L. TRAFFIC AND CIRCULATION

1. INTRODUCTION

This section describes the traffic conditions on the existing street network serving the project site and evaluates the impact of traffic generated by the project on future roadway conditions. The evaluation of impacts presented in this section is based on the analysis, conclusions, and recommendations contained in the Revised Traffic Impact Analysis prepared for the proposed project by Linscott, Law & Greenspan Engineers, Inc. (LLG) in February 2011. The Traffic Impact Analysis (TIA), which is contained in Appendix K of this EIR, was developed in consultation with the City of Long Beach (the City).

2. ENVIRONMENTAL SETTING

a. Regulatory Framework

(1) Los Angeles County Congestion Management Program

The Congestion Management Program (CMP) for Los Angeles County (the County) was created statewide as a result of Proposition 111, also known as the Traffic Congestion Relief and Spending Limitation Act of 1990, and has been implemented locally by the Los Angeles County Metropolitan Transportation Authority (Metro). Statutory elements of the CMP include Highway and Roadway System monitoring, multi-modal system performance analysis, the Transportation Demand Management Program, the Land Use Analysis Program, and local conformance for all the County's jurisdictions. The State statute requires that a congestion management program be developed, adopted, and updated biennially for every county that includes an urbanized area and must include every city and the county government within that county. The CMP addresses the impact of local growth on the regional transportation system. Therefore, the CMP for Los Angeles County requires that the traffic impact of individual development projects of potential regional significance be analyzed. A specific system of arterial roadways plus all freeways comprise the CMP system. A total of 164 intersections are identified for monitoring on the system in the County.

On October 28, 2010, the Metro Board adopted the 2010 CMP for the County. The 2010 CMP summarizes the results of 18 years of CMP highway and transit monitoring and 15 years of monitoring local growth. CMP implementation guidelines for local jurisdictions are also contained in the 2010 CMP.

Since the project site is located within the County, the project's Traffic Impact Analysis (TIA) has been conducted according to the guidelines set forth in the County 2010 CMP.

(2) Long Beach Municipal Code

Chapter 21.41, *Off-Street Parking and Loading Requirements,* of the Long Beach Municipal Code (LBMC) provides parking requirements for development projects within the City. Since the proposed project involves development of new urban uses within the City, which will require adequate parking, the proposed project is subject to the requirements of Chapter 21.41 of the LBMC.

b. Existing Traffic Conditions

(1) Existing Street System

The principal local network of streets serving the project site is Pacific Coast Highway (PCH), Studebaker Road, 7th Street, and 2nd Street. The following discussion provides a brief description of these key area streets, and the descriptions are based on an inventory of existing roadway conditions.

Pacific Coast Highway is generally a four-lane divided roadway oriented in the north-south direction. PCH borders the project site to the east and will provide access to the site via two right-turn in/right-turn out only unsignalized driveways and one full access signalized driveway. Parking is generally permitted on either side of this roadway. For the roadway segment of PCH fronting the project site, there are three lanes in the northbound direction and two lanes in the southbound direction, with on-street parking permitted only on the west side of the street. The posted speed limit on PCH is generally 45 miles per hour (mph). Traffic signals control the study intersections of PCH at Clark Avenue, Anaheim Street, 7th Street, Bellflower Boulevard, Loynes Drive, 2nd Street, Studebaker Road, Main Street/Bolsa Avenue and Seal Beach Boulevard.

Studebaker Road is generally a four-lane divided roadway oriented in the north-south direction. Parking is not permitted on either side of this roadway within the vicinity of the project. The posted speed limit on Studebaker Road is 45 mph. Traffic signals control the study intersections of Studebaker Road at Anaheim Road, the SR-22 Westbound Ramps, the SR-22 Eastbound Ramps, Loynes Drive, 2nd Street and PCH.

7th Street is generally a six-lane undivided roadway oriented in the east-west direction. Parking is generally not permitted on either side of this roadway within the vicinity of the project. The posted speed limit on 7th Street is generally 40 mph. Traffic signals control the study intersections of 7th Street at Park Avenue, PCH, and Bellflower Boulevard.

2nd Street is generally a four-lane divided roadway oriented in the east-west direction, which borders the project site to the north. However, between Naples Plaza and Studebaker Road, 2nd Street is a six-lane divided roadway. Parking is generally not permitted on either side of this roadway within the vicinity of the project. The posted speed limit on 2nd Street ranges from 25 – 50 mph, while the segment fronting the project site has a posted speed limit of 40 mph. Traffic signals control the study intersections of 2nd Street at Livingston Drive, Bay Shore Avenue, Naples Plaza, Marina Drive, PCH, Shopkeeper Road, Studebaker Road and Seal Beach Boulevard.

Figure 3-1 in the project's TIA (Appendix K of this EIR) presents an inventory of the existing roadway conditions for the arterials and intersections evaluated in this report. The number of travel lanes and intersection controls for the key area intersections are identified.

(2) Study Area

The twenty-five (25) key study intersections selected for evaluation in the report provide both regional and local access to the study area. The study intersections include the following:

1. Bellflower Boulevard at Atherton Street
2. PCH at Clark Avenue
3. PCH at Anaheim Street
4. Studebaker Road at Anaheim Road
5. Park Avenue at 7th Street
6. PCH at 7th Street
7. Bellflower Boulevard at 7th Street
8. Studebaker Road at SR-22 Westbound Ramps
9. Bellflower Boulevard at PCH
10. Studebaker Road at SR-22 Eastbound Ramps
11. PCH at Loynes Drive
12. Studebaker Road at Loynes Drive
13. Livingston Drive at 2nd Street
14. Bay Shore Avenue at 2nd Street
15. Naples Plaza at 2nd Street
16. Marina Drive at 2nd Street
17. PCH at 2nd Street
18. Shopkeeper Road at 2nd Street
19. Studebaker Road at 2nd Street
20. Seal Beach Boulevard at Westminster Avenue
21. Marina Drive at Studebaker Road
22. PCH at Studebaker Road
23. PCH at Marina Drive
24. PCH at Main St/Bolsa Avenue
25. Seal Beach Boulevard at PCH

Figure IV.L-1, *Study Area Intersection Location Map*, illustrates the general location of the project and depicts the study locations and surrounding street system.

(3) Congestion Management Program Facilities

As indicated above, the CMP was created statewide as a result of Proposition 111 and has been implemented locally by Metro. The CMP for the County requires that the traffic impact of individual development projects of potential regional significance be analyzed. A specific system of arterial roadways plus all freeways comprise the CMP system. The following describes the CMP facilities that have been identified in the project area.

(a) CMP Intersections

The following CMP intersection monitoring locations within the project study area have been identified:

CMP Station	Int. No.	Intersection
No. 36	6	PCH at 7th Street
No. 39	17	PCH at Westminster Avenue (2nd Street)

As described in greater detail below, the CMP guidelines require that arterial monitoring intersection locations must be examined if the proposed project will add 50 or more trips during either the A.M. or P.M. weekday peak hours (of adjacent street traffic) at CMP monitoring intersections.

(b) CMP Freeways

The following CMP freeway monitoring location in the project vicinity has been identified:

CMP Station	Intersection

No. 1065 I-405, north of Route 22

The CMP TIA guidelines require that freeway monitoring locations must be examined if the proposed project will add 150 or more trips (in either direction) during either the A.M. or P.M. weekday peak periods.

(4) Existing Public Transit

Metro, Orange County Transportation Authority (OCTA), Long Beach Transit (LBT) and the Passport provide public transit services in the vicinity of the proposed project. Figure 3-2 in the project's TIA (Appendix K of this EIR) graphically illustrates the transit routes within the project study area. A brief description of the transit services is as follows:

Metro Express Line 577X:

- The Metro Express Line 577X runs from downtown to the Long Beach Transit Mall to the El Monte Bus Station.
- The route traverses the study area on 7th Street, operating throughout the day, Monday through Friday.
- During the weekday A.M. and P.M. peak hours, in the northbound/southbound directions, Metro Express Line 577X provides headways of 2 buses in each direction.

OCTA Route 1:

- OCTA Route 1 runs from El Camino Real and Avenida Santa Margarita in San Clemente to 7th Street and Channel Drive in Long Beach.
- The route traverses the study area on 7th Street, 2nd Street, Studebaker Road, and PCH, operating throughout the day, Monday through Sunday.
- During the weekday A.M. peak hour, OCTA Route 1 provides headways of 2 buses in the northbound direction and 3 buses in the southbound direction. During the weekday P.M. peak hour, OCTA Route 1 provides headways of 2 buses in the eastbound and westbound directions.

OCTA Route 42/42A:

- OCTA Route 42/42A runs from The Village at Orange to PCH and Balboa Drive in Seal Beach.
- The route traverses the study area on Seal Beach Boulevard, PCH, and Main Street/Bolsa Avenue, operating throughout the day, Monday through Sunday.
- During the weekday A.M. and P.M. peak hours, in the eastbound/westbound directions, Route 42/42A provides headways of 4 buses in each direction.

PCR

N

No scale

Study Area Intersection Location Map

Second+PCH Development

Source: Linscott Law & Greenspan, 2010.

FIGURE

IV.L-1

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OCTA Route 60:

- OCTA Route 60 runs east-west from the Transit Mall Shelter in Long Beach. From the Transit Mall Shelter, Route 60 travels north along Pacific and east along 7th Street, Westminster Avenue, and 17th Street.
- At 17th Street and Newport, Route 60 proceeds south to its final destination at Larwin Square in Tustin.
- Days of operation are Monday through Sunday, including major holidays. The A.M. peak period headway is approximately 24 minutes, and the P.M. peak period headway ranges between 25 – 42 minutes. The weekend mid-day peak period headway is 30 minutes.

OCTA Route 164:

- OCTA Route 164 runs from Leisure World in Seal Beach to Westminster Mall.
- The route traverses the study area on Seal Beach Boulevard, operating throughout the day, Monday through Friday.
- During the weekday A.M. and P.M. peak hour, in the eastbound/westbound directions, Route 50 provides headways of 1 bus in each direction.

LBT Routes 45 and 46:

- LBT Routes 45 and 46 extend from Anaheim Station to PCH at Anaheim Street.
- Route 46 traverses the study area on Anaheim Street, PCH, and Clark Avenue, operating throughout the day, Monday through Sunday.
- During the weekday A.M. and P.M. peak hours, in the eastbound/westbound directions, Routes 45 and 46 provide headways of 4 buses in each direction.

LBT Route 81:

- LBT Route 81 extends from the Long Beach Transit Mall Station to Studebaker Road at Atherton Street.
- The route traverses the study area on Park Avenue, 7th Street, Studebaker Road, Anaheim Street, and Atherton Street, operating throughout the day, Monday through Friday.
- During the weekday A.M. and P.M. peak hours, in the eastbound/westbound directions, Route 81 provides headways of 2 buses in each direction.

LBT Routes 91, 92, 93 and 94:

- LBT Routes 91, 92, and 93 provide service between the downtown Long Beach Transit Mall Station and Woodruff Avenue at Alondra Boulevard. Route 94 provides service from the Long Beach Boulevard Transit Station to Bellflower Boulevard at Stearns Street.

- Within the study area, Routes 91, 92, 93 and 94 traverse the study area on 7th Street and Bellflower Boulevard. Routes 91 and 94 operate throughout the day, Monday through Sunday, and Routes 92 and 93 operate throughout the day, Monday through Friday.
- During the A.M. peak hour, in the eastbound/westbound directions, Routes 91 and 93 provide headways of 1 bus in each direction. Route 92 provides headways of 2 buses in the eastbound direction and 1 bus in the westbound direction. Route 94 provides headways of 3 buses in the westbound/eastbound directions. During the P.M. peak hour, in the eastbound/westbound directions, Routes 91, 92, and 93 provide headways of 1 bus in each direction. Route 94 provides headways of 3 buses in the eastbound direction and 4 buses in the westbound direction.

LBT Route 96:

- LBT Route 96 extends from the Long Beach Transit Mall Station to Los Altos Market Center.
- The route traverses the study area on 7th Street and Bellflower Boulevard, operating throughout the day, Monday through Friday, eastbound only from 6:06 A.M. to 9:09 P.M. and westbound only from 1:08 P.M. to 5:55 P.M.
- During the weekday A.M. peak hour, in the eastbound direction, Route 96 provides headways of 6 buses. During the weekday P.M. peak hour, in the westbound direction, Route 96 provides headways of 6 buses.

LBT Route 131:

- LBT Route 131 extends from the Wardlow Station to Main Street and Electric Avenue.
- The route traverses the study area on Livingston Drive, 2nd Street, and PCH, operating throughout the day, Monday through Sunday.
- During the weekday A.M. and P.M. peak hours, in the eastbound/westbound directions, Route 131 provides headways of 2 buses in each direction.

LBT Route 171:

- LBT Route 171 provides service between the Villages at Cabrillo and Main Street and Electric Avenue.
- The route traverses the study area on PCH and Bellflower Boulevard, operating throughout the day, Monday through Friday.
- During the weekday A.M. and P.M. peak hours, in the eastbound/westbound directions, Route 171 provides headways of 2 buses in each direction.

LBT Route 173:

- LBT Route 173 provides service between the downtown Long Beach Transit Mall Station and the Norwalk Metro Green Line Metro Station.
- The route traverses the study area on Atherton Street and Studebaker Road, operating throughout the day, Monday through Sunday.

- During the weekday A.M. and P.M. peak hours, in the northbound/southbound directions, Route 173 provides headways of 2 buses in each direction.

Passports Routes A and D:

- Passports Route A provides free ride service between Alamitos Bay Landing and Catalina Landing. Route D provides service between Los Altos Market Center and Catalina Landing.
- Route A traverses the study area on 2nd Street, PCH, and Marina Drive, operating throughout the day, Monday through Friday, in the eastbound direction only. Route D traverses the study area on 2nd Street, PCH, Loynes Drive, and Bellflower Boulevard, operating throughout the day, Monday through Friday, in the eastbound direction only.
- During the A.M. and P.M. peak hours in the eastbound/westbound directions, Routes A and D provide headways of 2 buses in each direction.

(5) Existing Traffic Volumes

Twenty-five (25) key study intersections have been identified as the locations at which to evaluate existing and future traffic operating conditions. These key intersections were selected for evaluation based on discussions with City staff and in consideration of CMP requirements.

Existing weekday and weekend day (Saturday) peak hour traffic volumes for the twenty-five (25) key study intersections evaluated in this report were obtained from manual turning movement counts conducted by Pacific Traffic Data Services in August 2009 and September 2009. In order to provide a conservative analysis and remain consistent with the prior traffic study prepared for the project site (i.e., the City of Long Beach Seaport Marina Project Traffic Impact Report, prepared by Meyer Mohaddes Associates, August 2006), the weekday A.M. and P.M. peak hour traffic counts were conducted during non-summer periods and the weekend day (Saturday) Midday peak hour traffic counts were conducted during summer periods.

Figures 3-3 and 3-4 in the project's TIA (Appendix K of this EIR) illustrate the existing weekday A.M. and P.M. peak hour traffic volumes at the twenty-five (25) key study intersections evaluated in this report, respectively. Figure 3-5 in the project's TIA illustrates the existing weekend day (Saturday) Midday peak hour traffic volumes at the twenty-five (25) key study intersections.

(a) Existing Intersection Conditions

Existing A.M. and P.M. peak hour operating conditions for the twenty-five (25) key study intersections were evaluated using the Intersection Capacity Utilization (ICU) methodology for signalized intersections and the methodology outlined in Chapter 17 of the Highway Capacity Manual 2000 (HCM) for unsignalized intersections.

(i) Existing Level of Service Results

Table IV.L-1, *Existing Peak Hour Levels of Service*, summarizes the existing peak hour service level calculations for the twenty-five (25) key study intersections based on existing traffic volumes and current street geometrics. Review of Table IV.L-1 indicates that seven (7) of the twenty-five (25) key study intersections currently operate at an unacceptable level of service (LOS) during the A.M., P.M. and/or Saturday Midday peak

Table IV.L-1

Existing Peak Hour Levels Of Service[a]

	Key Intersection	Jurisdiction	Time Period	Control Type	ICU/HCM	LOS
1.	Bellflower Boulevard at Atherton Street	Long Beach	A.M. P.M. Sat. Midday	8∅ Traffic Signal	0.803 0.814 0.595	D D A
2.	PCH at Clark Avenue	Long Beach	A.M. P.M. Sat. Midday	5∅ Traffic Signal	0.712 0.728 0.549	C C A
3.	PCH at Anaheim Street	Long Beach	A.M. P.M. Sat. Midday	5∅ Traffic Signal	0.584 0.583 0.628	A A B
4.	Studebaker Road at Anaheim Street	Long Beach	A.M. P.M. Sat. Midday	5∅ Traffic Signal	0.750 0.703 0.448	C C A
5.	Park Avenue at 7th Street	Long Beach	A.M. P.M. Sat. Midday	3∅ Traffic Signal	1.014 0.936 0.857	F E D
6.	PCH at 7th Street	Long Beach	A.M. P.M. Sat. Midday	5∅ Traffic Signal	1.090 1.012 0.877	F F D
7.	Bellflower Boulevard at 7th Street	Long Beach	A.M. P.M. Sat. Midday	6∅ Traffic Signal	1.011 0.947 0.863	F E D
8.	Studebaker Road at SR-22 Westbound Ramps	Long Beach	A.M. P.M. Sat. Midday	3∅ Traffic Signal	0.600 0.831 0.677	B D B
9.	Bellflower Boulevard at PCH	Long Beach	A.M. P.M. Sat. Midday	3∅ Traffic Signal	0.630 0.696 0.627	B B B
10.	Studebaker Road at SR-22 Eastbound Ramps	Long Beach	A.M. P.M. Sat. Midday	3∅ Traffic Signal	0.492 0.674 0.586	A B A
11.	PCH at Loynes Drive	Long Beach	A.M. P.M. Sat. Midday	5∅ Traffic Signal	0.907 0.796 0.737	E C C
12.	Studebaker Road at Loynes Drive	Long Beach	A.M. P.M. Sat. Midday	3∅ Traffic Signal	0.736 0.692 0.615	C B B
13.	Livingston Drive at 2nd Street	Long Beach	A.M. P.M. Sat. Midday	3∅ Traffic Signal	0.674 0.565 0.545	B A A
14.	Bay Shore Avenue at 2nd Street	Long Beach	A.M. P.M. Sat. Midday	3∅ Traffic Signal	0.845 1.048 1.057	D F F

Table IV.L-1 (Continued)

Existing Peak Hour Levels Of Service[a]

Key Intersection		Jurisdiction	Time Period	Control Type	ICU/HCM	LOS
15.	Naples Plaza at 2nd Street	Long Beach	A.M. P.M. Sat. Midday	3∅ Traffic Signal	0.738 0.797 0.705	C C C
16.	Marina Drive at 2nd Street	Long Beach	A.M. P.M. Sat. Midday	6∅ Traffic Signal	0.633 0.688 0.754	B B C
17.	PCH at 2nd Street	Long Beach	A.M. P.M. Sat. Midday	8∅ Traffic Signal	0.943 0.909 0.964	E E E
18.	Shopkeeper Road at 2nd Street	Long Beach	A.M. P.M. Sat. Midday	5∅ Traffic Signal	0.594 0.857 0.845	A D D
19.	Studebaker Road at 2nd Street	Long Beach	A.M. P.M. Sat. Midday	3∅ Traffic Signal	1.047 1.122 1.010	F F F
20.	Seal Beach Boulevard at Westminster Avenue	Seal Beach	A.M. P.M. Sat. Midday	8∅ Traffic Signal	0.720 0.621 0.438	C B A
21.	Marina Drive at Studebaker Road	Long Beach	A.M. P.M. Sat. Midday	All-Way Stop	9.7 s/v 12.9 s/v 11.2 s/v	A B B
22.	PCH at Studebaker Rd	Long Beach	A.M. P.M. Sat. Midday	6∅ Traffic Signal	0.650 0.881 0.719	B D C
23.	PCH at Marina Drive	Seal Beach	A.M. P.M. Sat. Midday	One-Way Stop	15.2 s/v 25.8 s/v 16.1 s/v	C D C
24.	PCH at Main/Bolsa Avenue	Seal Beach	A.M. P.M. Sat. Midday	5∅ Traffic Signal	0.694 0.680 0.536	B B A
25.	Seal Beach Boulevard at PCH	Seal Beach	A.M. P.M. Sat. Midday	8∅ Traffic Signal	0.835 0.713 0.748	D C C

Appendix B of the TIA (Appendix K of this EIR) contains ICU and HCM LOS worksheets for the key study intersections.
Notes:
** Bold ICU/LOS or Delay/LOS values indicate adverse service levels based on City of Long Beach or City of Seal Beach LOS standards.*
** s/v = seconds per vehicle*

Source: Linscott, Law & Greenspan, 2011

hours. The remaining eighteen (18) key study intersections currently operate at acceptable LOS D or better during the A.M., P.M. and Saturday Midday peak hours. The intersections operating at an adverse level of service are:

	A.M. Peak Hour		P.M. Peak Hour		Sat. Midday Peak Hour	
Key Intersection	ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM	LOS
5. Park Avenue at 7th Street	1.014	F	0.936	E	--	--
6. PCH at 7th Street	1.090	F	1.012	F	--	--
7. Bellflower Road at 7th Street	1.011	F	0.947	E	--	--
11. PCH at Loynes Dr	0.907	E	--	--	--	--
14. Bay Shore Avenue at 2nd Street	--	--	1.048	F	1.057	F
17. PCH at 2nd Street	0.943	E	0.909	E	0.964	E
19. Studebaker Road at 2nd Street	1.047	F	1.122	F	1.010	F

Figures 3-6, 3-7 and 3-8 in the TIA (Appendix K of this EIR) graphically represent the existing level of service results for the A.M., P.M. and Saturday Midday peak hours, respectively. Appendix B of the TIA presents the weekday and weekend day (Saturday) ICU/LOS and HCM/LOS calculations for the twenty-five (25) key study intersections.

