. peak hour and 5,772 vehicle trips in the P.M. peak hour, it is estimated that the peak hour person trips would be 3,511 in the A.M. peak hour and 8,081 in the P.M. peak hour. In accordance with CMP guidelines, where a site is located more than one-quarter mile boundary from existing services, approximately 3.5 percent of the project's person trips may use public transit to travel to and from the site. Based on CMP procedures for estimating transit ridership, the Project is forecasted to result in approximately 123 new transit trips during the A.M. peak hour and 282 new transit trips during the P.M. peak hour. The Project vicinity is served by 23 buses in the A.M. peak hour and by 24 buses in the P.M. peak hour. It is estimated that the Project could add, on an average, approximately five person trips per bus in the A.M. peak hour and 12 person trips per bus in the P.M. peak hour. Twelve persons per bus represents the equivalent of slightly more than 25 percent of the capacity of a typical 45-passenger bus. This level of increase would not be readily absorbed by existing transit services. Since projected transit riders would exceed available or projected transit capacity, it is concluded that Project-related impacts to the regional transit system could be significant.

The Project's additional transit demand may require the extension of existing public bus routes to the Project site; the provision of additional buses to increase the frequency and capacity of existing services on key routes serving the Project site; and the provision of additional transit stops in and adjacent to the Project site. All future expansions would be completed at the discretion of the City of Carson Transit Authority and the Metropolitan Transit Authority (MTA).

(v) Parking

The Project's estimated parking demand is based on the Urban Land Institute's (ULI) Shared Parking Model. The residential and commercial components of the Project are considered separately, since dedicated (non-shared) spaces would be provided for residents and since residential and commercial components are anticipated to be physically located in different portions of the Project site, although the potential does exist that proposed residences could be located above commercial uses (e.g., ground floor retail). As summarized in Table 23 on page 254, the shared parking model estimates a parking demand of approximately 7,578 parking spaces during the weekday peak hour and about 8,335 parking spaces during the weekend peak hour of the peak month of December for the proposed commercial uses. The ULI Shared Parking Model estimates a separate demand for approximately 2,788 spaces to serve the residential components of the Project, including 2,555 resident spaces and 233 guest spaces. Thus, the total peak parking demand including both the commercial and residential components is estimated to be 10,366 spaces on a weekday and 11,123 spaces on a weekend, during the peak month of December. The projected variation in peak parking demand for the different months of the year during a weekday and a weekend are illustrated in Appendix D of the technical traffic study, contained in Appendix D of this Draft EIR. Appendix D of the traffic study also includes the projected daily variation in the parking demand for the December peak month by hour throughout the day.

Based on the City's General Development Standards, summarized in Table 24 on page 256, it is estimated that 10,376 parking spaces would be required for the commercial component of the Project. With consideration of shared parking, peak demand, time-of-day, and seasonal factors from ULI research, a peak shared demand for approximately 8,335 spaces is projected at 2 P.M. on a weekend day during the peak month of December (2,041 spaces less than required under the General Development Standards).

Based on the City's General Development Standards, it is similarly estimated that 3,238 spaces would be required for the residential component of the Project, including both resident and guest spaces. Based on ULI demand factors, peak demand for the residential uses is estimated to be approximately 2,788 spaces (450 less than required under the General Development Standards). Thus, the provision of parking per the City's General Development

Table 23

Shared Parking Demand Summary - Carson Marketplace
Peak Month: December -- Peak Period: 2 P.M., Weekend