(6) Future Traffic Conditions

(a) Ambient Traffic Growth

Cumulative traffic growth estimates were calculated using an ambient growth factor. The ambient traffic growth factor is intended to include unknown and future related projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area. The future growth in traffic volumes has been calculated at one percent (1%) per year. When applied to existing Year 2009 traffic volumes, this results in a six-percent (6%) increase of growth in existing volumes to horizon year 2015. It should be noted that the recommended ambient growth factor is consistent with the background traffic growth estimates for the Gateway area published in the most current CMP, which indicates that existing traffic volumes would be expected to increase at an annual rate of approximately one percent (1.0%) per year between 2001 and 2015.

Please note that the recommended ambient growth factor is generally consistent with the background traffic growth estimates contained in the most current *Congestion Management Program for Los Angeles County*. It should be further noted that the one-percent (1.0%) per year ambient growth factor was approved by City of Long Beach staff.

(b) Related Projects Traffic Characteristics

In order to make a realistic estimate of future on-street conditions, the status of other known development projects (related projects) in the area was researched. With this information, the potential impact of the proposed project can be evaluated within the context of the cumulative impact of all ongoing development. As discussed in Section III, *Basis for Cumulative Analysis*, of this EIR, there are five (5) related projects within a four-mile radius of the project site that are located in the City and the City of Seal Beach. These projects have either been built, but not yet fully occupied, or are being processed for approval and have been included as

Table IV.L-2

Location and Description of Related Projects

No.	Location/Address	Description
City of Long Beach[a]		
1.	5638 East 2nd Street	700 SF Tutoring Center
2.	4401PCH	13,000 SF CVS with drive-thru, 7,400 SF retail and 2,911 SF Fast Food with drive-thru
3.	4201 East Willow Street	9,500 SF retail and 8,000 SF automated car wash
4.	1720 North Bellflower Boulevard	8,500 SF YMCA expansion
City of Seal Beach[b]		
5.	1st Street and Marina Drive	55 single family homes and 75 hotel rooms

Notes:

[a] *Source: City of Long Beach Project Status List – December 29, 2009 and re-confirmed in December 2010 by Planning Staff. For related project No. 2 above, credit for existing site uses has been excluded since the existing land use information is not available. Hence, the cumulative trips included in the analysis represents a conservative forecast.*

[b] *Source: City of Seal Beach Planning Department.*

Source: Linscott, Law & Greenspan, 2011

part of the cumulative background setting. It should be noted that the ambient growth, combined with the indicated related projects, represents all known development in the area and also assumes steady growth in the City not associated with any known projects. As such, this analysis represents a conservative estimate of future traffic levels. In addition, traffic mitigation that may be required for the related projects and other development associated with ambient growth is not assumed, which further contributes to a conservative analysis. **Table IV.L-2**, *Location and Description of Related Projects,* provides the location and a brief description for each of the five related projects.

Figure III-1 in Chapter III, *Basis for Cumulative Analysis*, of this EIR, graphically illustrates the location of the related projects. These related projects are expected to generate vehicular traffic, which may affect the operating conditions of the key study intersections.

Table IV.L-3, *Related Projects Traffic Generation Forecast***,** presents the development totals and resultant trip generation for the related projects. As shown in Table IV.L-3, below, the related projects are expected to generate a combined total of 4,923 weekday daily trips, 223 weekday A.M. peak hour trips (112 inbound and 111 outbound), 392 weekday P.M. peak hour trips (203 inbound and 189 outbound), 5,485 weekend day (Saturday) daily trips and 508 weekend day (Saturday) Midday peak hour trips (262 inbound, 246 outbound).

Table IV.L-3

Related Projects Traffic Generation Forecast

Related Projects Description	Daily 2-Way	A.M. Peak Hour			P.M. Peak Hour			Saturday Midday			
		Enter	Exit	Total	Enter	Exit	Total	Daily	Enter	Exit	Total
Day Care Center (700 SF)	55	5	4	9	4	5	9	4	1	0	1
Pharmacy/Drugstore with Drive-Thru (13,000 SF), Shopping Center (7,004 SF), and Fast Food Restaurant with Drive-Thru (2,911 SF)	2,038	58	51	109	69	67	136	2,755	125	122	247
Shopping Center (9,500 SF) and Automated Car Wash (8,000 SF)	1,497	5	3	8	67	68	135	1,481	74	72	146
Recreation Community Center (8,500 SF)	194	8	5	13	5	8	13	77	5	4	9
Single Family Homes (55 DU) and Hotel (75 Rooms)	1,139	36	48	84	58	41	99	1,168	57	48	105
Total Related Projects Trip Generation Potential	4,923	112	111	223	203	189	392	5,485	262	246	508

Source: Trip Generation, 8th Edition, Institute of Transportation Engineers (ITE) [Washington, D.C. (2008)].

3. ENVIRONMENTAL IMPACTS

a. Methodology

The analysis presented in this section evaluates project-related impacts to the local and regional traffic system, impacts related to CMP facilities, impacts related to hazardous design features (as related to site access and circulation) and emergency vehicle access, parking impacts, and impacts associated with conflicts with plans and policies related to alternative transportation. The project's TIA (included as Appendix K of this EIR) serves as the basis for the evaluation of impacts in this section.

The traffic analysis evaluates the existing operating conditions at twenty-five (25) key study intersections within the project vicinity, estimates the trip generation potential of the proposed project, and forecasts future operating conditions without and with the proposed project. Where necessary, intersection improvements and/or mitigation measures are identified to offset the impact of the proposed project.

The TIA satisfies the traffic impact requirements of the City and is consistent with the requirements and procedures outlined in the most current CMP. The scope of work for the TIA, including the study area and related projects, has been developed in coordination with City staff.

The project site was visited and an inventory of adjacent area roadways and intersections was performed. Existing peak hour traffic information has been collected at twenty-five (25) key study locations on a "typical" weekday and weekend day (Saturday) for use in the preparation of intersection LOS calculations. Information concerning cumulative projects (planned and/or approved) in the vicinity of the project site has been researched at the City, City of Seal Beach, and City of Los Alamitos. Based on LLG's research, there are four (4) related projects in the City and one (1) related project in the City of Seal Beach. These five (5) planned and/or approved related projects were considered in the cumulative traffic analysis for the proposed project.

The TIA analyzes existing and future weekday and weekend day (Saturday) peak hour traffic conditions for a near-term (Year 2015) traffic setting upon completion of the proposed project. Weekday and weekend day (Saturday) peak hour traffic forecasts for the Year 2015 horizon year have been projected by increasing existing traffic volumes by an annual growth rate of one percent (1.0%) per year and adding traffic volumes generated by five (5) related projects.

(1) Intersection Capacity Utilization (ICU) Method of Analysis

In conformance with City and CMP requirements, existing weekday and weekend day (Saturday) peak hour operating conditions for the key signalized study intersections were evaluated using the ICU method. The ICU technique is intended for signalized intersection analysis and estimates the volume to capacity (V/C) relationship for an intersection based on the individual V/C ratios for key conflicting traffic movements. The ICU numerical value represents the percent signal (green) time, and thus capacity, required by existing and/or future traffic. It should be noted that the ICU methodology assumes uniform traffic distribution per intersection approach lane and optimal signal timing.

Per CMP requirements, the ICU calculations use a lane capacity of 1,600 vehicles per hour (vph) for left-turn, through, and right-turn lanes, and dual left turn capacity of 2,880 vph. A clearance interval is also added to

each LOS calculation. Per City requirements, clearance intervals are based on the number of phases in the intersection and whether the left turning movements are all fully protected or whether some of them are permitted with other left-turn movements being protected. **Table IV**.L-4*, City of Long Beach Clearance Intervals,* shows the clearance intervals used in the analysis of the key study intersections within the City. For intersections within cities in Orange County, the ICU calculations use a lane capacity of 1,700 vph for left-turn, through, and right-turn lanes, and dual left turn capacity of 3,400 vph. A clearance adjustment factor of 0.05 was added to each LOS calculation.

Table IV.L-4

City of Long Beach Clearance Intervals

Number of Signal Phases	Left-turn Phasing Type	Clearance Interval (Percent)
2	Permitted	10 percent
3	Protected and Permitted	12 percent
3	Fully Protected	15 percent
4	Protected and Permitted	14 percent
4	Fully Protected	18 percent

Source: City of Long Beach Guidelines for Signalized Intersection Analysis, 2004.

The ICU value translates to a LOS estimate, which is a relative measure of the intersection performance. The six qualitative LOS categories have been defined along with the corresponding ICU value range and are shown in **Table IV.L-5**, *Level of Service Criteria for Signalized Intersections*. The ICU value is the sum of the critical volume to capacity ratios at an intersection; it is not intended to be indicative of the LOS of each of the individual turning movements.

(2) Highway Capacity Manual (HCM) Method of Analysis (Unsignalized Intersections)

The 2000 HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. This methodology estimates the average control delay for each of the subject movements and determines the LOS for each movement. For all-way stop controlled intersections, the overall average control delay, measured in seconds per vehicle, and the LOS is then calculated for the entire intersection. For one-way and two-way stop-controlled (minor street) intersections, this methodology estimates the worst side street delay, measured in seconds per vehicle, and determines the LOS for that approach. The HCM control delay value translates to a LOS estimate, which is a relative measure of the intersection performance. The six qualitative LOS categories have been defined along with the corresponding HCM control delay value range, as shown in **Table IV.L-6**, *Level of Service Criteria for Unsignalized Intersections.*

Table IV.L-5

Level of Service Criteria For Signalized Intersections

Level of Service (LOS)	Intersection Capacity Utilization Value (V/C)	Level of Service Description
A	≤ 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. Potentially very long delays with continuously increasing queue lengths.

Source: Linscott, Law & Greenspan, 2011

(3) Level of Service Criteria

According to the City, LOS D is the minimum acceptable condition that should be maintained during the peak commute hours, or the current LOS, if the existing LOS is worse than LOS D (i.e., LOS E or F). For the study intersections in the City of Seal Beach, LOS D is the minimum acceptable condition that should be maintained during the peak commute hours.

(4) Traffic Forecasting Methodology

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

Table IV.L-6

Level of Service Criteria For Unsignalized Intersections

Level of Service (LOS)	Highway Capacity Manual Delay Value (sec/veh)	Level of Service Description
A	≤ 10.0	Little or no delay
B	> 10.0 and ≤ 15.0	Short traffic delays
C	> 15.0 and ≤ 25.0	Average traffic delays
D	> 25.0 and ≤ 35.0	Long traffic delays
E	> 35.0 and ≤ 50.0	Very long traffic delays
F	> 50.0	Severe congestion

Source: Linscott, Law & Greenspan, 2011

The second step of the forecasting process is traffic distribution, which identifies the origins and destinations of inbound and outbound project traffic. These origins and destinations are typically based on demographics and existing/expected future travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and project traffic assignments developed, the impact of the project is isolated by comparing operational (LOS) conditions at selected key intersections, using expected future traffic volumes with and without forecast project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated.

(5) Traffic Impact Analysis Scenarios

The following scenarios are those for which V/C calculations have been performed using the ICU/HCM methodologies:

A. Existing Traffic Conditions;

B. Existing Plus Project Traffic Conditions;

C. Scenario (B) with Improvements/Mitigation, if necessary;

D. Year 2015: Cumulative (existing plus ambient growth plus related projects traffic);

E. Year 2015: Cumulative with Project traffic; and

F. Scenario (E) with Improvements/Mitigation, if necessary.

(6) California Department of Transportation (Caltrans) Methodology

In conformance with the current Caltrans *Guide for the Preparation of Traffic Impact Studies*, existing and projected weekday A.M. peak hour, weekday P.M. peak hour and Saturday Midday peak hour operating conditions at the thirteen (13) State-controlled study intersections (includes intersection with proposed Marina View Lane) within the study area have been evaluated using the HCM operations method of analysis. These State-controlled locations include the following intersections:

2. PCH at Clark Avenue
3. PCH at Anaheim Street
6. PCH at 7th Street
8. Studebaker Road at SR-22 WB Ramps
9. Bellflower Boulevard at PCH
10. Studebaker Road at SR-22 EB Ramps
11. PCH at Loynes Drive
17. PCH at 2nd Street
22. PCH at Studebaker Road
23. PCH at Marina Drive
24. PCH at Main Street/Bolsa Avenue
25. Seal Beach Boulevard at PCH

B. PCH at Project Driveway B (i.e., Marina View Lane)

Caltrans "endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities"; it does not require that LOS "D" (shall) be maintained. However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. For the purposes of this analysis, LOS D is the target level of service standard and will be utilized to assess the project impacts at the State-controlled study intersections.

Highway Capacity Manual (HCM) Method of Analysis (Signalized Intersections)

Based on the HCM operations method of analysis, LOS for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometries, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents, and when there are no other vehicles on the road.

In Chapter 16 of the HCM, only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay.* Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In contrast, in previous versions of the HCM (1994 and earlier), delay included only stopped delay.

Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle. The six qualitative LOS categories that have been defined along with the corresponding HCM control delay value range for signalized intersections are shown in **Table IV.L-7**, *Level of Service Criteria for Signalized Intersections (HCM Methodology)*.

Table IV.L-7

Level of Service Criteria For Signalized Intersections (HCM Methodology)

Level of Service (LOS)	Control Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	≤ 10.0	This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	> 10.0 and ≤ 20.0	This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.
C	> 20.0 and ≤ 35.0	Average traffic delays. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	> 35.0 and ≤ 55.0	Long traffic delays At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55.0 and ≤ 80.0	Very long traffic delays This level is considered by many agencies (i.e. SANBAG) to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.
F	≥ 80.0	Severe congestion This level, considered to be unacceptable to most drivers, often occurs with over saturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

Source: Highway Capacity Manual 2000, Chapter 16 (Signalized Intersections).

CMP Traffic Impact Review

As required by the current CMP, a review was made of designated monitoring locations on the CMP highway system for potential impact analysis. Per CMP TIA criteria, the geographic area examined in the TIA must include the following, at a minimum:

- All CMP arterial monitoring intersections, including freeway on- and off-ramp intersections, where the project will add 50 or more trips during either the A.M. or P.M. weekday peak hours.
- Mainline freeway-monitoring stations where the project will add 150 or more trips, in either direction, during the A.M. or P.M. weekday peak hours.

b. Significance Thresholds

A project may have a significant impact on traffic and circulation if it would exceed the significance thresholds included in Section XVI, Transportation/Traffic, in Appendix G of the CEQA *Guidelines*. As such, the proposed project would result in a significant impact to traffic and circulation if it would:

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

2. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

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

4. Result in inadequate emergency access;

5. Result in inadequate parking capacity;[1]

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

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

All of these significance thresholds were preliminarily evaluated in the proposed project's Initial Study, which is included as Appendix A of this EIR.[2] The Initial Study determined that the proposed project would

[1] *Although the significance threshold regarding parking capacity was removed from the Transportation/Traffic section of Appendix G in the 2010 CEQA Guidelines, this threshold has been provided in this section due to the logical connection between traffic/circulation and parking issues.*

[2] *It should be noted that the project's Initial Study was based on the most recent CEQA Guidelines available at the time, which was the 2009 version, from which threshold No. 5, above, was taken. The thresholds listed above, with the exception of threshold No. 5, are*

have a less-than-significant impact with respect to threshold No. 7, and, therefore, no further study of that threshold was required in the EIR. Below, the remaining thresholds (i.e., Nos. 1 – 6) are used to further analyze the severity of the proposed project's potential impacts on traffic and circulation.

(1) City of Long Beach Traffic Impact Significance Criteria

Impacts to local and regional transportation systems are considered significant if:

- An unacceptable peak hour LOS (i.e. LOS E or F) at any of the key intersections is projected. The City considers LOS D (ICU = 0.801 - 0.900) to be the minimum acceptable LOS for all intersections. For the City, the current LOS, if worse than LOS D (i.e. LOS E or F), should also be maintained; and
- The project increases traffic demand at the study intersection by 2 percent of capacity (ICU increase ≥ 0.020), causing or worsening LOS E or F (ICU > 0.901). At unsignalized intersections, a "significant" adverse traffic impact is defined as a project that: adds 2 percent of more traffic delay (seconds per vehicle) at an intersection operating LOS E or F.