			Weekday					Weekend					Weekday			Weekend		
Land Use	Project Data		Base	Non-Driving	Captive	Project		Base	Non-Driving	Captive	Project		Peak Hr Adj	Peak Mo Adj	Estimated Parking	Peak Hr Adj	Peak Mo Adj	Estimated Parking Demand
	Quantity	Unit	Rate	Ratio	Ratio	Rate	Unit	Rate	Ratio	Ratio	Rate	Unit	1 PM	December	Demand	2 PM	December	
Super Regional Shopping Center (>600k)	1,500,000	sf GLA	3.20	1.00	1.00	3.20	/ksf GLA	3.60	1.00	1.00	3.60	/ksf GLA	1.00	1.00	4,800	1.00	1.00	5,400
Employee			0.80	0.95	1.00	0.76	/ksf GLA	0.90	0.95	1.00	0.86	/ksf GLA	0.90	1.00	1,140	0.95	1.00	1,283
Fine/Casual Dining Restaurant	66,125	sf GLA	15.25	1.00	0.90	13.73	/ksf GLA	17.00	1.00	0.90	15.30	/ksf GLA	1.00	1.00	680	0.90	1.00	455
Employee			2.75	0.80	1.00	2.20	/ksf GLA	3.00	0.80	1.00	2.40	/ksf GLA	0.64	1.00	131	0.80	1.00	119
Family Restaurant		sf GLA	9.00	1.00	1.00	9.00	/ksf GLA	12.75	1.00	1.00	12.75	/ksf GLA	1.00	1.00	0	1.00	1.00	0
Employee			1.50	1.00	1.00	1.50	/ksf GLA	2.25	1.00	1.00	2.25	/ksf GLA	1.00	1.00	0	1.00	1.00	0
Fast Food Restaurant	15,000	sf GLA	12.75	1.00	0.90	11.48	/ksf GLA	12.00	1.00	0.90	10.80	/ksf GLA	1.00	1.00	172	0.90	1.00	146
Employee			2.25	0.80	1.00	1.80	/ksf GLA	2.00	0.80	1.00	1.60	/ksf GLA	0.64	1.00	27	0.80	1.00	23
Nightclubs		sf GLA	15.25	1.00	1.00	15.25	/ksf GLA	17.50	1.00	1.00	17.50	/ksf GLA	1.00	0.23	0	1.00	0.23	0
Employee			1.25	1.00	1.00	1.25	/ksf GLA	1.00	1.00	1.00	1.00	/ksf GLA	1.00	1.00	0	1.00	1.00	0
Cineplex	4,500	seats	0.19	1.00	0.90	0.17	/seat	0.26	1.00	0.90	0.23	/seat	1.00	0.23	80	0.90	0.67	388
Employee			0.01	0.80	1.00	0.01	/seat	0.01	0.80	1.00	0.01	/seat	0.64	0.50	11	0.80	0.80	17
Health Club	35,000	sf GLA	6.60	1.00	1.00	6.60	/ksf GLA	5.50	1.00	1.00	5.50	/ksf GLA	1.00	0.90	146	1.00	0.90	43
Employee			0.40	1.00	1.00	0.40	/ksf GLA	0.25	1.00	1.00	0.25	/ksf GLA	1.00	1.00	11	1.00	1.00	5
Active Entertainment	69,000	sf GLA	4.20	1.00	0.90	3.78	/ksf GLA	6.50	1.00	0.90	5.85	/ksf GLA	1.00	0.67	175	0.90	0.67	271
Employee			0.40	0.80	1.00	0.32	/ksf GLA	0.50	0.80	1.00	0.40	/ksf GLA	0.64	0.80	18	0.80	0.80	22
Hotel-Business	300	rooms	1.00	1.00	1.00	1.00	/rooms	0.90	1.00	1.00	0.90	/rooms	1.00	0.67	111	1.00	0.67	109
Employee			0.25	1.00	1.00	0.25	/rooms	0.18	1.00	1.00	0.18	/rooms	1.00	1.00	76	1.00	1.00	54
Residential, Rental	400	units																
Reserved	1.50	Sp/Unit	1.50	1.00	1.00	1.50	/unit	1.50	1.00	1.00	1.50	/unit	1.00	1.00	600	1.00	1.00	600

Table 23 (Continued)

Shared Parking Demand Summary - Carson Marketplace
Peak Month: December -- Peak Period: 2 P.M., Weekend

			Weekday					Weekend					Weekday			Weekend		
Land Use	Project Data		Base Rate	Non-Driving Ratio	Captive Ratio	Project Rate	Unit	Base Rate	Non-Driving Ratio	Captive Ratio	Project Rate	Unit	Peak Hr Adj	Peak Mo Adj	Estimated Parking Demand	Peak Hr Adj	Peak Mo Adj	Estimated Parking Demand
	Quantity	Unit											1 PM	December		2 PM	December	
Guest	400	units	0.15	1.00	1.00	0.15	/unit	0.15	1.00	1.00	0.15	/unit	1.00	1.00	60	1.00	1.00	60
Residential, Owned	1,150	units																
Reserved	1.70	Sp/Unit	1.70	1.00	1.00	1.70	/unit	1.70	1.00	1.00	1.70	/unit	1.00	1.00	1,955	1.00	1.00	1,955
Guest	1,150	units	0.15	1.00	1.00	0.15	/unit	0.15	1.00	1.00	0.15	/unit	1.00	1.00	173	1.00	1.00	173

Commercial Customer	6,164	Commercial Customer	6,812
Commercial Employee	1,414	Commercial Employee	1,523
Commercial Total	7,578	Commercial Total	8,335
Resident Reserved	2,555	Resident Reserved	2,555
Guest Reserved	233	Guest Reserved	233
Residential Total	2,788	Residential Total	2,788
Grand Total	10,366	Grand Total	11,123

Table 24

City of Carson General Development Standards

Category	Land Uses	Size	Unit	Parking Rate	Total
CM[a]	Regional Commercial	1,370.000	KSF[c]	5/1,000 sq. ft. GLA	6,850
CM	Theater	4,500	Seats	1/3 Seats	1,500
CM	Hotel	300	Rooms	1.5/ Room	450
CM & MU-M[b]	Restaurants	81.125	KSF	5/1,000 sq. ft. GLA	406
MU-M	Neighborhood Commercial	130.000	KSF	5/1,000 sq. ft. GLA	650
MU-M	1-bedroom Apartment/Condominium	500	Dwelling Units	1.5/Unit	750
MU-M	2-bedroom Apartment/Condominium	1,050	Dwelling Units	2/Unit	2,100
	- Guest Spaces for Residential Units	1,550	Dwelling Units	1/4 Units	388
MU-M	Bowling Alley	25.000	KSF	5/1,000 sq. ft. GLA[d]	125
MU-M	Fitness Center	35.000	KSF	5/1,000 sq. ft. GLA	175
MU-M	Multi-Purpose Recreation Center	44.000	KSF	5/1,000 sq. ft. GLA	220
Commercial Total					10,376
Residential Total					3,238
Grand Total					**13,614**

[a] *CM = Commercial Marketplace*
[b] *MU-M = Mixed Use*
[c] *KSF = 1,000 Square Feet*
[d] *GLA = Gross Leasable Area*

Source: Kaku Associates, October 2005.

Standards would be more than sufficient to accommodate the Project's estimated peak parking demands. Since the Project would not provide less parking than is needed to meet the Project's parking demand, impacts relative to parking demand would be less than significant. The Specific Plan for the Project site contains provisions for the implementation of a shared parking program. The shared parking program may be approved by the City's Planning Manager if it can be demonstrated that the Project parking supply would be adequate to meet the Project's peak shared parking demand under the ULI shared parking model. Under this Specific Plan provision, the Applicant may request the approval of a shared parking plan, in lieu of the City's General Development Standards.

The ULI defines "shared parking" as parking space that can be used to serve two or more individual land uses without conflict or encroachment. According to the ULI, the opportunity to implement shared parking is the result of two conditions: (1) "Variations in the peak accumulation of parked vehicles as the result of different activity patterns of adjacent or nearby land uses (by hour, by day, by season);" and (2) "Relationships among land use activities that result in people's attraction to two or more land uses on a single auto trip to a given area or development." Most parking codes, such as the City's Development Standards, provide peak parking ratios for individual land uses. While this appropriately recognizes that separate land uses generate different parking demands on an individual basis, it does not reflect the fact that

the combined peak parking demand, when a mixture of land uses, such as the Project, shares the same parking supply, peak parking demand can be substantially less than the sum of the individual demands. For example, retail uses peak in the early- to mid-afternoon while restaurant uses peak in the lunchtime and/or evening hours (depending on the type of restaurant) and cinema uses peak in the evening hours.