(2) City of Seal Beach Traffic Impact Significance Criteria

Impacts to local and regional transportation systems are considered significant if:

- An unacceptable peak hour Level of Service (LOS) (i.e. LOS E or F) at any of the key intersections is projected. The City of Seal Beach considers LOS D (ICU = 0.801 - 0.900) to be the minimum acceptable LOS for all intersections.
- The project increases traffic demand at the study intersection by one percent (1%) of capacity (ICU increase ≥ 0.010), causing or worsening LOS E or F (ICU > 0.901). At unsignalized intersections, a "significant" adverse traffic impact is defined as a project that: adds 1 percent of more traffic delay (seconds per vehicle) at an intersection operating LOS E or F.

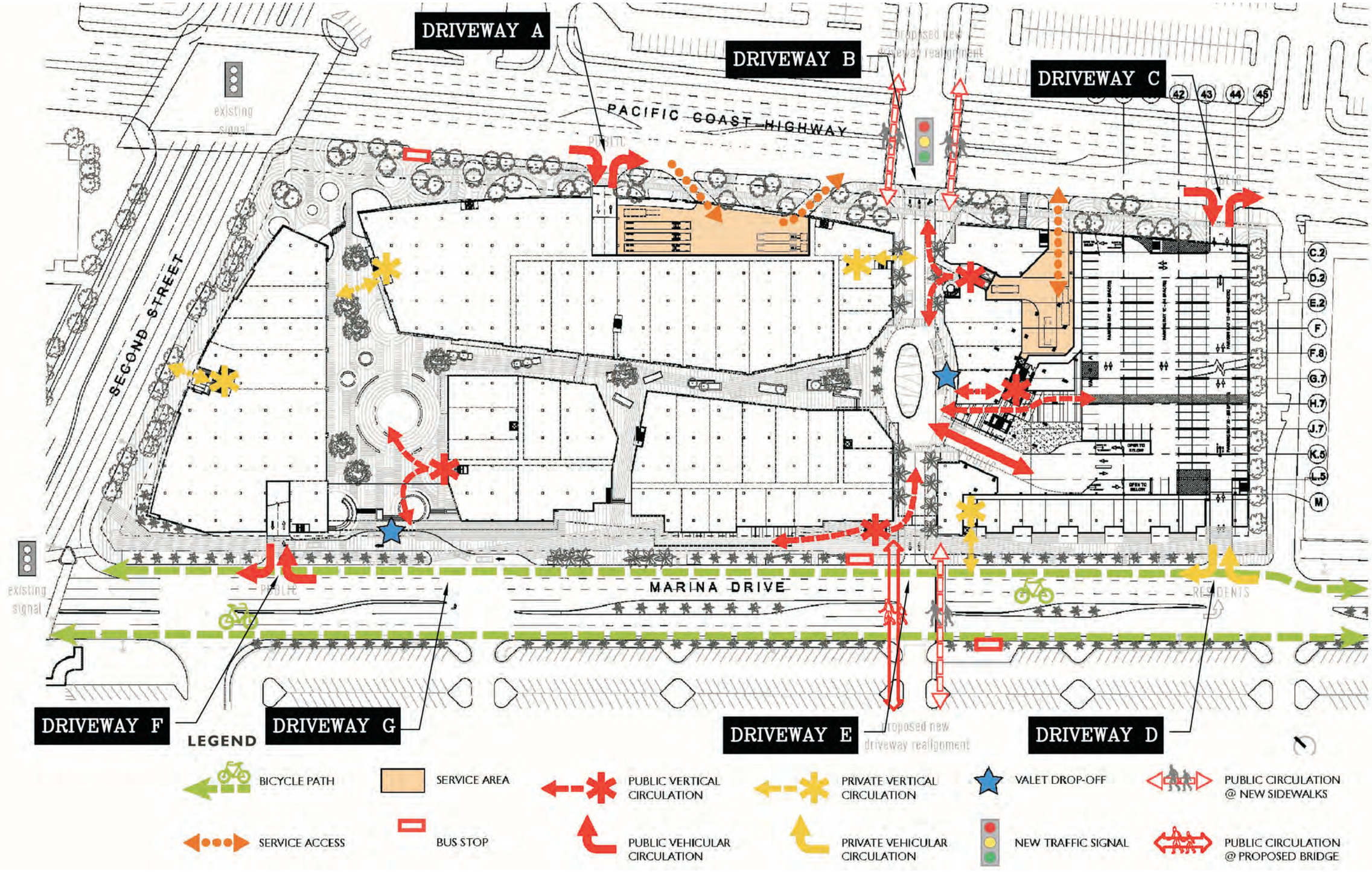
c. Project Design Features

(1) Site Access Improvements

Access to the proposed project will be provided via three driveways located along PCH and four driveways located along Marina Drive. As shown in **Figure IV.L-2**, *Project Site Circulation Plan*, the three driveways located along PCH will all provide public access to the site and will consist of two right-turn in/right-turn out only driveways (referred to as Driveway A and Driveway C) and one full access signalized driveway (referred to as Driveway B). The installation of a traffic signal at Driveway B will require modification of the access and on-site circulation of the Market Place, a one-story retail center with restaurants, a grocery store, retail shops, and a movie theater that is located across PCH from the site to the east.

The four driveways along Marina Drive will consist of one left-turn in/right turn in/right turn out only driveway (referred to as Driveway D), one full access driveway (referred to as Driveway E), one right-turn in/right-turn out only driveway (referred to as Driveway F), and one left-turn in/right-turn in only driveway (referred to as Driveway G); left-turn ingress at Driveway G will require modification of the existing median on Marina Drive. Driveway D will provide access to residents only, while Driveways E, F, and G will provide

from the 2010 version of the CEQA Guidelines, and therefore while the specific threshold language may be somewhat different than the 2009 thresholds, they are functionally equivalent.



0 100 Feet

Project Site Circulation Plan

Second+PCH Development

Source: Studio One Eleven Rios Clementi Hale Studio, January 2011.

FIGURE

IV.L-2

PCR

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public access to the site. Pedestrian connectivity between the project site and the Market Place to the east and the Alamitos Bay Marina to the west will be provided via crosswalks on PCH at Driveway B and Marina Drive at Driveway E. Figure IV.L-2 presents the circulation diagram for the proposed project prepared by the project architect that illustrates vehicular access (public, residents, service, etc.) and pedestrian access to and within the site.

The following specific improvements will be implemented to ensure adequate vehicular access and egress, and pedestrian connectivity to the project site is provided:

- Provide a third southbound through lane on PCH along the project frontage.
- Install a "STOP" sign and stop bar at Project Driveway A/PCH.
- Install a five-phase traffic signal at Project Driveway B/PCH with protected left-turn phasing in the northbound and southbound directions. The installation of a traffic signal and associated signing and striping modifications, inclusive of crosswalks across PCH, is subject to the approval of the City and/or Caltrans.
- Install a "STOP" sign and stop bar at Project Driveway C/PCH.
- Install a "STOP" sign and stop bar at Project Driveway D/Marina Drive.
- Install a two-phase traffic signal at Project Driveway E/PCH. The installation of a traffic signal and associated signing and striping modifications, inclusive of crosswalks across Marina Drive, is subject to the approval of the City.
- Install a "STOP" sign and stop bar at Project Driveway F/Marina Drive.
- Modify existing median on Marina Drive to provide a dedicated southbound left-turn lane at Project Driveway G.

(2) Planned Improvements

Based on research at the City and input from the City Traffic Engineer, the following planned improvements have been identified and are included in the Year 2015 cumulative conditions. These improvements were also included for existing plus project conditions for informational purposes only.

- **No. 17 – PCH at 2nd Street:** Restripe PCH to provide a second southbound left-turn lane and provide a southbound right-turn.
- **No. 19 – Studebaker Road at 2nd Street:** Modify the existing median and restripe the westbound approach to provide a third westbound through lane and maintain the exclusive westbound right-turn lane.

(3) Applicant Traffic System Improvement Commitments

The following area-wide circulation improvements will also be implemented by the proposed project, and have been committed to by the project applicant:

- **No. 11 – PCH at Loynes Drive:** Although not impacted by the proposed project, install a third northbound through lane along PCH. The existing bike lane will also be maintained.

- **No. 21 – Marina Drive at Studebaker Road:** Although not impacted by the proposed project, install a two-phase traffic signal.
- The project proponent will work with the City and Caltrans to upgrade the five existing traffic signals between the Iron Triangle and the SR-22 to adaptive control (i.e., advanced traffic signal control system that maximizes mobility along the corridor).

(4) Travel Demand Management Plan

To assist in off-setting the potential traffic impacts associated with the proposed project, the project applicant has indicated that a Travel Demand Management (TDM) Plan will be implemented to encourage site employees to use alternatives to single-occupancy vehicles to travel to the project site. The TDM Plan will consist of subsidized transit passes for all residents and employees, on-site flex cars, guaranteed ride home, airport shuttle for hotel guests and a bicycle facility (i.e., Coastal Cycling Center) on-site. A mitigation measure has been identified to assure implementation of the TDM Plan. The vehicle trip reductions associated with the TDM Plan have been incorporated into the analysis of project traffic impacts presented below.

(5) Construction Traffic Management Plan

To ensure impacts to the surrounding street system are kept a minimum throughout construction activities, a Construction Traffic Management Plan will be prepared and implemented for the proposed project. The Construction Traffic Management Plan will be developed in coordination with the City and at a minimum, would address the following:

- Traffic control for any street closure, detour, or other disruption to traffic circulation.
- Identify the routes that construction vehicles will utilize for the delivery of construction materials (i.e. lumber, tiles, piping, windows, etc.), to access the site, traffic controls and detours, and proposed construction phasing plan for the project.
- Specify the hours during which transport activities can occur and methods to mitigate construction-related impacts to adjacent streets.
- The haul route for the soil export will be prepared to the satisfaction of the City Engineer and may include circulation modifications to help reduce construction impacts.
- Haul operations associated with the soil export will be prohibited during the AM and PM peak commuter periods (i .e. between 7:00-9:00 AM and 4:00-6:00 PM).
- Require the developer to keep all haul routes clean and free of debris including but not limited to gravel and dirt as a result of its operations. The developer must clean adjacent streets, as directed by the City Engineer (or representative of the City Engineer), of any material which may have been spilled, tracked, or blown onto adjacent streets or areas.
- Hauling or transport of oversize loads will be allowed between the hours of 9:00 A.M. and 3:00 P.M. only, Monday through Friday, unless approved otherwise by the City Engineer. No hauling or transport will be allowed during nighttime hours, weekends, or federal holidays.
- Use of local streets will be prohibited.
- Haul trucks entering or exiting public streets will at all times yield to public traffic.

- If hauling operations cause any damage to existing pavement, street, curb, and/or gutter along the haul route, the applicant will be fully responsible for repairs. The repairs will be completed to the satisfaction of the City Engineer.
- All constructed-related parking and staging of vehicles will be kept out of the adjacent public roadways and will occur on-site.
- This Plan will meet standards established in the current California Manual on Uniform Traffic Control Device (MUTCD) as well as City of Long Beach requirements.

d. Analysis of Project Impacts

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

(a) Project Traffic Generation

(i) Project Trip Generation

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation equations and/or rates used in the traffic forecasting procedure are found in the 8th Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE) [Washington D.C., 2008]. The approach for estimating the trip generation potential of the proposed project is consistent with the information published in *Chapter 3 – Guidelines for Estimating Trip Generation* of the *Trip Generation Handbook*, 2nd Edition, published by ITE, June 2004 and the City's requirements.

Table IV.L-8, *Project Traffic Generation Equations and Rates*, below, summarizes the trip generation equations and rates used in forecasting the vehicular trips generated by the proposed project and the existing land use (i.e. Seaport Marina Hotel). For this analysis, the trip generation potential of the existing Seaport Marina Hotel was estimated using ITE Land Use 310: Hotel trip rates; however only the rooms that are currently in operation were used to establish the site's trip budget (i.e., 156 rooms). The trip generation potential of the proposed project was estimated using trip rates/equations from ITE Land Use 232: High-Rise Residential Condominium/Townhouse, ITE Land Use 233: Luxury Residential Condominium/Townhouse, ITE Land Use 310: Hotel, ITE Land Use 441: Live Theater, ITE Land Use 495: Recreation Community Center, ITE Land Use 820: Shopping Center and ITE Land Use 931: Quality Restaurant.

Table IV.L-9, *Project Traffic Generation Forecast*, summarizes the project's trip generation forecast for a typical weekday and weekend day (Saturday). Review of the top portion of Table IV.L-9 shows that the existing Seaport Marina Hotel currently generates 1,275 weekday daily trips, 87 weekday A.M. peak hour trips, 92 weekday P.M. peak hour trips, 1,278 weekend day (Saturday) daily trips and 112 weekend day (Saturday) Midday peak hour trips. Please note that the trip generation for the existing Seaport Marina Hotel is based upon the number of rooms currently in operation. Based on information provided by the hotel

Table IV.L-8

Project Traffic Generation Equations and Rates

ITE Land Use Code	Daily 2-Way	A.M. Peak Hour			P.M. Peak Hour			Saturday Midday			
		Enter	Exit	Total	Enter	Exit	Total	Daily	Enter	Exit	Total
232:High-Rise Residential Condominium/Townhouse (TE/DU)	4.18	0.06	0.28	0.34	0.24	0.14	0.38	4.31	0.15	0.20	0.35
233:Luxury Residential Condominium/ Townhouse (TE/DU)	5.58[a]	0.13	0.43	0.56	0.35	0.20	0.55	5.58[h]	0.13[b]	0.43[i]	0.56[i]
310:Hotel (TE/ Room)	8.17	0.34	0.22	0.56	0.31	0.28	0.59	8.19	0.40	0.32	0.72
441:Live Theater (TE/Seat) [c]	1.76	0.01	0.00	0.01	0.01	0.01	0.02	2.24	0.18	0.18	0.36
495:Recreation Community Center (TE/1000 SF)	22.88	0.99	0.63	1.62	0.54	0.91	1.45	9.10	0.58	0.49	1.07
820:Shopping Center (TE/1000 SF)	54.10[d]	0.72	0.46	1.18[e]	2.52	2.62	5.14[f]	72.66[g]	3.55	3.28	6.83[h]
931:Quality Restaurant (TE/1000 SF)i	89.95	0.41	0.40	0.81	5.02	2.47	7.49	94.36	6.38	4.44	10.82

TE/SF = Trip end per square foot of development.

[a] *Weekday and Saturday daily volumes were calculated by assuming the maximum peak hour (A.M. peak hour) total to be 10 percent of daily rates, due to unavailable data in ITE Trip Generation.*

[b] *Saturday Midday peak hour rates were assumed to be equal to the maximum peak hour (A.M. peak hour) rates, due to unavailable data in ITE Trip Generation.*

[c] *Saturday Midday peak hour splits were assumed to be 50 percent entering and 50 percent exiting due to unavailable data in ITE Trip Generation.*

[d] *Due to unavailable data in ITE Trip Generation, ITE Land Use Code 443: Movie Theater without Matinee trip generation rates were utilized to forecast the daily, A.M. peak hour and Saturday Midday peak hour trips. The Saturday Midday peak hour splits were assumed to be 50 percent entering and 50 percent exiting due to unavailable data in ITE Trip Generation.*

[e] *The equivalent rate to the following equation: Ln(TE) = 0.65Ln(SF) + 5.83 (50 percent In, 50 percent Out).*

[f] *The equivalent rate to the following equation: Ln(TE) = 0.59Ln(SF) + 2.32 (61 percent In, 39 percent Out).*

[g] *The equivalent rate to the following equation: Ln(TE) = 0.67Ln(SF) + 3.37 (49 percent In, 51 percent Out).*

[h] *The equivalent rate to the following equation: Ln(TE) = 0.63Ln(SF) + 6.23 (50 percent In, 50 percent Out).*

[i] *The equivalent rate to the following equation: Ln(TE) = 0.65Ln(SF) + 3.76 (52 percent In, 48 percent Out).*

[j] *A.M. peak hour splits were assumed to be 50 percent entering and 50 percent exiting due to unavailable data in ITE Trip Generation.*

Source: Trip Generation, 8th Edition, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2008)

Table IV.L-9

Project Traffic Generation Forecast

Project Description	Daily 2-Way	A.M. Peak Hour Enter	A.M. Peak Hour Exit	A.M. Peak Hour Total	P.M. Peak Hour Enter	P.M. Peak Hour Exit	P.M. Peak Hour Total	Saturday Midday Daily	Saturday Midday Enter	Saturday Midday Exit	Saturday Midday Total
Existing Use:											
Hotel (156 Rooms)	1,275	53	34	87	48	44	92	1,278	62	50	112
Proposed Project Uses:											
Residential (325 DU)											
Luxury Residential (95 DU)	530	12	41	53	33	19	52	530	12	41	53
High-Rise Residential (230 DU)	961	14	64	78	55	32	87	991	35	46	81
Subtotal:	1,491	26	105	131	88	51	139	1,521	47	87	134
Hotel (100 Rooms)	817	34	22	56	31	28	59	819	40	32	72
Science Center (4,175 SF) [a]	96	4	3	7	2	4	6	38	2	2	4
Theater (99 Seats)	174	1	0	1	1	1	2	222	18	18	36
Retail (191,475 SF)	10,359	138	88	226	482	501	983	13,912	680	627	1,307
Quality Restaurant (21,092 SF)	1,897	9	8	17	106	52	158	1,990	135	94	229
Total Project Trip Generation	***14,834***	***212***	***226***	***438***	***710***	***637***	***1,347***	***18,502***	***922***	***860***	***1,782***
Less Internal Capture[b]	***-613***	***-7***	***-5***	***-12***	***-29***	***-28***	***-57***	***-795***	***-41***	***-36***	***-77***
Less Pass-by[c]	***-1,164***	***0***	***0***	***0***	***-173***	***-163***	***-336***	***-1,511***	***-263***	***-233***	***-496***
Net Project Trips	***13,057***	***205***	***221***	***426***	***508***	***446***	***954***	***16,196***	***618***	***591***	***1,209***
Less Existing Trip Generation	***-1,275***	***-53***	***-34***	***-87***	***-48***	***-44***	***-92***	***-1,278***	***-62***	***-50***	***-112***
Total Net Project Trip Generation	***11,782***	***152***	***187***	***339***	***460***	***4020***	***862***	***14,918***	***556***	***541***	***1,097***
Travel Demand Management (TDM) Plan[d]	-492	--	--	--	-24	-19	-43	-569	-28	-27	-55
Total Net Project Trip Generation With TDM Plan	11,290	152	187	339	436	383	819	14,349	528	514	1,042

[a] *ITE Land Use 495: Recreational Community Center was utilized.*

[b] *Consistent with the Trip Generation Handbook, 2nd Edition, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2004)], project trip generation was adjusted to account for internal capture between retail / restaurant uses and residential/hotel uses. For this analysis, a 5-percent internal capture reduction factor was applied.*

[c] *Consistent with the Trip Generation Handbook, 2nd Edition, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2004)]. Pass-by reductions for the retail and quality restaurant project uses are as follows: 10-percent daily weekday, 31-percent P.M. weekday, 10-percent daily weekend, and 34-percent Saturday midday weekend.*

[d] *As a project mitigation measure, a Travel Demand Management (TDM) Plan will be implemented to encourage site employees to use alternatives to single-occupancy vehicles to travel to the site.*

Source: Trip Generation, 8th Edition, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2008)].

operator, the existing hotel currently has 156 rooms in operation out of a possible 240 rooms. Therefore, the trip generation for the existing land use is based upon 156 rooms.[3]

Review of the middle portion of Table IV.L-9 shows that the proposed project, prior to taking credit for the existing land use is forecast to generate 13,057 weekday daily trips, 426 weekday A.M. peak hour trips (205 inbound, 221 outbound), 954 weekday P.M. peak hour trips (508 inbound, 446 outbound), 16,196 weekend day (Saturday) daily trips and 1,209 weekend day (Saturday) Midday peak hour trips (618 inbound, 591 outbound).