If a shared parking plan is to be implemented at the Project site, it can only be approved if it demonstrates that it would be adequate to meet the Project's peak parking demand, even if the peak parking demand were less than the parking required under the City's General Development Standards. The procedures set forth in the Specific Plan provide that parking would never be less than the Project's peak demand. Since the implementation of the Specific Plan's shared parking procedures would assure that the Project's shared parking demand would not exceed provided parking, no significant parking impacts under a shared parking program would occur.

4. MITIGATION MEASURES

a. Construction

Mitigation Measure C-1: The Project shall submit a Construction Traffic Management Plan or Worksite Traffic Control Plan (WTCP) to the City and appropriate police and fire services prior to the start of any construction work phase, which includes Project scheduling and the location of any roadway closures, traffic detours, haul routes, protective devices, and warning signs, for the purpose of minimizing pedestrian and vehicular impediment and interference of emergency vehicles from Project construction activities.

Mitigation Measure C-2: During construction, at least one sidewalk on either the north or south side of Del Amo Boulevard shall remain open and accessible to pedestrian traffic.

b. Operation

(1) Intersection Mitigation Measures:

The Project consists of a number of different land uses that may be developed in phases. Since the Project may be implemented over a period of time, its related traffic growth and, thus, the intersection impacts would also occur over a period of time. Some impacts would occur at earlier stages of development, while others would occur at later stages. Thus, an intersection phasing program has been developed to ensure that the necessary improvements are implemented

when and where they are needed to achieve mitigation as development occurs. Table 25 on page 259 lists the impacted study intersections and depicts the point at which significant impacts would occur. As shown in Table 25, the study intersections are sorted according to the percentage of P.M. peak hour trip increase at which a significant impact would occur. The following is a detailed description of the mitigation measures proposed at each of the impacted study intersections.

Mitigation Measure C-3: Vermont Avenue and Del Amo Boulevard (Intersection No. 5):

- A second left-turn lane shall be added to westbound Del Amo Boulevard. The westbound approach shall be improved to include two left-turn lanes, a through lane, and a right-turn lane. The improvement is feasible within the existing right-of-way.
- This mitigation measure shall be implemented at the point of development in which the Project generates 51 to 60 percent of its total trips, in accordance with Table 25.

Mitigation Measure C-4: Hamilton Avenue & Del Amo Boulevard (Intersection No. 6):

- The Applicant shall install a traffic signal at this location.
- A right-turn lane shall be added to northbound Hamilton Avenue. The northbound approach shall be improved to include a left-turn lane, two through lanes, and a right-turn lane. This improvement is feasible within the existing right-of-way.
- This mitigation measure shall be implemented at the point of development in which the Project generates 1 to 10 percent of its total trips, in accordance with Table 25.

Mitigation Measure C-5: Figueroa Street & Del Amo Boulevard (Intersection No. 7):

- A right-turn lane shall be added to southbound Figueroa Street. The southbound approach shall be improved to include one left-turn lane, two through lanes, and a right-turn lane. This improvement is feasible within the existing right-of-way
- A second westbound left-turn lane shall be added to westbound Del Amo Boulevard. The westbound approach shall be improved to include two left-turn lanes, two through lanes, and a right-turn lane. This improvement is feasible within the existing right-of-way.

Table 25

Intersection Mitigation Phasing Schedule

Percentage of Total Trips Triggering Significant Impacts [a]	Significantly Impacted Intersection
1 to 10 Percent	Intersection No. 6: Hamilton Avenue & Del Amo Boulevard
	Intersection No. 7: Figueroa Street & Del Amo Boulevard
	Intersection No. 12: Figueroa Street & I-110 NB Ramps
11 to 20 Percent	No change
21 to 30 Percent	Intersection No. 11: Hamilton Avenue & I-110 NB Ramps
	Intersection No. 25: Avalon Boulevard & Carson Street
31 to 40 Percent	Intersection No. 22: Vermont Avenue & Carson Street
41 to 50 Percent	No change
51 to 60 Percent	Intersection No. 5: Vermont Avenue & Del Amo Boulevard
	Intersection No. 8: Main Street & Del Amo Boulevard
61 to 70 Percent	Intersection No. 24: Main Street & Carson Street
71 to 80 Percent	Intersection No. 15: Figueroa Street & Torrance Boulevard
	Intersection No. 23: Figueroa Street & Carson Street
81 to 90 Percent	Intersection No. 16: Main Street & Torrance Boulevard
91 to 100 Percent	No change