It should be noted that the aforementioned overall project trip generation includes adjustments for internal capture and for pass-by as recommended by ITE. The internal capture and pass-by reduction factors used are summarized in the footnotes of Table IV.L-9, and are based on information published in the *Trip Generation Handbook*, 2nd Edition, published by ITE, June 2004 and input from the City Traffic Engineer. Appendix C of the TIA (Appendix K of this EIR) contains the internal capture worksheets.

Review of the lower portion of Table IV.L-9 (i.e., the row showing the "Total Net Project Trip Generation") shows that with application of existing trip credits, the proposed project is forecast to generate a net of 11,782 weekday daily trips, 339 weekday A.M. peak hour trips (152 inbound, 187 outbound), 862 weekday P.M. peak hour trips (460 inbound, 402 outbound), 14,918 weekend day (Saturday) daily trips and 1,097 weekend day (Saturday) Midday peak hour trips (556 inbound, 541 outbound).

(ii) Project Traffic Distribution and Assignment

The general, directional traffic distribution pattern for the different components of the proposed project, as well as detailed intersection distribution patterns, is graphically presented in Figure 5-1, 5-2 and 5-3 in the project's TIA (Appendix K of this EIR), which depict the residential, commercial and hotel components of the proposed project, respectively. Project traffic volumes both entering and exiting the project site have been distributed and assigned to the adjacent street system based on the following considerations:

- The project site's proximity to major traffic carriers (i.e., 2nd Street, PCH, etc);
- Expected localized traffic flow patterns based on adjacent street channelization and presence of traffic signals;
- Ingress/egress availability at the project site and the location of proposed parking areas; and
- Input from City staff.

The anticipated A.M., P.M. and Saturday Midday peak hour project traffic volumes associated with the proposed project are presented in Figures 5-4, 5-5 and 5-6, respectively, in the project's TIA. The traffic

[3] *The traffic baseline for the existing on-site uses utilized in the Traffic Impact Analysis in the April 2010 Draft EIR was based on average occupancy of the whole 240-room hotel, which according to hotel management was 40-percent on average (or 96 rooms). However, following the release of the 2010 Draft EIR, and subsequent decision by the City to recirculate the EIR and perform an updated Traffic Impact Analysis, the City traffic engineer provided direction to the project traffic consultant to utilize the maximum occupancy of the existing hotel for traffic related assumptions given the high variability of hotel occupancy. For instance, hotel occupancy has increased by approximately 20 percent since the earlier Traffic Impact Analysis was prepared. According to hotel management, only 156 of the hotel's 240 total rooms are in operation, and therefore the maximum occupancy of the existing hotel is assumed to be 156 rooms.*

volume assignments presented in Figures 5-4, 5-5 and 5-6 reflect the traffic distribution characteristics shown in Figures 5-1, 5-2 and 5-3 and the traffic generation forecast presented in Table IV.L-9.

(iii) Existing Plus Project Traffic

The existing plus project traffic conditions have been generated based upon existing conditions and the estimated project traffic. These forecast traffic conditions focus on evaluating the potential impacts of a project upon the circulation system as it functions under existing conditions. This traffic volume scenario and the related intersection capacity analyses presented below will identify the roadway improvements necessary to mitigate the direct traffic impacts of the proposed project, if any.

Figures 5-7, 5-8 and 5-9 in the project's TIA (Appendix K of this EIR) present projected A.M., P.M. and Saturday Midday peak hour traffic volumes at the twenty-five (25) key study intersections with the addition of the trips generated by the proposed project to existing traffic volumes, respectively.

(b) Peak Hour Intersection Capacity Analysis

(i) Existing Plus Project Traffic Conditions

Table IV.L-10, *Existing Plus Project Peak Hour Intersection Capacity Analysis*, summarizes the peak hour LOS results at the twenty-five (25) key study intersections for existing plus project traffic conditions. The first column (1) of ICU/LOS values and HCM/LOS values in Table IV.L-10 presents a summary of existing A.M., P.M. and Saturday Midday peak hour traffic conditions (which were also presented above in Table IV.L-1). The second column (2) lists existing plus project traffic conditions, shows the increase in ICU value or delay value due to the added peak hour project-related trips and indicates whether the traffic associated with the project will have a significant impact based on the significant impact criteria defined in this report. Columns three (3), four (4) and five (5) list existing plus project traffic conditions with TDM Plan credits, with physical mitigation measures and with implementation of the project-sponsored shuttle service, respectively. The TDM Plan, physical mitigation measures and project shuttle service are improvement measures recommended to offset project impacts.

Review of Column 2 of Table IV.L-10 indicates that traffic associated with the proposed project will significantly impact four of the twenty-five (25) key study intersections, when compared to the LOS standards and significant impact criteria specified in this report. The four intersections impacted by the proposed project under existing plus project traffic conditions and the time period in which the impact occurs include the following:

Key Intersection	Impacted Time Period
6. PCH at 7th Street	P.M.
14. Bay Shore Avenue at 2nd Street	P.M. / Saturday
17. PCH at 2nd Street	A.M. / P.M. / Sat Midday
19. Studebaker Road at 2nd Street	A.M. / P.M. / Sat Midday

Please note that although the intersections of Park Avenue/7th Street, Bellflower Boulevard/7th Street and PCH/Loynes Drive are forecast to operate at unacceptable LOS E or LOS F during the A.M., P.M. and/or Saturday Midday peak hours with the addition of project traffic, the proposed project is expected to add less

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Table IV.L-10

Existing Plus Project Peak Hour Intersection Capacity Analysis [a]

Key Intersections	Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions [b]				(3) Existing Plus Project With TDM Plan Credit Traffic Conditions				(4) Existing Plus Project With Mitigation Traffic Conditions				(5) Existing Plus Project With Shuttle Service Traffic Conditions[c]			
		ICU/ HCM	LOS	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact
1. Bellflower Boulevard at Atherton Street	AM	0.803	D	0.806	D	0.003	No	0.806	D	0.003	No	--	--	--	--	--	--	--	--
	PM	0.814	D	0.823	D	0.009	No	0.823	D	0.009	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.595	A	0.606	B	0.011	No	0.605	B	0.010	No	--	--	--	--	--	--	--	--
2. PCH at Clark Avenue	AM	0.712	C	0.716	C	0.004	No	0.716	C	0.004	No	--	--	--	--	--	--	--	--
	PM	0.728	C	0.741	C	0.013	No	0.740	C	0.012	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.549	A	0.564	A	0.015	No	0.563	A	0.014	No	--	--	--	--	--	--	--	--
3. PCH at Anaheim Street	AM	0.584	A	0.586	A	0.002	No	0.586	A	0.002	No	--	--	--	--	--	--	--	--
	PM	0.583	A	0.588	A	0.005	No	0.588	A	0.005	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.628	B	0.645	B	0.017	No	0.644	B	0.016	No	--	--	--	--	--	--	--	--
4. Studebaker Road at Anaheim Street	AM	0.750	C	0.756	C	0.006	No	0.756	C	0.006	No	--	--	--	--	--	--	--	--
	PM	0.703	C	0.722	C	0.019	No	0.721	C	0.018	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.448	A	0.470	A	0.022	No	0.468	A	0.020	No	--	--	--	--	--	--	--	--
5. Park Avenue at 7th Street	AM	**1.014**	**F**	**1.018**	**F**	0.004	No	**1.018**	**F**	0.004	No	--	--	--	--	--	--	--	--
	PM	**0.936**	**E**	**0.947**	**E**	0.011	No	**0.946**	**E**	0.010	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.857	D	0.871	D	0.014	No	0.871	D	0.014	No	--	--	--	--	--	--	--	--
6. PCH at 7th Street	AM	**1.090**	**F**	**1.092**	**F**	0.002	No	**1.092**	**F**	0.002	No	**1.092**	**F[d]**	0.002	No	--	--	--	--
	PM	**1.012**	**F**	**1.034**	**F**	**0.022**	**Yes**	**1.033**	**F**	**0.021**	**Yes**	**1.019**	**F**	0.007	No	--	--	--	--
	Sat. Midday	0.877	D	0.887	D	0.010	No	0.884	D	0.007	No	0.886	D	0.009	No	--	--	--	--
7. Bellflower Boulevard at 7th Street	AM	**1.011**	**F**	**1.013**	**F**	0.002	No	**1.013**	**F**	0.002	No	--	--	--	--	--	--	--	--
	PM	**0.947**	**E**	**0.960**	**E**	0.013	No	**0.959**	**E**	0.012	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.863	D	0.886	D	0.023	No	0.885	D	0.022	No	--	--	--	--	--	--	--	--
8. Studebaker Road at SR-22 Westbound Ramps	AM	0.600	B	0.618	B	0.018	No	0.618	B	0.018	No	--	--	--	--	--	--	--	--
	PM	0.831	D	0.880	D	0.049	No	0.877	D	0.046	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.677	B	0.730	C	0.053	No	0.727	C	0.050	No	--	--	--	--	--	--	--	--
9. Bellflower Boulevard at PCH	AM	0.630	B	0.636	B	0.006	No	0.636	B	0.006	No	--	--	--	--	--	--	--	--
	PM	0.696	B	0.726	C	0.030	No	0.724	C	0.028	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.627	B	0.676	B	0.049	No	0.674	B	0.047	No	--	--	--	--	--	--	--	--
10. Studebaker Road at SR-22 Eastbound Ramps	AM	0.492	A	0.501	A	0.009	No	0.501	A	0.009	No	--	--	--	--	--	--	--	--
	PM	0.674	B	0.719	C	0.045	No	0.716	C	0.042	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.586	A	0.636	B	0.050	No	0.633	B	0.047	No	--	--	--	--	--	--	--	--
11. PCH at Loynes Drive	AM	**0.907**	**E**	**0.922**	**E**	0.015	No	**0.922**	**E**	0.015	No	0.729	C[e]	-0.178	No	--	--	--	--
	PM	0.796	C	0.832	D	0.036	No	0.831	D	0.035	No	0.807	D	0.011	No	--	--	--	--
	Sat. Midday	0.737	C	0.783	C	0.046	No	0.781	C	0.044	No	0.692	B	-0.045	No	--	--	--	--
12. Studebaker Road at Loynes Drive	AM	0.736	C	0.760	C	0.024	No	0.760	C	0.024	No	--	--	--	--	--	--	--	--
	PM	0.692	B	0.743	C	0.051	No	0.740	C	0.048	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.615	B	0.667	B	0.052	No	0.664	B	0.049	No	--	--	--	--	--	--	--	--

Table IV.L-10 (Continued)

Existing Plus Project Peak Hour Intersection Capacity Analysis

Key Intersections	Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions [b]				(3) Existing Plus Project With TDM Plan Credit Traffic Conditions				(4) Existing Plus Project With Mitigation Traffic Conditions				(5) Existing Plus Project With Shuttle Service Traffic Conditions[c]			
		ICU/ HCM	LOS	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact
13. Livingston Drive at 2nd Street	AM	0.674	B	0.683	B	0.009	No	0.683	B	0.009	No	--	--	--	--	--	--	--	--
	PM	0.565	A	0.590	A	0.025	No	0.589	A	0.024	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.545	A	0.578	A	0.033	No	0.576	A	0.031	No	--	--	--	--	--	--	--	--
14. Bay Shore Avenue at 2nd Street	AM	0.845	D	0.853	D	0.008	No	0.853	D	0.008	No	--	--	--	--	0.843	D	-0.002	No
	PM	**1.048**	**F**	**1.072**	**F**	**0.024**	**Yes**	**1.071**	**F**	**0.023**	**Yes**	--	--	--	--	**1.060**	**F**	0.012	No
	Sat. Midday	**1.057**	**F**	**1.087**	**F**	**0.030**	**Yes**	**1.086**	**F**	**0.029**	**Yes**	--	--	--	--	**1.076**	**F**	0.019	No
15. Naples Plaza at 2nd Street	AM	0.738	C	0.747	C	0.009	No	0.747	C	0.009	No	--	--	--	--	0.737	C	-0.001	No
	PM	0.797	C	0.822	D	0.025	No	0.821	D	0.024	No	--	--	--	--	0.811	D	0.014	No
	Sat. Midday	0.705	C	0.738	C	0.033	No	0.737	C	0.032	No	--	--	--	--	0.727	C	0.022	No
16. Marina Drive at 2nd Street	AM	0.633	B	0.648	B	0.015	No	0.648	B	0.015	No	--	--	--	--	0.630	B	-0.003	No
	PM	0.688	B	0.734	C	0.046	No	0.730	C	0.042	No	--	--	--	--	0.718	C	0.030	No
	Sat. Midday	0.754	C	0.797	C	0.043	No	0.796	C	0.042	No	--	--	--	--	0.785	C	0.031	No
17. PCH at 2nd Street	AM	**0.943**	**E**	**0.990**	**E**	**0.047**	**Yes**	**0.990**	**E**	**0.047**	**Yes**	**0.923**	**E[f]**	-0.020	**No**	**0.923**	**E**	-0.020	No
	PM	**0.909**	**E**	**1.041**	**F**	**0.132**	**Yes**	**1.036**	**F**	**0.127**	**Yes**	**1.030**	**F**	**0.121**	**Yes**	**1.030**	**F**	**0.121**	**Yes**
	Sat. Midday	**0.964**	**E**	**1.112**	**F**	**0.148**	**Yes**	**1.105**	**F**	**0.141**	**Yes**	**1.105**	**F**	**0.141**	**Yes**	**1.105**	**F**	**0.141**	**Yes**
17A. PCH at 2nd Street[g]	AM	0.897	D	**0.944**	**E**	**0.047**	**Yes**	**0.944**	**E**	**0.047**	**Yes**	0.877	D	-0.020	No	0.877	D	-0.020	No
	PM	0.815	D	**0.959**	**E**	**0.144**	**Yes**	**0.953**	**E**	**0.138**	**Yes**	**0.948**	**E**	**0.133**	**Yes**	**0.948**	**E**	**0.133**	**Yes**
	Sat. Midday	**0.970**	**E**	**1.089**	**F**	**0.119**	**Yes**	**1.082**	**F**	**0.112**	**Yes**	**1.082**	**F**	**0.112**	**Yes**	**1.082**	**F**	**0.112**	**Yes**
18. Shopkeeper Road at 2nd Street	AM	0.594	A	0.615	B	0.021	No	0.615	B	0.021	No	--	--	--	--	--	--	--	--
	PM	0.857	D	0.895	D	0.038	No	0.893	D	0.036	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.845	D	0.897	D	0.052	No	0.894	D	0.049	No	--	--	--	--	--	--	--	--
19. Studebaker Road at 2nd Street	AM	**1.047**	**F**	**1.094**	**F**	**0.047**	**Yes**	**1.094**	**F**	**0.047**	**Yes**	--	--	--	--	--	--	--	--
	PM	**1.122**	**F**	**1.229**	**F**	**0.107**	**Yes**	**1.224**	**F**	**0.102**	**Yes**	--	--	--	--	--	--	--	--
	Sat. Midday	**1.010**	**F**	**1.143**	**F**	**0.133**	**Yes**	**1.136**	**F**	**0.126**	**Yes**	--	--	--	--	--	--	--	--
19A. Studebaker Road at 2nd Street[h]	AM	**0.963**	**E**	**1.007**	**F**	**0.044**	**Yes**	**1.007**	**F**	**0.044**	**Yes**	--	--	--	--	--	--	--	--
	PM	**1.079**	**F**	**1.164**	**F**	**0.085**	**Yes**	**1.159**	**F**	**0.080**	**Yes**	--	--	--	--	--	--	--	--
	Sat. Midday	**0.957**	**E**	**1.081**	**F**	**0.124**	**Yes**	**1.074**	**F**	**0.117**	**Yes**	--	--	--	--	--	--	--	--
20. Seal Beach Boulevard at Westminster Avenue	AM	0.720	C	0.727	C	0.007	No	0.727	C	0.007	No	--	--	--	--	--	--	--	--
	PM	0.621	B	0.643	B	0.022	No	0.642	B	0.021	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.438	A	0.464	A	0.026	No	0.463	A	0.025	No	--	--	--	--	--	--	--	--
21. Marina Drive at Studebaker Road	AM	9.7 s/v	A	9.7 s/v	A	0.0 s/v	No	9.7 s/v	A	0.0 s/v	No	0.366	A[i]	--	No	0.366	A	--	No
	PM	12.9 s/v	B	13.0 s/v	B	0.1 s/v	No	13.0 s/v	B	0.1 s/v	No	0.530	A	--	No	0.530	A	--	No
	Sat. Midday	11.2 s/v	B	11.2 s/v	B	0.0 s/v	No	11.2 s/v	B	0.0 s/v	No	0.401	A	--	No	0.401	A	--	No
22. PCH at Studebaker Rd	AM	0.650	B	0.652	B	0.002	No	0.652	B	0.002	No	--	--	--	--	0.652	B	0.002	No
	PM	0.881	D	0.893	D	0.012	No	0.892	D	0.011	No	--	--	--	--	0.892	D	0.011	No
	Sat. Midday	0.719	C	0.736	C	0.017	No	0.736	C	0.017	No	--	--	--	--	0.736	C	0.017	No

Table IV.L-10 (Continued)

Existing Plus Project Peak Hour Intersection Capacity Analysis

Key Intersections		Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions [b]				(3) Existing Plus Project With TDM Plan Credit Traffic Conditions				(4) Existing Plus Project With Mitigation Traffic Conditions				(5) Existing Plus Project With Shuttle Service Traffic Conditions[c]			
			ICU/ HCM	LOS	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact
23.	PCH at Marina Drive	AM	15.2 s/v	C	15.3 s/v	C	0.1 s/v	No	15.3 s/v	C	0.1 s/v	No	--	--	--	--	--	--	--	--
		PM	25.8 s/v	D	26.8 s/v	D	1.0 s/v	No	26.7 s/v	D	0.9 s/v	No	--	--	--	--	--	--	--	--
		Sat. Midday	16.1 s/v	C	16.8 s/v	C	0.7 s/v	No	16.7 s/v	C	0.6 s/v	No	--	--	--	--	--	--	--	--
24.	PCH at Main/Bolsa Avenue	AM	0.694	B	0.699	B	0.005	No	0.699	B	0.005	No	--	--	--	--	--	--	--	--
		PM	0.680	B	0.692	B	0.012	No	0.691	B	0.011	No	--	--	--	--	--	--	--	--
		Sat. Midday	0.536	A	0.551	A	0.015	No	0.550	A	0.014	No	--	--	--	--	--	--	--	--
25.	Seal Beach Boulevard at PCH	AM	0.835	D	0.840	D	0.005	No	0.840	D	0.005	No	--	--	--	--	--	--	--	--
		PM	0.713	C	0.724	C	0.011	No	0.724	C	0.011	No	--	--	--	--	--	--	--	--
		Sat. Midday	0.748	C	0.764	C	0.016	No	0.763	C	0.015	No	--	--	--	--	--	--	--	--

Bold *ICU/LOS or Delay/LOS values indicate adverse service levels based on City of Long Beach or City of Seal Beach LOS standards*

[a] *Significant project impact is defined as 0.020 or greater increase in ICU value of a signalized intersection or a 2% or more increase in delay at an unsignalized location where the final LOS is E or F.*
[b] *Includes the removal of the existing Seaport Marina Hotel (156 Rooms) and construction of the proposed Project.*
[c] *The shuttle service will be funded and implemented by the proposed Project and will run along 2nd Street between Belmont Shores and the project site.*
[d] *Mitigation at this key study intersection includes the addition of a 2nd northbound left-turn lane on PCH.*
[e] *Please note that this key study intersection will not be impacted by the proposed Project. Improvements identified at this location are area circulation improvements constructed by the proposed project and include the addition of a 3rd northbound through lane.*
[f] *Mitigation at this key study intersection includes the addition of an exclusive northbound right-turn lane. Restripe 2nd Street to convert the eastbound shared through/right-turn lane into an exclusive 3rd eastbound through lane. Modify the existing traffic signal to provide an eastbound right-turn overlap phase. Modify the median on 2nd Street and extend the left-turn storage for the dual westbound left-turn lanes.*
[g] *The level of service calculations for this key study intersection include the following City of Long Beach planned improvements:*
2nd southbound left-turn lane and defacto southbound right-turn lane
[h] *The level of service calculations for this key study intersection include the following City of Long Beach planned improvements:*
3rd westbound through lane
[i] *Please note that this key study intersection will not be impacted by the proposed Project. Improvements identified at this location are area circulation improvements constructed by the proposed project and include the installation of a two-phase traffic signal.*

Source: Linscott, Law & Greenspan, Engineers, 2011

Table IV.L-10 (Continued)

Existing Plus Project Peak Hour Intersection Capacity Analysis

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than 0.020 to the ICU value. The remaining eighteen (18) key study intersections are forecast to continue to operate at an acceptable LOS with the addition of project generated traffic to existing traffic.

As shown in Columns 3, 4, and 5 of Table IV.L-10, implementation of the project's TDM Plan, recommended mitigation measures, and the project-sponsored shuttle service reduces the impact of the project at the four impacted key study intersections. The project impacts at the intersections of PCH/7th Street and Bay Shore Avenue/2nd Street are offset to a level of insignificance. For the remaining two key study intersections of PCH/2nd Street and Studebaker Road/2nd Street, implementation of improvements reduce project impacts; however, the project impacts are still considered significant. Therefore, the project's traffic impacts at the intersections of PCH/2nd Street and Studebaker Road/2nd Street will remain significant and unavoidable, as additional capacity-enhancing improvements at these two key study intersections do not appear feasible due to physical and right-of-way restrictions that prohibit any additional widening and/or restriping.

It should be noted that key study intersections Nos. 17 and 19 have also been analyzed inclusive of the planned improvements identified by the City (refer to respective rows for intersection Nos. 17A and 19A in Table IV.L-10 above). The planned improvements are summarized in the footnotes of Table IV.L-10. It should be noted further that the impacts at the intersections of PCH/2nd Street and Studebaker Road/2nd Street will still remain unmitigated inclusive of the planned improvements.

To supplement the LOS results as presented in Table IV.L-10, Figures 8-1, 8-2 and 8-3 in the project's TIA graphically represent the comparison between Existing and Existing Plus Project traffic conditions (i.e. level of service results) for the A.M., P.M. and Saturday Midday peak hours, respectively. In addition, Figures 8-4, 8-5 and 8-6 graphically represent the comparison between Existing Plus Project and Existing Plus Project With Mitigation traffic conditions (i.e., LOS results) for the A.M., P.M. and Saturday Midday peak hours, respectively.

Overall, as noted above, intersection impacts under the Existing Plus Project analysis scenario would remain significant and unavoidable for the intersections of PCH/2nd Street and Studebaker Road/2nd Street, despite Mitigation Measures L-1 through L-5, and L-9, which address Existing Plus Project condition intersection impacts. As such, the proposed project would conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system.

(ii) Year 2015 Traffic Conditions

Table IV.L-11, *Year 2015 Peak Hour Intersection Capacity Analysis*, summarizes the peak hour LOS results at the 25 key study intersections for the Year 2015 horizon year. The first column (1) of ICU/LOS and HCM/LOS values in Table IV.L-11 presents a summary of existing A.M., P.M. and Saturday Midday peak hour traffic conditions (which were also presented in Table IV.L-1, above). The second column (2) lists future Year 2015 cumulative traffic conditions (existing plus ambient growth traffic plus related projects traffic) based on existing intersection geometry, but without any traffic generated by the proposed project. The third column (3) presents future forecast traffic conditions with the addition of traffic generated by the proposed project, shows the increase in ICU value or Delay value due to the added peak hour Project trips and indicates whether the traffic associated with the Project will have a significant impact based on the significant impact criteria defined in this report. Columns four (4), five (5) and six (6) list Year 2015 plus project traffic conditions with TDM Plan credits, with physical mitigation measures and with implementation of the project-sponsored shuttle service, respectively. The TDM Plan, physical mitigation measures and project shuttle service are improvement measures recommended to offset project impacts.

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Table IV.L-11

Year 2015 Peak Hour Intersection Capacity Analysis[a]

Key Intersections	Time Period	(1) Existing Traffic Conditions		(2) Year 2015 Cumulative Traffic Conditions		(3) Year 2015 Plus Project Traffic Conditions[b]				(4) Year 2015 Plus Project With TDM Plan Credit Traffic Conditions				(5) Year 2015 Plus Project With Mitigation Traffic Conditions				(6) Year 2015 Plus Project With Shuttle Service Traffic Conditions[c]			
		ICU/ HCM	LOS	ICU/ HCM	LOS	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact
1. Bellflower Boulevard at Atherton Street	AM	0.803	D	0.843	D	0.846	D	0.003	No	0.846	D	0.003	No	--	--	--	--	--	--	--	--
	PM	0.814	D	0.855	D	0.864	D	0.009	No	0.863	D	0.008	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.595	A	0.622	B	0.633	B	0.011	No	0.632	B	0.010	No	--	--	--	--	--	--	--	--
2. PCH at Clark Avenue	AM	0.712	C	0.749	C	0.754	C	0.005	No	0.754	C	0.005	No	--	--	--	--	--	--	--	--
	PM	0.728	C	0.768	C	0.780	C	0.012	No	0.779	C	0.011	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.549	A	0.583	A	0.598	A	0.015	No	0.597	A	0.014	No	--	--	--	--	--	--	--	--
3. PCH at Anaheim Street	AM	0.584	A	0.615	B	0.617	B	0.002	No	0.617	B	0.002	No	--	--	--	--	--	--	--	--
	PM	0.583	A	0.617	B	0.622	B	0.005	No	0.621	B	0.004	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.628	B	0.661	B	0.678	B	0.017	No	0.677	B	0.016	No	--	--	--	--	--	--	--	--
4. Studebaker Road at Anaheim Street	AM	0.750	C	0.787	C	0.793	C	0.006	No	0.793	C	0.006	No	--	--	--	--	--	--	--	--
	PM	0.703	C	0.736	C	0.756	C	0.020	No	0.755	C	0.019	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.448	A	0.472	A	0.494	A	0.022	No	0.493	A	0.021	No	--	--	--	--	--	--	--	--
5. Park Avenue at 7th Street	AM	**1.014**	**F**	**1.071**	**F**	**1.075**	**F**	0.004	No	**1.075**	**F**	0.004	No	--	--	--	--	--	--	--	--
	PM	**0.936**	**E**	**0.995**	**E**	**1.003**	**F**	0.008	No	**1.005**	**F**	0.010	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.857	D	**0.915**	**E**	**0.929**	**E**	0.014	No	**0.928**	**E**	0.013	No	--	--	--	--	--	--	--	--
6. PCH at 7th Street	AM	**1.090**	**F**	**1.149**	**F**	**1.151**	**F**	0.002	No	**1.151**	**F**	0.002	No	**1.151**	**F[d]**	0.002	No	--	--	--	--
	PM	**1.012**	**F**	**1.064**	**F**	**1.093**	**F**	**0.029**	**Yes**	**1.092**	**F**	**0.028**	**Yes**	**1.075**	**F**	0.011	No	--	--	--	--
	Sat. Midday	0.877	D	**0.925**	**E**	**0.937**	**E**	0.012	No	**0.934**	**E**	0.009	No	**0.934**	**E**	0.009	No	--	--	--	--
7. Bellflower Boulevard at 7th Street	AM	**1.011**	**F**	**1.061**	**F**	**1.064**	**F**	0.003	No	**1.064**	**F**	0.003	No	--	--	--	--	--	--	--	--
	PM	**0.947**	**E**	**0.995**	**E**	**1.008**	**F**	0.013	No	**1.007**	**F**	0.012	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.863	D	**0.918**	**E**	**0.928**	**E**	0.010	No	**0.928**	**E**	0.010	No	--	--	--	--	--	--	--	--
8. Studebaker Road at SR-22 Westbound Ramps	AM	0.600	B	0.632	B	0.650	B	0.018	No	0.650	B	0.018	No	0.587	A[e]	-0.045	No	--	--	--	--
	PM	0.831	D	0.880	D	**0.928**	**E**	**0.048**	**Yes**	**0.925**	**E**	**0.045**	**Yes**	0.883	D	0.003	No	--	--	--	--
	Sat. Midday	0.677	B	0.717	C	0.770	C	0.053	No	0.767	C	0.050	No	0.729	C	0.012	No	--	--	--	--
9. Bellflower Boulevard at PCH	AM	0.630	B	0.661	B	0.667	B	0.006	No	0.667	B	0.006	No	--	--	--	--	--	--	--	--
	PM	0.696	B	0.734	C	0.763	C	0.029	No	0.762	C	0.028	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.627	B	0.662	B	0.711	C	0.049	No	0.709	C	0.047	No	--	--	--	--	--	--	--	--
10. Studebaker Road at SR-22 Eastbound Ramps	AM	0.492	A	0.512	A	0.521	A	0.009	No	0.521	A	0.009	No	--	--	--	--	--	--	--	--
	PM	0.674	B	0.713	C	0.758	C	0.045	No	0.755	C	0.042	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.586	A	0.620	B	0.670	B	0.050	No	0.667	B	0.047	No	--	--	--	--	--	--	--	--
11. PCH at Loynes Drive	AM	**0.907**	**E**	**0.958**	**E**	**0.973**	**E**	0.015	No	**0.973**	**E**	0.015	No	0.766	C[f]	-0.192	No	--	--	--	--
	PM	0.796	C	0.839	D	0.875	D	0.036	No	0.873	D	0.034	No	0.849	D	0.010	No	--	--	--	--
	Sat. Midday	0.737	C	0.783	C	0.829	D	0.046	No	0.827	D	0.044	No	0.732	C	-0.051	No	--	--	--	--
12. Studebaker Road at Loynes Drive	AM	0.736	C	0.777	C	0.801	D	0.024	No	0.801	D	0.024	No	--	--	--	--	--	--	--	--
	PM	0.692	B	0.737	C	0.782	C	0.045	No	0.780	C	0.043	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.615	B	0.649	B	0.701	C	0.052	No	0.698	B	0.049	No	--	--	--	--	--	--	--	--

Table IV.L-11 (Continued)

Year 2015 Peak Hour Intersection Capacity Analysis[1]

Key Intersections	Time Period	(1) Existing Traffic Conditions		(2) Year 2015 Cumulative Traffic Conditions		(3) Year 2015 Plus Project Traffic Conditions[b]				(4) Year 2015 Plus Project With TDM Plan Credit Traffic Conditions				(5) Year 2015 Plus Project With Mitigation Traffic Conditions				(6) Year 2015 Plus Project With Shuttle Service Traffic Conditions[c]			
		ICU/ HCM	LOS	ICU/ HCM	LOS	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact
13. Livingston Drive at 2nd Street	AM	0.674	B	0.709	C	0.718	C	0.009	No	0.718	C	0.009	No	--	--	--	--	--	--	--	--
	PM	0.565	A	0.593	A	0.619	B	0.026	No	0.618	B	0.025	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.545	A	0.573	A	0.606	B	0.033	No	0.605	B	0.032	No	--	--	--	--	--	--	--	--
14. Bay Shore Avenue at 2nd Street	AM	0.845	D	0.891	D	0.899	D	0.008	No	0.899	D	0.008	No	--	--	--	--	0.888	D	-0.003	No
	PM	**1.048**	**F**	**1.106**	**F**	**1.129**	**F**	**0.023**	**Yes**	**1.128**	**F**	**0.022**	**Yes**	--	--	--	--	**1.118**	**F**	0.012	No
	Sat. Midday	**1.057**	**F**	**1.113**	**F**	**1.144**	**F**	**0.031**	**Yes**	**1.142**	**F**	**0.029**	**Yes**	--	--	--	--	**1.132**	**F**	0.019	No
15. Naples Plaza at 2nd Street	AM	0.738	C	0.774	C	0.783	C	0.009	No	0.783	C	0.009	No	--	--	--	--	0.773	C	-0.001	No
	PM	0.797	C	0.837	D	0.863	D	0.026	No	0.862	D	0.025	No	--	--	--	--	0.851	D	0.014	No
	Sat. Midday	0.705	C	0.739	C	0.773	C	0.034	No	0.771	C	0.032	No	--	--	--	--	0.761	C	0.022	No
16. Marina Drive at 2nd Street	AM	0.633	B	0.660	B	0.676	B	0.016	No	0.676	B	0.016	No	--	--	--	--	0.657	B	-0.003	No
	PM	0.688	B	0.719	C	0.759	C	0.040	No	0.755	C	0.036	No	--	--	--	--	0.744	C	0.025	No
	Sat. Midday	0.754	C	0.789	C	0.833	D	0.044	No	0.832	D	0.043	No	--	--	--	--	0.820	D	0.031	No
17. PCH at 2nd Street	AM	**0.943**	**E**	**0.953**	**E[g]**	**1.000**	**E**	**0.047**	**Yes**	**1.000**	**E**	**0.047**	**Yes**	**0.932**	**E[h]**	-0.021	No	**0.932**	**E**	-0.021	No
	PM	**0.909**	**E**	0.880	D	**1.013**	**F**	**0.133**	**Yes**	**1.007**	**F**	**0.127**	**Yes**	**1.002**	**F**	**0.122**	**Yes**	**1.002**	**F**	**0.122**	**Yes**
	Sat. Midday	**0.964**	**E**	**1.018**	**F**	**1.144**	**F**	**0.126**	**Yes**	**1.137**	**F**	**0.119**	**Yes**	**1.137**	**F**	**0.119**	**Yes**	**1.137**	**F**	**0.119**	**Yes**
18. Shopkeeper Road at 2nd Street	AM	0.594	A	0.624	B	0.645	B	0.021	No	0.645	B	0.021	No	0.635	B[i]	0.011	No	--	--	--	--
	PM	0.857	D	**0.903**	**E**	**0.941**	**E**	**0.038**	**Yes**	**0.939**	**E**	**0.036**	**Yes**	0.842	D	-0.061	No	--	--	--	--
	Sat. Midday	0.845	D	0.890	D	**0.942**	**E**	**0.052**	**Yes**	**0.939**	**E**	**0.049**	**Yes**	0.835	D	-0.055	No	--	--	--	--
19. Studebaker Road at 2nd Street	AM	**1.047**	**F**	**1.023**	**F[j]**	**1.066**	**F**	**0.043**	**Yes**	**1.066**	**F**	**0.043**	**Yes**	--	--	--	--	--	--	--	--
	PM	**1.122**	**F**	**1.147**	**F**	**1.232**	**F**	**0.085**	**Yes**	**1.227**	**F**	**0.080**	**Yes**	--	--	--	--	--	--	--	--
	Sat. Midday	**1.010**	**F**	**1.019**	**F**	**1.143**	**F**	**0.124**	**Yes**	**1.136**	**F**	**0.117**	**Yes**	--	--	--	--	--	--	--	--
20. Seal Beach Boulevard at Westminster Avenue	AM	0.720	C	0.760	C	0.767	C	0.007	No	0.767	C	0.007	No	--	--	--	--	--	--	--	--
	PM	0.621	B	0.656	B	0.677	B	0.021	No	0.676	B	0.020	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.438	A	0.461	A	0.487	A	0.026	No	0.486	A	0.025	No	--	--	--	--	--	--	--	--
21. Marina Drive at Studebaker Road	AM	9.7 s/v	A	10.0 s/v	A	10.0 s/v	A	0.0 s/v	No	10.0 s/v	A	0.0 s/v	No	0.383	A[k]	--	No	0.383	A	--	No
	PM	12.9 s/v	B	13.7 s/v	B	13.8 s/v	B	0.1 s/v	No	13.8 s/v	B	0.1 s/v	No	0.556	A	--	No	0.556	A	--	No
	Sat. Midday	11.2 s/v	B	11.7 s/v	B	11.7 s/v	B	0.0 s/v	No	11.7 s/v	B	0.0 s/v	No	0.419	A	--	No	0.419	A	--	No
22. PCH at Studebaker Rd	AM	0.650	B	0.686	B	0.688	B	0.002	No	0.688	B	0.002	No	--	--	--	--	0.688	B	0.002	No
	PM	0.881	D	**0.937**	**E**	**0.949**	**E**	0.012	No	**0.948**	**E**	0.011	No	--	--	--	--	**0.948**	**E**	0.011	No
	Sat. Midday	0.719	C	0.766	C	0.783	C	0.017	No	0.783	C	0.017	No	--	--	--	--	0.783	C	0.017	No
23. PCH at Marina Drive	AM	15.2 s/v	C	18.6 s/v	C	18.9 s/v	C	0.3 s/v	No	18.9 s/v	C	0.3 s/v	No	--	--	--	--	--	--	--	--
	PM	25.8 s/v	D	30.4 s/v	D	31.8 s/v	D	1.4 s/v	No	31.7 s/v	D	1.3 s/v	No	--	--	--	--	--	--	--	--
	Sat. Midday	16.1 s/v	C	17.5 s/v	C	18.3 s/v	C	0.8 s/v	No	18.2 s/v	C	0.7 s/v	No	--	--	--	--	--	--	--	--
24. PCH at Main/Bolsa Avenue	AM	0.694	B	0.733	C	0.738	C	0.005	No	0.738	C	0.005	No	--	--	--	--	--	--	--	--
	PM	0.680	B	0.719	C	0.730	C	0.011	No	0.729	C	0.010	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.536	A	0.566	A	0.581	A	0.015	No	0.580	A	0.014	No	--	--	--	--	--	--	--	--

Table IV.L-11 (Continued)

Year 2015 Peak Hour Intersection Capacity Analysis[1]