[a] *Mitigation measures are phased in relation to 10 percent increases in Project trips.*

Source: Kaku Associates, October 2005

- An eastbound through lane and a right-turn lane shall be added to eastbound Del Amo Boulevard. The eastbound approach shall be improved to include one left-turn lane, three through lanes, and a right-turn lane. This improvement is feasible within the existing right-of-way.
- This mitigation measure shall be implemented at the point of development in which the Project generates 1 to 10 percent of its total trips, in accordance with Table 25.

Mitigation Measure C-6: Main Street and Del Amo Boulevard (Intersection No. 8):

- Land shall be dedicated, as required, to add a second left-turn lane and a right-turn lane to southbound Main Street. The southbound approach shall be improved to provide two left-turn lanes, two through lanes and a right-turn lane.
- A second left-turn lane shall be added to westbound Del Amo Boulevard. The westbound approach shall be improved to provide two left-turn lanes, two through lanes and an optional through and a right-turn lane.
- Land shall be dedicated, as required, to add a second left-turn lane and a right-turn lane to northbound Main Street. The northbound approach shall be improved to provide two left-turn lanes, two through lanes, and a right-turn lane.
- A second left-turn lane shall be added to eastbound Del Amo Boulevard. The eastbound approach shall be improved to provide two left-turn lanes, two through lanes, and an optional through and a right-turn lane.
- This mitigation measure shall be implemented at the point of development in which the Project generates 51 to 60 percent of its total trips, in accordance with Table 25.

Mitigation Measure C-7: Hamilton Avenue & I-110 Southbound Ramps (Intersection No. 11):

- The Applicant shall install a traffic signal at this location.
- The southbound approach shall be re-striped to provide for one left-turn lane and a shared left-turn/through lane. The improvement is feasible within the existing right-of way.
- This mitigation measure shall be implemented at the point of development in which the Project generates 21 to 30 percent of its total trips, in accordance with Table 25.

Mitigation Measure C-8: Figueroa Street & I-110 Northbound Ramps (Intersection No. 12):

- A second right-turn lane shall be added to the southbound approach. The southbound approach shall be improved to provide two through lanes and two right-turn lanes.
- A right-turn lane shall be added to the eastbound approach. The eastbound approach shall be improved to provide two left-turn lanes and a right-turn lane. The improvements are feasible within the existing right-of-way.

- This mitigation measure shall be implemented at the point of development in which the Project generates 1 to 10 percent of its total trips, in accordance with Table 25.

Mitigation Measure C-9: Figueroa Street & Torrance Boulevard (Intersection No. 15):

- A second southbound left-turn lane shall be added to southbound Figueroa Street. The southbound approach shall be improved to include two left-turn lanes, two through lanes, and a right-turn lane. This improvement is feasible within the existing right-of-way.
- This mitigation measure shall be implemented at the point of development in which the Project generates 71 to 80 percent of its total trips, in accordance with Table 25.

Mitigation Measure C-10: Main Street & Torrance Boulevard (Intersection No. 16):

- The eastbound approach shall be re-striped to provide one left-turn lane and a shared through/right-turn lane.
- This mitigation measure shall be implemented at the point of development in which the Project generates 81 to 90 percent of its total trips, in accordance with Table 25.

Mitigation Measure C-11: Vermont Avenue & Carson Street (Intersection No. 22):

- The westbound right-turn lane shall be re-striped to provide a shared through/right-turn lane. The westbound approach shall be improved to provide one left-turn lane, two through lanes, and a shared through/right-turn lane.
- The eastbound right-turn lane shall be re-striped to provide a shared through/right-turn lane. The eastbound approach shall be improved to provide one left-turn lane, two through lanes, and a shared through/ right-turn lane.
- This mitigation measure shall be implemented at the point of development in which the Project generates 31 to 40 percent of its total trips, in accordance with Table 25.