Key Intersections	Time Period	(1) Existing Traffic Conditions		(2) Year 2015 Cumulative Traffic Conditions		(3) Year 2015 Plus Project Traffic Conditions[b]				(4) Year 2015 Plus Project With TDM Plan Credit Traffic Conditions				(5) Year 2015 Plus Project With Mitigation Traffic Conditions				(6) Year 2015 Plus Project With Shuttle Service Traffic Conditions[c]			
		ICU/ HCM	LOS	ICU/ HCM	LOS	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact	ICU/ HCM	LOS	Change in ICU/ HCM	Signif-icant Impact
25. Seal Beach Boulevard at PCH	AM	0.835	D	0.884	D	0.889	D	0.005	No	0.889	D	0.005	No	--	--	--	--	--	--	--	--
	PM	0.713	C	0.755	C	0.766	C	0.011	No	0.766	C	0.011	No	--	--	--	--	--	--	--	--
	Sat. Midday	0.748	C	0.793	C	0.809	D	0.016	No	0.808	D	0.015	No	--	--	--	--	--	--	--	--

Bold *ICU/LOS or Delay/LOS values indicate adverse service levels based on City of Long Beach or City of Seal Beach LOS standards*

[a] *Significant project impact is defined as 0.020 or greater increase in ICU value of a signalized intersection or a 2% or more increase in delay at an unsignalized location where the final LOS is E or F.*

[b] *Includes the removal of the existing Seaport Marina Hotel (156 Rooms) and construction of the proposed Project.*

[c] *The shuttle service will be funded and implemented by the proposed Project and will run along 2nd Street between Belmont Shores and the project site.*

[d] *Mitigation at this key study intersection includes the addition of a 2nd northbound left-turn lane on PCH.*

[e] *The level of service reported represents the southern intersection. The northern intersections level of service during the AM peak hour, PM peak hour and Saturday Midday peak hour is LOS A (v/c ratio of 0.598), LOS D (v/c ratio of 0.879) and LOS C (v/c ratio of 0.705), respectively. Mitigation at this key study intersection includes shifting the westbound left-turn approach lanes approximately 150 feet north thus creating a new two-phase signalized intersection to the north. The existing intersection will now operate as a two-phase signalized intersection.*

[f] *Please note that this key study intersection will not be impacted by the proposed Project. Improvements identified at this location are area circulation improvements constructed by the proposed project and include the addition of a 3rd northbound through lane.*

[g] *The level of service calculations for this key study intersection include the following City of Long Beach planned improvements:*
2nd southbound left-turn lane and defacto southbound right-turn lane

[h] *Mitigation at this key study intersection includes the addition of an exclusive northbound right-turn lane. Restripe 2nd Street to convert the eastbound shared through/right-turn lane into an exclusive 3rd eastbound through lane. Modify the existing traffic signal to provide an eastbound right-turn overlap phase. Modify the median on 2nd Street and extend the left-turn storage for the dual westbound left-turn lanes.*

[i] *Mitigation at this key study intersection includes restriping Shopkeeper Road to provide a northbound shared left/through lane and an exclusive northbound right-turn lane. Modify the median on 2nd Street and extend the left-turn storage for the westbound left-turn lane.*

[j] *The level of service calculations for this key study intersection include the following City of Long Beach planned improvements:*
3rd westbound through lane

[k] *Please note that this key study intersection will not be impacted by the proposed Project. Improvements identified at this location are area circulation improvements constructed by the proposed project and include the installation of a two-phase traffic signal.*

Source: Linscott, Law & Greenspan, Engineers, 2011

Table IV.L-11 (Continued)

Year 2015 Peak Hour Intersection Capacity Analysis[1]

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(iii) Year 2015 Cumulative Traffic Conditions

An analysis of future (Year 2015) cumulative traffic conditions indicates that ambient traffic growth and related projects traffic will cumulatively impact nine (9) of the twenty-five (25) key study intersections during the A.M., P.M. and/or Saturday Midday peak hours. The remaining sixteen (16) key study intersections are forecast to continue to operate at an acceptable LOS based on the LOS criteria identified in this report. The locations projected to operate at an adverse LOS in the Year 2015 are as follows:

	A.M. Peak Hour		P.M. Peak Hour		Sat. Midday Peak Hour	
Key Intersection	**ICU/HCM**	**LOS**	**ICU/HCM**	**LOS**	**ICU/HCM**	**LOS**
5. Park Avenue at 7th Street	1.053	F	0.978	E	0.912	E
6. PCH at 7th Street	1.130	F	1.050	F	0.910	E
7. Bellflower Road at 7th Street	1.045	F	0.980	E	0.905	E
11. PCH at Loynes Dr	0.942	E	--	--	--	--
14. Bay Shore Avenue at 2nd Street	--	--	1.088	F	1.095	F
17. PCH at 2nd Street	0.939	E	--	--	1.002	F
18. Shopkeeper Road at 2nd Street	--	--	0.903	E	--	--
19. Studebaker Road at 2nd Street	1.006	F	1.129	F	1.003	F
22. PCH at Studebaker Rd	--	--	0.924	E	--	--

It should be noted that the LOS results for the intersections of 2nd Street/PCH (key study intersection 17) and Studebaker Road/2nd Street (key study intersection 19) include planned improvements identified by the City. The planned improvements are summarized in the footnotes of Table IV.L-11.

(iv) Year 2015 Cumulative Plus Project Conditions

Review of Column 3 of Table IV.L-11 indicates that traffic associated with the proposed project will significantly impact six (6) of the twenty-five (25) key study intersections in the Year 2015, when compared to the LOS standards and significant impact criteria specified in this report. The six intersections impacted by the proposed project under Year 2015 plus project traffic conditions and the time period in which the impact occurs include:

Key Intersection	Impacted Time Period
6. PCH at 7th Street	P.M.
8. Studebaker Road at SR-22 Westbound Ramps	P.M.
14. Bay Shore Avenue at 2nd Street	P.M. / Sat Midday
17. PCH at 2nd Street	A.M. / P.M. / Sat Midday
18. Shopkeeper Road at 2nd Street	P.M. / Sat Midday
19. Studebaker Road at 2nd Street	A.M. / P.M. / Sat Midday

It should be noted that although the intersections of Park Avenue/7th Street, Bellflower Boulevard/7th Street, PCH/Loynes Drive and PCH/Studebaker Road are forecast to operate at unacceptable LOS E or LOS F during the A.M., P.M. and/or Saturday Midday peak hours with the addition of project traffic, the proposed project is expected to add less than 0.020 to the ICU value. The remaining fifteen (15) key study intersections are forecast to continue to operate at an acceptable LOS with the addition of project generated traffic in the Year 2015.

As shown in Columns 4, 5 and 6 of Table IV.L-11, implementation of the project's TDM Plan, recommended mitigation measures, and the project-sponsored shuttle service reduces the impact of the project at the six impacted key study intersections. The project impacts at the intersections of PCH/7th Street, Studebaker Road/SR-22 WB Ramps, Bay Shore Avenue/2nd Street and Shopkeeper Road/2nd Street are offset to a level of insignificance. For the remaining two key study intersections of PCH/2nd Street and Studebaker Road/2nd Street, implementation of improvements reduce the impact of the project; however, the project impacts are still considered significant. Therefore, the project's Year 2015 traffic impacts at the intersections of PCH/2nd Street and Studebaker Road/2nd Street will remain significant and unavoidable, as additional capacity-enhancing improvements at these two key study intersections do not appear feasible due to physical and right-of-way restrictions that prohibit any additional widening and/or restriping.

To supplement the LOS results as presented in Table IV.L-11, Figures 8-1, 8-2 and 8-3 of the TIA (Appendix K of this EIR) graphically represent the comparison between Year 2015 Cumulative and Year 2015 Cumulative Plus Project traffic conditions (i.e., LOS results) for the A.M., P.M. and Saturday Midday peak hours, respectively.

In addition, Figures 8-4, 8-5 and 8-6 of the project's TIA graphically represent the comparison between Year 2015 Cumulative Plus Project and Year 2015 Cumulative Plus Project With Mitigation traffic conditions (i.e., LOS results) for the A.M., P.M. and Saturday Midday peak hours, respectively. Appendix E of the project's TIA presents the Year 2015 weekday and weekend day (Saturday) ICU/LOS and HCM/LOS calculations for the twenty-five (25) key study intersections.

Overall, as noted above, intersection impacts under the 2015 Cumulative Plus Project analysis scenario would remain significant and unavoidable for the intersections of PCH/2nd Street and Studebaker Road/2nd Street, despite Mitigation Measures L-1 through L-7, and L-9, which address Year 2015 Cumulative Plus Project (ICU) intersection impacts. As such, the proposed project would conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system.

(c) Caltrans Traffic Impact Analysis for Intersections

(i) Existing Plus Project Traffic Conditions – Caltrans

Table IV.L-12, *Existing Plus Project Peak Hour Intersection Capacity Analysis – Caltrans*, summarizes the existing plus project peak hour HCM LOS results at the thirteen State-controlled study intersections (twelve key study intersections and one project driveway) within the study area. The first column (1) of HCM/LOS values in Table IV.L-12 presents a summary of existing traffic conditions. The second column (2) presents existing plus project traffic conditions. Columns three (3), four (4) and five (5) list existing plus project traffic conditions with TDM Plan credits, with physical mitigation measures and with implementation of the project shuttle service, respectively. The TDM Plan, physical mitigation measures and project shuttle service are improvement measures recommended to offset project impacts.

Table IV.L-12

Existing Plus Project Peak Hour Intersection Capacity Analysis – Caltrans

Key Intersections	Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions[a]			(3) Existing Plus Project With TDM Plan Credit Traffic Conditions			(4) Existing Plus Project With Mitigation Traffic Conditions			(5) Existing Plus Project With Shuttle Service Traffic Conditions[b]		
		HCM	LOS	HCM	LOS	HCM Change	HCM	LOS	HCM Change	HCM	LOS	HCM Change	HCM	LOS	HCM Change
2. PCH at Clark Avenue	AM	22.3 s/v	C	22.3 s/v	C	0.0 s/v	22.3 s/v	C	0.0 s/v	--	--	--	--	--	--
	PM	22.3 s/v	C	22.3 s/v	C	0.0 s/v	22.3 s/v	C	0.0 s/v	--	--	--	--	--	--
	Sat. Midday	19.9 s/v	B	19.8 s/v	B	-0.1 s/v	19.8 s/v	B	-0.1 s/v	--	--	--	--	--	--
3. PCH at Anaheim Street	AM	21.0 s/v	C	21.1 s/v	C	0.1 s/v	21.1 s/v	C	0.1 s/v	--	--	--	--	--	--
	PM	21.2 s/v	C	21.3 s/v	C	0.1 s/v	21.3 s/v	C	0.1 s/v	--	--	--	--	--	--
	Sat. Midday	22.9 s/v	C	23.1 s/v	C	0.2 s/v	23.1 s/v	C	0.2 s/v	--	--	--	--	--	--
6. PCH at 7th Street	AM	36.4 s/v	D	36.9 s/v	D	0.5 s/v	36.9 s/v	D	0.5 s/v	--	--	--	--	--	--
	PM	36.6 s/v	D	37.6 s/v	D	1.0 s/v	37.6 s/v	D	1.0 s/v	--	--	--	--	--	--
	Sat. Midday	29.1 s/v	C	29.1 s/v	C	0.0 s/v	29.0 s/v	C	-0.1 s/v	--	--	--	--	--	--
8. Studebaker Road at SR-22 Westbound Ramps	AM	18.2 s/v	B	18.4 s/v	B	0.2 s/v	18.4 s/v	B	0.2 s/v	--	--	--	--	--	--
	PM	24.4 s/v	C	25.8 s/v	C	1.4 s/v	25.7 s/v	C	1.3 s/v	--	--	--	--	--	--
	Sat. Midday	21.6 s/v	C	22.4 s/v	C	0.8 s/v	22.4 s/v	C	0.8 s/v	--	--	--	--	--	--
9. Bellflower Boulevard at PCH	AM	24.6 s/v	C	24.6 s/v	C	0.0 s/v	24.6 s/v	C	0.0 s/v	--	--	--	--	--	--
	PM	23.8 s/v	C	23.7 s/v	C	-0.1 s/v	23.7 s/v	C	-0.1 s/v	--	--	--	--	--	--
	Sat. Midday	23.6 s/v	C	23.4 s/v	C	-0.2 s/v	23.4 s/v	C	-0.2 s/v	--	--	--	--	--	--
10. Studebaker Road at SR-22 Eastbound Ramps	AM	14.4 s/v	B	14.4 s/v	B	0.0 s/v	14.4 s/v	B	0.0 s/v	--	--	--	--	--	--
	PM	19.2 s/v	B	20.8 s/v	C	1.6 s/v	20.7 s/v	C	1.5 s/v	--	--	--	--	--	--
	Sat. Midday	15.5 s/v	B	16.5 s/v	B	1.0 s/v	16.5 s/v	B	1.0 s/v	--	--	--	--	--	--
11. PCH at Loynes Drive	AM	22.3 s/v	C	22.6 s/v	C	0.3 s/v	22.6 s/v	C	0.3 s/v	19.4 s/v	B[c]	-2.9 s/v	--	--	--
	PM	24.0 s/v	C	24.8 s/v	C	0.8 s/v	24.8 s/v	C	0.8 s/v	23.7 s/v	C	-0.3 s/v	--	--	--
	Sat. Midday	23.3 s/v	C	22.8 s/v	C	-0.5 s/v	22.8 s/v	C	-0.5 s/v	20.9 s/v	C	-2.4 s/v	--	--	--
17. PCH at 2nd Street	AM	40.7 s/v	D	42.7 s/v	D	2.0 s/v	42.7 s/v	D	2.0 s/v	39.9 s/v	D[d]	-0.8 s/v	40.0 s/v	D	-0.7 s/v
	PM	43.7 s/v	D	**55.2 s/v**	**E**	**11.5 s/v**	54.5 s/v	D	10.8 s/v	53.6 s/v	D	9.9 s/v	53.7 s/v	D	10.0 s/v
	Sat. Midday	46.6 s/v	D	**63.1 s/v**	**E**	**16.5 s/v**	**61.8 s/v**	**E**	**15.2 s/v**	**61.2 s/v**	**E**	**14.6 s/v**	**61.3 s/v**	**E**	**14.7 s/v**
17A. PCH at 2nd Street[e]	AM	38.4 s/v	D	40.0 s/v	D	1.6 s/v	40.0 s/v	D	1.6 s/v	38.1 s/v	D	-0.3 s/v	38.2 s/v	D	-0.2 s/v
	PM	40.9 s/v	D	45.0 s/v	D	4.1 s/v	44.7 s/v	D	3.8 s/v	43.9 s/v	D	3.0 s/v	43.9 s/v	D	3.0 s/v
	Sat. Midday	44.3 s/v	D	53.2 s/v	D	8.9 s/v	52.6 s/v	D	8.3 s/v	52.0 s/v	D	7.7 s/v	52.1 s/v	D	7.8 s/v
22. PCH at Studebaker Rd	AM	22.2 s/v	C	22.2 s/v	C	0.0 s/v	22.2 s/v	C	0.0 s/v	--	--	--	22.3 s/v	C	0.1 s/v
	PM	39.2 s/v	D	40.1 s/v	D	0.9 s/v	40.0 s/v	D	0.8 s/v	--	--	--	40.2 s/v	D	1.0 s/v
	Sat. Midday	30.0 s/v	C	30.1 s/v	C	0.1 s/v	30.1 s/v	C	0.1 s/v	--	--	--	30.2 s/v	C	0.2 s/v
23. PCH at Marina Drive	AM	15.2 s/v	C	15.3 s/v	C	0.1 s/v	15.3 s/v	C	0.1 s/v	--	--	--	--	--	--
	PM	25.8 s/v	D	26.8 s/v	D	1.0 s/v	26.7 s/v	D	0.9 s/v	--	--	--	--	--	--
	Sat. Midday	16.1 s/v	C	16.8 s/v	C	0.7 s/v	16.7 s/v	C	0.6 s/v	--	--	--	--	--	--
24. PCH at Main/Bolsa Avenue	AM	18.5 s/v	B	18.6 s/v	B	0.1 s/v	18.6 s/v	B	0.1 s/v	--	--	--	--	--	--
	PM	20.6 s/v	C	20.7 s/v	C	0.1 s/v	20.7 s/v	C	0.1 s/v	--	--	--	--	--	--
	Sat. Midday	22.3 s/v	C	22.1 s/v	C	-0.2 s/v	22.1 s/v	C	-0.2 s/v	--	--	--	--	--	--

Table IV.L-12 (Continued)

Existing Plus Project Peak Hour Intersection Capacity Analysis – Caltrans

Key Intersections		Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions[a]			(3) Existing Plus Project With TDM Plan Credit Traffic Conditions			(4) Existing Plus Project With Mitigation Traffic Conditions			(5) Existing Plus Project With Shuttle Service Traffic Conditions[b]		
			HCM	LOS	HCM	LOS	HCM Change	HCM	LOS	HCM Change	HCM	LOS	HCM Change	HCM	LOS	HCM Change
25.	Seal Beach Boulevard at PCH	AM	54.1 s/v	D	**55.1 s/v**	**E**	**1.0 s/v**	**55.1 s/v**	**E**	**1.0 s/v**	36.7 s/v	D[f]	-17.4 s/v	--	--	--
		PM	42.7 s/v	D	43.9 s/v	D	1.2 s/v	43.8 s/v	D	1.1 s/v	42.2 s/v	D	-0.5 s/v	--	--	--
		Sat. Midday	49.2 s/v	D	51.4 s/v	D	2.2 s/v	51.3 s/v	D	2.1 s/v	43.0 s/v	D	-6.2 s/v	--	--	--
B.	PCH at Project Driveway B	AM	--	--	16.3 s/v	B	--	16.3 s/v	B	--	--	--	--	16.3 s/v	B	--
		PM	--	--	20.1 s/v	C	--	20.0 s/v	B	--	--	--	--	19.9 s/v	B	--
		Sat. Midday	--	--	26.5 s/v	C	--	26.1 s/v	C	--	--	--	--	26.2 s/v	C	--

__Bold__ ICU/LOS or Delay/LOS values indicate adverse service levels based on City of Long Beach or City of Seal Beach LOS standards.
s/v = seconds per vehicle
[a] *Includes the removal of the existing Seaport Marina Hotel (156 Rooms) and construction of the proposed Project.*
[b] *The shuttle service will be funded and implemented by the proposed Project and will run along 2nd Street between Belmont Shores and the project site.*
[c] *Please note that this key study intersection will not be impacted by the proposed Project. Improvements identified at this location are area circulation improvements constructed by the proposed project and include the addition of a 3rd northbound through lane.*
[d] *Mitigation at this key study intersection includes the addition of an exclusive northbound right-turn lane. Restripe 2nd Street to convert the eastbound shared through/right-turn lane into an exclusive 3rd eastbound through lane. Modify the existing traffic signal to provide an eastbound right-turn overlap phase. Modify the median on 2nd Street and extend the left-turn storage for the dual westbound left-turn lanes.*
[e] *The level of service calculations for this key study intersection include the following City of Long Beach planned improvements:*
2nd southbound left-turn lane and defacto southbound right-turn lane.
[f] *Mitigation at this key study intersection includes converting the westbound right turn lane into a third westbound through lane and widen to allow for an exclusive right-turn lane.*

Source: Linscott, Law & Greenspan, Engineers, 2011

(a) Existing Traffic Conditions - Caltrans

Review of column one (1) of Table IV.L-12 indicates that all of the State-controlled study intersections currently operate at acceptable LOS D or better during the A.M., P.M. and/or Saturday Midday peak hours.