Mitigation Measure C-12: Figueroa Street and Carson Street (Intersection No. 23):

- A right-turn lane shall be added to the southbound approach. The southbound approach shall be improved to provide two left-turn lanes, two through lanes, and a right-turn lane.

- This mitigation measure shall be implemented at the point of development in which the Project generates 71 to 80 percent of its total trips, in accordance with Table 25.

Mitigation Measure C-13: Main Street & Carson Street (Intersection No. 24):

- A second left-turn lane shall be added to the westbound approach. The westbound approach shall be improved to provide two left-turn lanes, two through lanes, and a shared through/right-turn lane
- A second left-turn lane shall be added to the eastbound approach. The eastbound approach shall be improved to provide two left-turn lanes, two through lanes, and a shared through/right-turn lane.
- This mitigation measure shall be implemented at the point of development in which the Project generates 61 to 70 percent of its total trips, in accordance with Table 25.

Mitigation Measure C-14: Avalon Boulevard & Carson Street (Intersection No. 25):[32]

- A right-turn lane shall be added to the southbound approach. The southbound approach shall be improved to include one left-turn lane, three through lanes, and a right-turn lane.
- A right-turn lane shall be added to the westbound approach. The westbound approach shall be improved to provide two left-turn lanes, two through lanes, and a right-turn lane.
- A right-turn lane shall be added to the northbound approach. The northbound approach shall be improved to provide one left-turn lane, three through lanes, and a right-turn lane

[32] *Any future street widening improvements for the intersection of Avalon Boulevard and Carson Street are not feasible within the existing right-of-way and would require acquisition or dedication of right-of-way from adjacent parcels. The adjacent land uses include the Carson City Hall on the northeast corner of the intersection and commercial uses on the remaining three corners of the intersection. The necessary width can be obtained adjacent to City Hall on the north side of Carson Street through reduction of a portion of the existing landscaped area, allowing construction of the right-turn lane on the westbound Carson Street approach. Information from the City of Carson indicates that the parcels on the southeast and northwest corners may redevelop, at which point it may be possible to obtain the necessary right-of-way on the east side of Avalon Boulevard south of Carson Street and on the west side of Avalon Boulevard north of Carson Street, allowing construction of the right-turn lanes on the northbound and southbound Avalon Boulevard approaches. If the proposed right-turn lanes were provided on these three approaches but not on the eastbound Carson Street approach, it is estimated that the projected afternoon peak hour V/C would be reduced from 0.973 to 0.904. Although this would partially alleviate the Project impact, it would not fully mitigate the impact to a less than significant level.*

- A right-turn lane shall be added to the eastbound approach. The eastbound approach shall be improved to provide two left-turn lanes, two through lanes, and a right-turn lane

- This mitigation measure shall be implemented at the point of development in which the Project generates 21 to 30 percent of its total trips, in accordance with Table 25.

Mitigation Measure C-15: No Certificate of Occupancy shall be issued for commercial development in District 2, or for commercial development in Districts 1 and 3 that is greater than the amount of commercial development shown in the Applicant's Conceptual Plan (i.e., 150,000 square feet and 50,000 square feet, respectively), prior to the completion of the I-405 ramp improvements at Avalon Boulevard.

(2) I-405 and I-110 Freeways

No feasible mitigation measures are available to the Applicant to mitigate the Project's significant impacts on the I-110 and I-405 freeways.

(3) Site Access Mitigation Measures:

Site access impacts were determined to be insignificant so long as the main site access intersections are configured as described in Section 3.c.(1) Project Design Features. No mitigation measures are required.

(4) Public Transportation

Mitigation Measure C-16: In coordination with the City of Carson Transit Authority and the Metropolitan Transit Authority (Metro), the Applicant shall provide additional transit stops, including benches and shelters, in and adjacent to the Project site.

5. CUMULATIVE IMPACTS

a. Construction

(1) Worker Trips

The construction of 36 related projects is anticipated in the Project study area. These 36 related projects are dispersed throughout the study area and would draw upon a construction workforce from all parts of the Los Angeles region. In general, the majority of the construction workers are anticipated to arrive and depart the individual construction sites during off-peak hours (i.e., arrive prior to 7:00 A.M. and depart between 3:00 to 4:00 P.M.), thereby avoiding travel during the A.M. and P.M. peak traffic periods. Given the off-peak nature of construction worker traffic, impacts are concluded to be less than significant. As this is also the case with the proposed Project, cumulative impacts would also be less than significant.