(b) Existing Plus Project Traffic Conditions - Caltrans

Review of Column 2 of Table IV.L-12 indicates that two of the thirteen (includes Project Driveway B) State-controlled study intersections are forecast to operate at an unacceptable LOS during the A.M., P.M. and/or Saturday Midday peak hours, with the addition of project traffic to existing traffic. The intersections of PCH/2nd Street and Seal Beach Boulevard/PCH are forecast to operate at unacceptable LOS E during the A.M., P.M. and/or Saturday Midday peak hours.

However, as shown in Columns 3, 4 and 5 of Table IV.L-12, the implementation of recommended improvements at the two adverse intersections result in an acceptable LOS, except for the intersection of PCH/2nd Street, which will continue to operate at unacceptable LOS E during the Saturday Midday peak hour. Implementation of improvements at the intersection of PCH/2nd Street reduces the impact of the project, however the project impacts are still considered significant. Therefore, the project's existing plus project traffic impacts at the intersection of PCH/2nd Street will remain unmitigated, as additional capacity-enhancing improvements at this key study intersection do not appear feasible due to physical and right-of-way restrictions that prohibit any additional widening and/or restriping.

It should be noted that based on the results of the ICU methodology presented previously in Table IV.L-10, the intersection of Seal Beach Boulevard/PCH is not operating at an unacceptable LOS under existing plus project traffic conditions. The intersection only operates at an unacceptable LOS based on the HCM methodology. The remaining State-controlled key study intersections (including Project Driveway B) are forecast to continue to operate at an acceptable LOS with the addition of project generated traffic to existing traffic.

Please note that for informational purposes, key study intersection #17 has also been analyzed inclusive of the planned improvements identified by the City (refer to Intersection #17A row in Table IV.L-12). The planned improvements are summarized in the footnotes of Table IV.L-12. It should be noted further that the impacts at the intersection of PCH/2nd Street will be offset, and this location will operate at acceptable LOS D during the A.M., P.M. and Saturday Midday peak hours inclusive of the planned improvements.

(ii) Year 2015 Traffic Conditions - Caltrans

Table IV.L-13, *Year 2015 Peak Hour Intersection Capacity Analysis - Caltrans*, summarizes the Year 2015 peak hour HCM LOS results at the thirteen State-controlled study intersections (twelve key study intersections and one project driveway) within the study area. The first column (1) of HCM/LOS values in Table IV.L-13 presents a summary of existing traffic conditions. The second column (2) presents Year 2015 cumulative traffic conditions based on existing intersection geometry, but without any project generated traffic. The third column (3) presents future forecast traffic conditions with the addition of Project traffic. Columns four (4), five (5) and six (6) list Year 2015 plus project traffic conditions with TDM Plan credits, with physical mitigation measures and with implementation of the project shuttle service, respectively. The TDM Plan, physical mitigation measures and project shuttle service are improvement measures recommended to offset project impacts.

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Table IV.L-13

Year 2015 Peak Hour Intersection Capacity Analysis – Caltrans

Key Intersections	Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions[a]			(3) Existing Plus Project With TDM Plan Credit Traffic Conditions			(4) Existing Plus Project With Mitigation Traffic Conditions			(5) Existing Plus Project With Shuttle Service Traffic Conditions[b]		
		HCM	LOS	HCM	LOS	HCM Change	HCM	LOS	HCM Change	HCM	LOS	HCM Change	HCM	LOS	HCM Change
2. PCH at Clark Avenue	AM	22.3 s/v	C	22.7 s/v	C	22.7 s/v	C	0.0 s/v	22.7 s/v	C	0.0 s/v	--	--	--	--
	PM	22.3 s/v	C	22.8 s/v	C	22.8 s/v	C	0.0 s/v	22.8 s/v	C	0.0 s/v	--	--	--	--
	Sat. Midday	19.9 s/v	B	18.3 s/v	B	18.3 s/v	B	0.0 s/v	18.3 s/v	B	0.0 s/v	--	--	--	--
3. PCH at Anaheim Street	AM	21.0 s/v	C	21.3 s/v	C	21.3 s/v	C	0.0 s/v	21.3 s/v	C	0.0 s/v	--	--	--	--
	PM	21.2 s/v	C	21.6 s/v	C	21.7 s/v	C	0.1 s/v	21.7 s/v	C	0.1 s/v	--	--	--	--
	Sat. Midday	22.9 s/v	C	23.2 s/v	C	23.5 s/v	C	0.3 s/v	23.5 s/v	C	0.3 s/v	--	--	--	--
6. PCH at 7th Street	AM	36.4 s/v	D	43.8 s/v	D	44.4 s/v	D	0.6 s/v	44.4 s/v	D	0.6 s/v	--	--	--	--
	PM	36.6 s/v	D	41.7 s/v	D	43.0 s/v	D	1.3 s/v	43.0 s/v	D	1.3 s/v	--	--	--	--
	Sat. Midday	29.1 s/v	C	30.3 s/v	C	31.2 s/v	C	0.9 s/v	31.1 s/v	C	0.8 s/v	--	--	--	--
8. Studebaker Road at SR-22 Westbound Ramps	AM	18.2 s/v	B	18.6 s/v	B	18.9 s/v	B	0.3 s/v	18.9 s/v	B	0.3 s/v	--	--	--	--
	PM	24.4 s/v	C	25.9 s/v	C	27.8 s/v	C	1.9 s/v	27.6 s/v	C	1.7 s/v	--	--	--	--
	Sat. Midday	21.6 s/v	C	22.2 s/v	C	23.1 s/v	C	0.9 s/v	23.1 s/v	C	0.9 s/v	--	--	--	--
9. Bellflower Boulevard at PCH	AM	24.6 s/v	C	25.0 s/v	C	24.9 s/v	C	-0.1 s/v	24.9 s/v	C	-0.1 s/v	--	--	--	--
	PM	23.8 s/v	C	24.3 s/v	C	24.3 s/v	C	0.0 s/v	24.3 s/v	C	0.0 s/v	--	--	--	--
	Sat. Midday	23.6 s/v	C	24.2 s/v	C	24.0 s/v	C	-0.2 s/v	24.0 s/v	C	-0.2 s/v	--	--	--	--
10. Studebaker Road at SR-22 Eastbound Ramps	AM	14.4 s/v	B	14.7 s/v	B	14.7 s/v	B	0.0 s/v	14.7 s/v	B	0.0 s/v	--	--	--	--
	PM	19.2 s/v	B	20.7 s/v	C	23.1 s/v	C	2.4 s/v	22.9 s/v	C	2.2 s/v	--	--	--	--
	Sat. Midday	15.5 s/v	B	16.1 s/v	B	17.3 s/v	B	1.2 s/v	17.2 s/v	B	1.1 s/v	--	--	--	--
11. PCH at Loynes Drive	AM	22.3 s/v	C	23.7 s/v	C	24.2 s/v	C	0.5 s/v	24.2 s/v	C	0.5 s/v	19.7 s/v	B[c]	-4.0 s/v	--
	PM	24.0 s/v	C	25.0 s/v	C	25.8 s/v	C	0.8 s/v	25.8 s/v	C	0.8 s/v	24.9 s/v	C	-0.1 s/v	--
	Sat. Midday	23.3 s/v	C	22.9 s/v	C	23.4 s/v	C	0.5 s/v	23.4 s/v	C	0.5 s/v	21.5 s/v	C	-1.4 s/v	--
17. PCH at 2nd Street	AM	40.7 s/v	D	38.1 s/v	D[d]	42.2 s/v	D	4.1 s/v	42.2 s/v	D	4.1 s/v	39.6 s/v	D[e]	1.5 s/v	39.7 s/v
	PM	43.7 s/v	D	41.9 s/v	D	48.0 s/v	D	6.1 s/v	47.5 s/v	D	5.6 s/v	46.6 s/v	D	4.7 s/v	46.6 s/v
	Sat. Midday	46.6 s/v	D	47.0 s/v	D	**59.2 s/v**	**E**	**12.2 s/v**	**58.3 s/v**	**E**	**11.3 s/v**	**57.7 s/v**	**E**	**10.7 s/v**	**57.8 s/v**
22. PCH at Studebaker Rd	AM	22.2 s/v	C	23.1 s/v	C	23.2 s/v	C	0.1 s/v	23.2 s/v	C	0.1 s/v	--	--	--	23.2 s/v
	PM	39.2 s/v	D	45.7 s/v	D	47.7 s/v	D	2.0 s/v	47.5 s/v	D	1.8 s/v	--	--	--	47.8 s/v
	Sat. Midday	30.0 s/v	C	30.9 s/v	C	31.2 s/v	C	0.3 s/v	31.2 s/v	C	0.3 s/v	--	--	--	31.3 s/v
23. PCH at Marina Drive	AM	15.2 s/v	C	18.6 s/v	C	18.9 s/v	C	0.3 s/v	18.9 s/v	C	0.3 s/v	--	--	--	--
	PM	25.8 s/v	D	30.4 s/v	D	31.8 s/v	D	1.4 s/v	31.7 s/v	D	1.3 s/v	--	--	--	--
	Sat. Midday	16.1 s/v	C	17.5 s/v	C	18.3 s/v	C	0.8 s/v	18.2 s/v	C	0.7 s/v	--	--	--	--
24. PCH at Main/Bolsa Avenue	AM	18.5 s/v	B	19.5 s/v	B	19.6 s/v	B	0.1 s/v	19.6 s/v	B	0.1 s/v	--	--	--	--
	PM	20.6 s/v	C	21.4 s/v	C	21.5 s/v	C	0.1 s/v	21.5 s/v	C	0.1 s/v	--	--	--	--
	Sat. Midday	22.3 s/v	C	21.6 s/v	C	22.5 s/v	C	0.9 s/v	22.5 s/v	C	0.9 s/v	--	--	--	--
25. Seal Beach Boulevard at PCH	AM	54.1 s/v	D	**65.4 s/v**	**E**	**66.5 s/v**	**E**	**1.1 s/v**	**66.5 s/v**	**E**	**1.1 s/v**	38.8 s/v	D[f]	-26.6 s/v	--
	PM	42.7 s/v	D	48.0 s/v	D	50.2 s/v	D	2.2 s/v	50.0 s/v	D	2.0 s/v	47.9 s/v	D	-0.1 s/v	--
	Sat. Midday	49.2 s/v	D	**56.4 s/v**	**E**	**59.3 s/v**	**E**	**2.9 s/v**	**59.2 s/v**	**E**	**2.8 s/v**	45.7 s/v	D	-10.7 s/v	--

Table IV.L-13 (Continued)

Year 2015 Peak Hour Intersection Capacity Analysis - Caltrans

Key Intersections	Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions[a]			(3) Existing Plus Project With TDM Plan Credit Traffic Conditions			(4) Existing Plus Project With Mitigation Traffic Conditions			(5) Existing Plus Project With Shuttle Service Traffic Conditions[b]		
		HCM	LOS	HCM	LOS	HCM Change	HCM	LOS	HCM Change	HCM	LOS	HCM Change	HCM	LOS	HCM Change
B. PCH at Project Driveway B	AM	--	--	--	--	16.6 s/v	B	--	16.6 s/v	B	--	--	--	--	16.7 s/v
	PM	--	--	--	--	20.3 s/v	C	--	20.2 s/v	C	--	--	--	--	20.1 s/v
	Sat. Midday	--	--	--	--	26.1 s/v	C	--	25.7 s/v	C	--	--	--	--	25.8 s/v

Bold *ICU/LOS or Delay/LOS values indicate adverse service levels based on City of Long Beach or City of Seal Beach LOS standards.*
s/v = seconds per vehicle
[a] *Includes the removal of the existing Seaport Marina Hotel (156 Rooms) and construction of the proposed Project.*
[b] *The shuttle service will be funded and implemented by the proposed Project and will run along 2nd Street between Belmont Shores and the project site.*
[c] *Please note that this key study intersection will not be impacted by the proposed Project. Improvements identified at this location are area circulation improvements constructed by the proposed project and include the addition of a 3rd northbound through lane.*
[d] *The level of service calculations for this key study intersection include the following City of Long Beach planned improvements:*
2nd southbound left-turn lane and defacto southbound right-turn lane
[e] *Mitigation at this key study intersection includes the addition of an exclusive northbound right-turn lane. Restripe 2nd Street to convert the eastbound shared through/right-turn lane into an exclusive 3rd eastbound through lane. Modify the existing traffic signal to provide an eastbound right-turn overlap phase. Modify the median on 2nd Street and extend the left-turn storage for the dual westbound left-turn lanes.*
[f] *Mitigation at this key study intersection includes converting the westbound right turn lane into a third westbound through lane and widen to allow for an exclusive right-turn lane.*

Source: Linscott, Law & Greenspan, Engineers, 2011

(a) Year 2015 Cumulative Traffic Conditions - Caltrans

An analysis of future (Year 2015) cumulative traffic conditions indicates that one of the State-controlled study intersections is forecast to operate at an unacceptable LOS during the A.M. peak hour and Saturday Midday peak hour. The intersection of Seal Beach Boulevard/PCH is forecast to operate at unacceptable LOS E during the A.M. peak hour and Saturday Midday peak hour. The remaining State-controlled study intersections are forecast to continue to operate at acceptable LOS D or better during the A.M., P.M. and/or Saturday Midday peak hours in the Year 2015.

Please note that the LOS results for the intersection of 2nd Street/PCH (key study intersection 17) includes planned improvements identified by the City. The planned improvements are summarized in the footnotes of Table IV.L-13.

(b) Year 2015 Cumulative Plus Project Traffic Conditions - Caltrans

Review of Column 3 of Table IV.L-13 indicates that two of the thirteen (includes Project Driveway B) State-controlled study intersections are forecast to operate at an unacceptable LOS during the A.M., P.M. and/or Saturday Midday peak hours with the addition of project traffic in the Year 2015. The intersections of PCH/2nd Street and Seal Beach Boulevard/PCH are forecast to operate at unacceptable LOS E during the A.M., P.M. and/or Saturday Midday peak hours.

However, as shown in Columns 4, 5 and 6 of Table IV.L-13, the implementation of recommended improvements at the two adverse intersections result in an acceptable LOS, except for the intersection of PCH/2nd Street, which will continue to operate at unacceptable LOS E during the Saturday Midday peak hour. Implementation of improvements at the intersection of PCH/2nd Street reduces the impact of the project, however, the project impacts are still considered significant. Therefore, the project's Year 2015 traffic impacts at the intersection of PCH/2nd Street will remain significant and unavoidable, as additional capacity-enhancing improvements at this key study intersection do not appear feasible due to physical and right-of-way restrictions that prohibit any additional widening and/or restriping.

It should be noted that based on the results of the ICU methodology presented previously in Table IV.L-11, the intersection of Seal Beach Boulevard/PCH is not operating at an unacceptable LOS with the project in the Year 2015. The intersection only operates at an unacceptable LOS based on the HCM methodology. The remaining State-controlled key study intersections (including Project Driveway B) are forecast to continue to operate at an acceptable LOS, with the addition of project generated traffic in the Year 2015.

Appendix H of the TIA (Appendix K of this EIR) presents the existing plus project and Year 2015 HCM/LOS calculations for the State-controlled study intersections for the A.M., P.M. and Saturday Midday peak hours.

Overall, as noted above, intersection impacts under the 2015 Cumulative Plus Project Caltrans analysis scenario would remain significant and unavoidable for the PCH/2nd Street intersection, despite Mitigation Measures L-1 through L-3, L-9, and L-10, which address Year 2015 Cumulative Plus Project – Caltrans intersection impacts. As such, the proposed project would conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system.

(d) Construction Traffic Impact Assessment

Construction activities will include site demolition/preparation, site grading/excavation and building construction. The following describes potential construction related trips associated with site grading/excavation construction activity and provides an assessment of whether forecast construction trips will have an impact on the existing street system. Please note that an assessment is only provided for the site grading/excavation construction component, because this component will result in the greatest number of construction related trips, therefore providing a conservative analysis.

(i) Construction Traffic Trip Generation

In order to forecast the potential construction related trips associated with the site grading/excavation construction activity, the following assumptions have been assumed as provided by the project applicant.

- 271,000 cubic yards of soil would have to be exported from the site.
- The duration of the soil export is 90-days.
- An average of 3,000 cubic yards of soil would be exported each day.
- All trucks have a capacity of 20 cubic yards.
- A five-day work week (Monday through Friday from 7:00 A.M. to 5:00 P.M.) was assumed.
- A total of 20 employees would be on the site Monday through Friday from 7:00 A.M. to 5:00 P.M.

Using the above assumptions (i.e., 3,000 cubic yards of soil exported per day and a truck capacity of 20 cubic yards) results in approximately 150 truckloads per day. Assuming one truckload requires an inbound trip and an outbound trip results in 300 truck trips per day. Assuming a ten-hour workday, this results in an average of 30 truck trips per hour (15 inbound truck trips and 15 outbound truck trips). To remain conservative, the truck trips were converted to passenger car equivalents (PCEs) using a 3.0-PCE conversion factor. Using the PCE factor of 3.0 results in 900 daily truck trips with 90 truck trips forecasted during the A.M. peak hour (45 inbound and 45 outbound) and 90 truck trips forecasted during the P.M. peak hour.

As mentioned previously, a total of 20 employees would be on-site during the export. It was assumed that each employee would make 4 trips per day (one during the A.M. peak hour, two during the lunch hour and one during the P.M. peak hour) resulting in 80 daily employee trips with 20 A.M. peak hour employee trips (20 inbound and 0 outbound) and 20 P.M. peak hour employee trips (0 inbound and 20 outbound).

Table IV.L-14, *Project Construction–Related Traffic Generation Forecast*, provides a summary of the forecast construction peak hour and daily traffic volumes. Review of Table IV.L-14 shows that on a typical weekday of construction, the export of soil from the Project site is expected to generate 980 daily trips with 110 trips (65 inbound and 45 outbound) produced during the A.M. peak hour and 110 trips (45 inbound and 65 outbound) produced during the P.M. peak hour.

Table IV.L-14

Project Construction–Related Traffic Generation Forecast

Project Description	Daily 2-Way	A.M. Peak Hour			P.M. Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Generation Forecast:							
Construction Truck Traffic (15 Trucks)	300	15	15	30	15	15	30
Passenger Car Equivalent Factor[a]	3	3	3	3	3	3	3
Subtotal	900	45	45	90	45	45	90
Employees (20 Employees)	80	20	0	20	0	20	20
Total Construction-Related Traffic Trip Generation Potential	**980**	**65**	**45**	**110**	**45**	**65**	**110**

[a] *A passenger car equivalent factor of 3.0 was applied to the truck trips to convert them into passenger car trips.*

Source: Linscott, Law & Greenspan, Engineers, 2011

(ii) Construction Traffic Assessment

(a) Construction Traffic Distribution Pattern

Based on information provided by the project applicant, regional access to/from the project site for construction trucks associated with the soil export was assumed to be provided via the SR-22 Freeway. Construction worker traffic is anticipated to utilize both regional and local roadways to travel to/from the project site. It was also assumed that all construction trucks/construction workers would access the site via Marina Drive. Based on these assumptions, the following preliminary haul route has been identified for the soil export.