(2) Hauling

Excavation and grading phases for the related projects would generate the highest number of haul truck trips at the related project sites. The haul truck routes for related projects would be approved by the City of Carson according to the location of the individual construction site and the ultimate destination. The City's established review process would take into consideration overlapping construction projects and would balance haul routes to minimize the impacts of cumulative hauling on any particular roadway. Since hauling associated with related projects would occur in accordance with City-approved haul routes, cumulative impacts associated with hauling are concluded to be less than significant.

(3) Emergency Access

Related projects that would be large enough to cause lane closures or detours may be required, as is the case with the proposed Project, to provide construction management plans to the City of Carson and, possibly, to police and fire services providers. However, since no related projects are sufficiently close to the Project site to create a cumulative impact on conjoining street segments, the cumulative effects of construction activities on emergency access would be less than significant.

b. Operation

(1) Intersection Service Levels

The cumulative traffic impacts associated with the 36 related projects and ambient growth have been considered for the purpose of assessing the Project's traffic impacts. Cumulative effects on intersection operations attributable to traffic from ambient growth and the identified related projects have been incorporated into the above analysis of Cumulative Base conditions. Under 2010 Cumulative Base conditions, as shown in Table 21 on page 243, 6 of the 29 study intersections are projected to operate at LOS E or worse during one or both of the peak hours: It is anticipated that related projects contributing to cumulative growth would be required on an individual basis to mitigate potentially significant traffic impacts to the extent possible. However, since no guarantee exists that mitigation measures would be implemented with the identified related projects, in conjunction with the significant Project impact after mitigation, it is concluded that cumulative traffic impact on intersection operations would be significant.

(2) Freeway Service Levels

Ambient growth in accordance with CMP guidelines has been considered in the evaluation of the Project's impact on regional freeways. Table 22 on page 249 demonstrates that cumulative impacts would occur on three segments of the Harbor Freeway (I-110) and five segments of the San Diego Freeway (I-405). No feasible mitigation measures are available to the Applicant or any individual project to mitigate the potentially significant impacts on these freeway segments to less than significant levels. Therefore, cumulative impacts on freeway service levels would be significant and unavoidable.

(3) Access

No related projects are adjacent to the Project site or share conjoining or adjacent access points. Therefore, no significant cumulative impacts relative to access would occur.

(4) Public Transit

The combined Project and related projects would generate a demand for public transportation that would exceed existing transit capacity. Therefore, a significant cumulative impact relative to public transit services would occur.

(5) Parking

Parking spaces provided by the Project and the related projects would be required to comply with the City's Development Standards. Since the City's Development Standards have been deemed adequate to serve parking demand associated with commercial and residential uses, parking provided by the Project and related projects would be adequate to serve demand. Therefore, cumulative impacts associated with parking supply would be less than significant.

6. SIGNIFICANCE AFTER MITIGATION

a. Construction

With the implementation of Mitigation Measures C-1 and C-2, which require the preparation of a Construction Management Plan or WTCP and the maintenance of an open sidewalk along one side of Del Amo Boulevard, potentially significant access impacts would be reduced to less than significant levels. Thus, after mitigation, no significant, unavoidable construction impacts would occur.

b. Operation

(1) Intersection Service Levels

Mitigation Measures C-3 through C-12 would incrementally reduce significant impacts at the 12 impacted study intersections, as summarized in Table 26 on page 267. As shown in Table 26, significant impacts at all 12 intersections would be reduced to less than significant levels, with the exception of the intersection of Figueroa Street & I-110 Northbound Ramps (Intersection No. 12) during the P.M. peak hour. Although mitigation measures would reduce the impact from a projected V/C level 1.247 and LOS F to a projected V/C of 0.976 and LOS E, the significant impact would not be reduced to a less than significant level and, as such, the Project would generate a significant and unavoidable impact at this study intersection.

Mitigation Measure C-13 assures that improvements to the Avalon Boulevard/I-405 interchange are implemented in coordination with commercial development within Districts 1 and 2. As a result, impacts with regard to the availability of the Avalon Bouleverad/I-405 interchange improvements would be less than significant.

Table 26

Intersection Service Levels After Mitigation

Intersection	Volume Capacity Ratio	Service Level	Peak Hour	Significant?
Intersection No. 5: Vermont Avenue and Del Amo Boulevard	0.865	D	P.M.	No
Intersection No. 6: Hamilton Avenue and Del Amo Boulevard	0.626	B	A.M.	No
	0.851	D	P.M.	No
Intersection No. 7: Figueroa Street and Del Amo Boulevard	0.720	C	A.M.	No
	0.962	E	P.M.	No
Intersection No. 8: Main Street and Del Amo Boulevard	0.876	D	P.M.	No
Intersection No. 11: Hamilton Avenue & I-110 Southbound Ramps	0.674	B	A.M.	No
	0.827	D	P.M.	No
Intersection No. 12: Figueroa Street & I-110 Northbound Ramps	0.821	D	A.M.	No
	0.976	E	P.M.	Yes
Intersection No. 15: Figueroa Street & Torrance Boulevard	0.874	D	P.M.	No
Intersection No. 16: Main Street & Torrance Boulevard	0.900	D	P.M.	No
Intersection No. 22: Vermont Avenue & Carson Street	0.777	C	A.M.	No
	0.865	D	P.M.	No
Intersection No. 23: Figueroa Street and Carson Street	0.861	D	P.M.	No
Intersection No. 24: Main Street & Carson Street	0.842	D	P.M.	No
Intersection No. 25: Avalon Boulevard & Carson Street	0.8728	D	P.M.	No

Source: Kaku & Associates, October 2005

(2) Freeway Service Levels

The Project's significant impact on three segments of the Harbor Freeway (I-110) and four segments of the San Diego Freeway (I-405) cannot be reduced to less than significant levels as no feasible mitigation measures are available to the Applicant or any individual project. Therefore, the Project's impact on freeway service levels would be significant and unavoidable.

(3) Access

Site access impacts were determined to be insignificant so long as the main site access intersections are configured as described in Section 3.c.(1) Project Design Features. Therefore, no significant, unavoidable impacts relative to site access would occur.

c. Public Transportation

During the P.M. peak hour, the Project is forecasted to generate approximately 282 transit riders or about 12 riders per bus on average, which represents 25 percent of the capacity of a 45-passenger bus. This increase is concluded to constitute a significant impact. Although service capacity could be addressed through the extension or expansion of existing bus services, such expansions could only occur at the discretion of the City of Carson Transit Authority or Metro. Although Mitigation Measure C-16 would partially reduce the impact on transit services, no feasible mitigation exists that would reduce the potentially significant impact to a less than significant level. Therefore, the impact of the Project on regional transit would be significant and unavoidable.

d. Parking

Application of the parking requirements set forth in the City of Carson General Development Standards would require the Project to provide approximately 13,614 parking spaces, including 10,376 spaces for the commercial component of the Project and 3,238 spaces for the Project's residential component (resident and guest spaces). Based on the ULI Shared Parking model, the total peak demand including both the commercial and residential components is estimated to be 10,366 spaces on a weekday and 11,123 spaces on a weekend during the peak month of December. Since the peak demand would not exceed the City's General Development Standards, and Project parking would be provided in accordance with these standards, no significant parking impacts would occur. Under the Specific Plan provision for shared parking, the Applicant may request the approval of a shared parking plan, in lieu of the City's General Development Standards. If a shared parking plan is to be implemented at the Project site, it can only be approved if it demonstrates that it would be adequate to meet the Project's peak parking demand, even if the peak parking demand were less than the parking required under the City's General Development Standards. The procedures set forth in the Specific Plan provide that parking would never be less than the Project's peak demand. Since the implementation of the Specific Plan's procedures would assure that the Project's shared parking demand would not exceed provided parking, no unavoidable or significant parking impacts under a shared parking program would occur.