- All loaded trucks use Marina Drive to 2nd Street to Studebaker Road to the SR-22 Freeway to export all materials.
- All unloaded trucks use the SR-22 Freeway to Studebaker Road to 2nd Street to Pacific Coast Highway to Studebaker Road to Marina Drive to access the site.

Construction truck traffic would travel through nine (9) of the twenty-five (25) key study intersections to include key study intersections #8, #10, #12, #16, #17, #18, #19, #21 and #22. Based on this prescribed haul route, all trucks are assumed to circulate the project site in a clockwise manner.

(b) Existing Plus Construction Traffic Level of Service Results

Table IV.L-15, *Existing Plus Construction Traffic Peak Hour Intersection Capacity Analysis*, summarizes the results of the existing plus construction traffic LOS analysis at the aforementioned nine (9) key study intersections. The first column (1) of ICU/LOS values and HCM/LOS values in Table IV.L-15 presents a summary of existing A.M. and P.M. peak hour traffic conditions. The second column (2) lists existing plus construction traffic conditions. The third column (3) indicates whether or not the key study intersection will be temporarily impacted by construction traffic. The fourth column (4) shows the LOS results with implementation of a Construction Traffic Management Plan.

Table IV.L-15

Existing Plus Construction Traffic Peak Hour Intersection Capacity Analysis

	Key Intersections	Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Construction Traffic Conditions		(3) Significant Impact		(4) With Construction Traffic Management Plan		
			ICU/HCM	LOS	ICU/HCM	LOS	ICU/HCM Increase	Yes/No	ICU/HCM	LOS	Significant Impact
8.	Studebaker Road at	AM	0.600	B	0.623	B	0.023	No	--	--	No
	SR-22 Westbound Ramps	PM	0.831	D	0.847	D	0.016	No	--	--	No
10.	Studebaker Road at	AM	0.492	A	0.498	A	0.006	No	--	--	No
	SR-22 Eastbound Ramps	PM	0.674	B	0.688	B	0.014	No	--	--	No
12.	Studebaker Road at	AM	0.736	C	0.750	C	0.014	No	--	--	No
	Loynes Drive	PM	0.692	B	0.713	C	0.021	No	--	--	No
16.	Marina Drive at	AM	0.633	B	0.633	B	0.000	No	--	--	No
	2nd Street	PM	0.688	B	0.688	B	0.000	No	--	--	No
17.	PCH at	**AM**	**0.943**	**E**	**0.975**	**E**	**0.032**	**Yes**	**0.943**	**E**	No
	2nd Street	**PM**	**0.909**	**E**	**0.935**	**E**	**0.026**	**Yes**	**0.909**	**E**	No
18.	Shopkeeper Road at	AM	0.594	A	0.603	B	0.009	No	--	--	No
	2nd Street	PM	0.857	D	0.870	D	0.013	No	--	--	No
19.	Studebaker Road at	**AM**	**1.047**	**F**	**1.083**	**F**	**0.036**	**Yes**	**1.047**	**N.F.**	No
	2nd Street	**PM**	**1.122**	**F**	**1.158**	**F**	**0.036**	**Yes**	**1.122**	**N.F.**	No
21.	Marina Drive at	AM	9.7 sec/veh	A	10.0 sec/veh	A	0.3 sec/veh	No	--	--	No
	Studebaker Road	PM	12.9 sec.veh	B	13.2 sec/veh	B	0.3 sec/veh	No	--	--	No
22.	PCH at	AM	0.650	B	0.650	B	0.000	No	--	--	No
	Studebaker Road	PM	0.881	D	0.881	D	0.000	No	--	--	No

N.F. = None Feasible

Source: Linscott, Law & Greenspan, Engineers, 2011

Review of Table IV.L-15 shows that two of the nine key study intersections will be temporarily impacted during the site grading/excavation construction phase of the proposed project. These two locations consist of the intersections of PCH/2nd Street and Studebaker Road/2nd Street. As shown in column 4, with implementation of a Construction Traffic Management Plan, the temporary construction traffic impact at the intersection of PCH/2nd Street is eliminated. Given that the alternative inbound haul route also affects key study intersections #16, #21 and #22, the resultant LOS values are also reported in column 4. The following describes the alternative inbound haul route:

- To minimize the temporary construction impact at the intersection of PCH/2nd Street, construction travel patterns to the site will have to be modified and trucks will need to circulate the site in a "counterclockwise" manner. Trucks traveling to the site will need to travel through the PCH/2nd Street intersection, make a westbound left-turn at Marina Drive and make a southbound left-turn into the site through the existing median break. This path of travel would require a flag person at the Marina Drive entrance to facilitate the safe travel of trucks through the existing median break along Marina Drive. Without this alternative inbound haul route, this temporary construction impact will remain significant and unavoidable.

For the intersection of Studebaker Road/2nd Street, no physical mitigation measures are feasible; any additional turn lanes will require widening and additional right-of-way. Hence the temporary construction impact at this key intersection would be considered significant and unavoidable.

Overall, although Mitigation Measure L-8, below, would address temporary construction-related intersection impacts, such impacts would remain significant and unavoidable for the Studebaker Road/2nd Street intersection. As such, the proposed project would conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system.

(2) Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

(a) Impacts to CMP Intersections

Based on the proposed project's trip generation potential, trip distribution and trip assignment, the proposed project will add 50 or more trips at the identified CMP intersections during the weekday A.M. peak hour or P.M. peak hour. Therefore a CMP intersection TIA is required for the following intersections:

- **PCH at 7th Street** – Based on the results of a detailed analysis of project added trips to the CMP system, approximately 55 trips during the A.M. peak hour and 143 trips during the P.M. peak hour will be added by the project at this location. Per CMP TIA guidelines, intersection LOS analysis is therefore required. The impact analysis is discussed in detail above under intersection impacts and the results are summarized in Table IV.L-11. As presented previously, the analysis indicates that the proposed project will increase demand at this key intersection by two percent (0.02) or more during the P.M. peak hour (i.e. 0.028). However, with implementation of recommended improvements at this location, the impact of the proposed project would be offset.
- **PCH at 2nd Street** – Based on the results of a detailed analysis of project added trips to the CMP system, approximately 262 trips during the A.M. peak hour and 671 trips during the P.M. peak hour

will be added by the project at this location. Per CMP TIA guidelines, intersection LOS analysis is therefore required. The impact analysis is discussed in detail above under intersection impacts and the results are summarized in Table IV.L-11. As presented previously, the analysis indicates that the proposed project will increase demand at this key intersection by two percent (0.02) or more during the A.M. and P.M. peak hours (i.e., 0.047 and 0.133, respectively). Even with implementation of recommended improvements at this location, the intersection of PCH/2nd Street is not expected to operate at better than pre-project conditions during the P.M. peak hour (i.e., the project increment is not fully offset). Any other improvements at this location are considered to be infeasible. Therefore, impacts at this intersection remain significant and unavoidable.

Unlike the affected CMP intersections, based on the project's trip generation potential and distribution pattern, the proposed project will not add more than 150 trips during the A.M. or P.M. peak hour at the CMP mainline freeway-monitoring location (I-405 north of SR-22). Therefore, a CMP freeway TIA is not required.

Overall, the proposed project would result in a significant unavoidable impact at the intersection of PCH and 2nd Street, and, therefore, the proposed project would conflict with an applicable congestion management program with regard to CMP facilities. However, impacts related to CMP freeway segments would be less than significant, as indicated above.

(b) Impacts to Public Transit Facilities

As required by the current CMP, a review was made of the potential impacts of the project on transit service. As previously discussed, a number of transit services exist in the project area, necessitating the following transit impact review.

The project trip generation, as shown in Table IV.L-9, was adjusted by values set forth in the CMP (i.e., person trips equal 1.4 times vehicle trips, and transit trips equal 3.5 percent of the total person trips) to estimate project-related transit trip generation. Pursuant to the CMP guidelines, the proposed project is forecast to generate 17 transit trips (8 inbound and 9 outbound) during the A.M. peak hour and 40 transit trips (21 inbound and 19 outbound) during the P.M. peak hour. Over a 24-hour period the proposed project is forecasted to generate 553 daily weekday transit trips.

It is anticipated that the existing transit service in the project area would be able to accommodate the project generated transit trips. Metro Express Line 577X, OCTA Route 1, 42/42A, 50, 164, Long Beach Transit (LBT) Routes No's. 45, 46, 81, 91, 92, 93, 94, 96, 131, 171, 173 and Passport Routes A and D currently serves the surrounding vicinity. Therefore, given the number of transit trips generated by the project and the existing transit routes in the project vicinity, as well as project features such as bicycle facilities, pedestrian access improvements and connections, shuttle services, subsidized transit passes for all residents and employees, on-site flex cars, and guaranteed ride home, it is concluded that the existing public transit system would not be significantly impacted by the proposed project.

Therefore, as the proposed project would not have a significant impact on transit services serving the project site, and would not conflict with an applicable congestion management program with regard to transit services.

(3) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?

The analysis presented below evaluates the potential for the proposed project to result in hazardous traffic conditions by creating unsafe circulation patterns or dangerous intersections. Therefore, the discussion below assesses the adequacy of site access (in terms of LOS) as well as the need for intersection signalization in order to avoid vehicular conflicts or collisions with pedestrian and bicycle traffic.

(a) Level of Service Analysis for Project Access Locations

As noted above, access to the proposed project will be provided via three driveways located along PCH and four driveways located along Marina Drive. The three driveways located along PCH will all provide public access to the site and will consist of two right-turn in/right-turn out only driveways (referred to as Driveway A and Driveway C) and one full access signalized driveway (referred to as Driveway B). The four driveways along Marina Drive will consist of one left-turn in/right turn in/right turn out only driveway (referred to as Driveway D), one full access signalized driveway (referred to as Driveway E), one right-turn in/right-turn out only driveway (referred to as Driveway F), and one left-turn in/right-turn in only driveway (referred to as Driveway G). Driveway D will provide access to residents only, while Driveways E, F, and G will provide public access to the site.

Table IV.L-16, *Year 2015 Cumulative Plus Project Driveway Peak Hour Levels of Service Summary*, summarizes the Year 2015 Cumulative plus Project peak hour LOS results for the seven (7) project driveways. Review of Table IV.L-16, shows that all project driveways are forecast to operate at acceptable LOS D or better during the A.M., P.M. and Saturday Midday peak hours for Year 2015 Cumulative Plus Project traffic conditions. As such, project access will be adequate. Motorists entering and exiting the project site will be able to do so comfortably, safely, and without undue congestion.

Please note that a third southbound through lane along the project's PCH frontage was included in the LOS calculations. This additional lane is required in order for Driveway B to operate at an acceptable LOS. Implementation of the third southbound through lane along project frontage would require restriction of on-street parking and/or restriping on PCH.

Appendix G of the project's TIA presents the ICU/LOS and HCM/LOS calculations for the seven (7) project driveways.

(b) Internal Circulation

The on-site circulation layout of the proposed project, on an overall basis, is considered adequate. Since detailed (to scale) site plans are not available for review at this time, it is recommended that prior to finalization of the project site plan, the appropriate turning templates (ASSHTO SU-30, WB-50 and fire trucks) be utilized to confirm that all vehicles can properly access and circulate through the site and that all internal drive aisle widths, project driveway widths, and parking stall widths, especially within the parking garage, satisfy the City's minimum requirements.

Table IV.L-16

Year 2015 Cumulative Plus Project
Driveway Peak Hour Levels of Service Summary

Driveway		Time Period	Intersection Control	Year 2015 Cumulative Plus Project ICU/Delay	LOS
A.	PCH at Project Driveway A	A.M.	One-Way Stop	11.1 s/v	B
		P.M.		16.4 s/v	C
		Sat. Midday		17.1 s/v	C
B.	PCH at Project Driveway B[4]	A.M.	Five-Phase Signal	0.677	B
		P.M.		0.824	D
		Sat. Midday		0.868	D
C.	PCH at Project Driveway C	A.M.	One-Way Stop	10.8 s/v	B
		P.M.		13.8 s/v	B
		Sat. Midday		13.6 s/v	B
D.	Marina Drive at Project Driveway D	A.M.	One-Way Stop	9.1 s/v	A
		P.M.		9.2 s/v	A
		Sat. Midday		9.6 s/v	A
E.	Marina Drive at Project Driveway E	A.M.	Two-Phase Signal	0.227	A
		P.M.		0.337	A
		Sat. Midday		0.408	A
F.	Marina Drive at Project Driveway F	A.M.	One-Way Stop	9.6 s/v	A
		P.M.		11.2 s/v	B
		Sat. Midday		13.2 s/v	B
G.	Marina Drive at Project Driveway G	A.M.	Uncontrolled	7.9 s/v	A
		P.M.		8.3 s/v	A
		Sat. Midday		8.6 s/v	A

Source: Linscott, Law & Greenspan, 2011

(c) Traffic Signal Warrant Analysis

(i) California MUTCD Policy/Criteria

Per the direction of City staff, the level of service analysis at Marina Drive and Studebaker Road, PCH at Project Driveway B and Marina Drive at Project Driveway E is supplemented with an assessment of the need for signalization of the intersection. This assessment is made on the basis of signal warrant criteria adopted by Caltrans. For this analysis, the need for signalization is assessed on the basis of the peak-hour traffic signal warrant, Warrant #3, which is described in the current *California Manual on Uniform Traffic Control Devices (MUTCD).* Warrant #3 has two parts: 1) Part A evaluates peak hour vehicle delay for traffic on the minor street approach with the highest delay, and 2) Part B evaluates peak-hour traffic volumes on the major

[4] *Please note that the level of service values at this key project driveway include traffic from the Market Place Shopping Center that was re-routed to this location as part of the proposed driveway realignment.*

and minor streets. This method provides an indication of whether peak-hour traffic conditions or peak-hour traffic volume levels are, or would be, sufficient to justify installation of a traffic signal. Other traffic signal warrants are available; however, they cannot be checked under future conditions (cumulative without and with Project) because they rely on data for which forecasts are not available (such as accidents, pedestrian volume, and four-hour or eight-hour vehicle volumes).

The decision to install a traffic signal should not be based purely on the warrants alone. Instead, the installation of a signal should be considered and further analysis performed when one or more of the warrants is met. Additionally, engineering judgment is exercised on a case-by-case basis to evaluate the effect a traffic signal will have on certain types of accidents and traffic conditions at the subject intersection, as well as at adjacent intersections.

(ii) Traffic Signal Warrant Results

Table IV.L-17, *Traffic Signal Warrant Analysis Summary*, summarizes the results of the peak-hour traffic signal warrant analysis for Year 2015 Cumulative plus Project traffic conditions. As shown, the intersections of Marina Drive/Studebaker Road, PCH/Project Driveway B, and Marina Drive/Project Driveway E exceed the volume thresholds of Warrant #3, Part A and/or B, and thus satisfy the traffic signal warrant.

Table IV.L-17

Traffic Signal Warrant Analysis Summary[a]

Key Intersection		Time Period	Year 2015 Cumulative Traffic Plus Project: Part A of Warrant 3 Satisfied?	Year 2015 Cumulative Traffic Plus Project: Part B of Warrant 3 Satisfied?
21.	Marina Drive at Studebaker Road	A.M.	--	No
		P.M.	--	Yes
		Sat. Midday	--	No
B.	PCH at Driveway B	A.M.	No	No
		P.M.	Yes	Yes
		Sat. Midday	Yes	Yes
E.	Marina Drive at Driveway E	A.M.	No	No
		P.M.	No	No
		Sat. Midday	No	Yes

[a] *Signal warrant checks based on Warrant 3, Part A - Peak-Hour Delay Warrant and Part B - Peak-Hour Volume Warrant are contained in the California MUTCD.*

Source: Linscott, Law & Greenspan, 2011

As shown in Table IV.L-11, above, Marina Drive at Studebaker Road is forecast to operate at LOS A during the weekday A.M. and P.M. peak hours and the Saturday mid-day peak hour with the installation of a traffic signal at this location. For PCH/Project Driveway B and Marina Drive/Project Driveway E, these two project driveways are forecast to operate at a satisfactory LOS as well (See Table IV.L-16 above). Appendix F of the project's TIA contains the traffic signal warrant worksheets.

Overall, the proposed project's on-site circulation system would be adequate to allow for internal vehicular mobility and the provision of new traffic signals at Marina View Lane (Project Driveway B) and PCH, Marina View Lane (Project Driveway E) and Marina Drive, and Marina Drive and Studebaker Road would preclude safety hazards at these locations related to unsafe intersections. With adherence to the internal circulation design and provision of the new traffic signals, the proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses. Accordingly, impacts would be less than significant, and no mitigation measures are required.

(4) Would the project result in inadequate emergency access?

As discussed above, the TIA determined that the internal circulation system on-site is considered adequate to allow for unobstructed vehicular access throughout the development. Vehicular access for emergency vehicles would be provided throughout development phases within the project site and surrounding area, as required by the City and applicable regulations. Upon submittal of specific development plans for the various project phases, specific project design will be evaluated as part of the plan check process, including review by the Long Beach Fire Department, in order to ensure adequate access is provided for all necessary emergency vehicles. Subject to review and approval of plans relative to adequate vehicular access, the development phases would not restrict or preclude access for emergency vehicles, and, therefore, the proposed project would not result in inadequate emergency access. As such, impacts would be less than significant, and no mitigation measures are required.

(5) Would the project result in inadequate parking capacity?

The parking analysis for the proposed project involves determining the expected parking needs, based on the size and type of the proposed development components, versus the parking supply. For the proposed project's parking analysis, the following methods were used to estimate the peak parking demands of the proposed project:

- Application of City code requirements (which typically treat each use as a "stand alone" use at maximum demand); and
- Application of shared parking usage patterns by time-of-day (which recognizes that the parking demand for each land use component varies by time of day, day of week, and/or month of year).

(a) Proposed Parking Supply

As indicated in Section II, *Project Description*, of this EIR, a total of 1,440 parking spaces will be provided in the project's parking garage. Of these spaces, 325 spaces will be allocated for residents, 902 spaces for retail/resident guests, and 213 spaces for hotel/valet uses.

(b) City Code Parking Analysis

To determine the number of parking spaces required to support the proposed project, the parking demand was calculated using City parking code requirements per the LBMC, *Chapter 21.41, Off-Street Parking and Loading Requirements*. The following parking ratios were used to determine the required parking:

- Residential: Parking shall be required at:

  - 1.0 dedicated space per unit as requested in the proposed Southeast Area Improvement and Development Plan (SEADIP) amendment and per a Parking Management Plan that requires approval by the City Traffic Engineer and Development Services Director.
  - Guest parking shall be counted as 1 space for every 4 units.
- Retail: 4 spaces per 1000 square-feet (SF) of gross floor area (GFA).
- Library/Museum: 4 spaces per 1000 SF of GFA.
- Restaurant: Parking shall be required at:
  - Ready to Eat Restaurant: 4 spaces/1000 SF of GFA
  - Dinner Restaurant: 10 per 1,000 SF of GFA of dining area
  - Tavern: 20 spaces per 1000 SF of GFA
- Hotel/Motel Uses- Parking shall be required at:
  - 1.0 spaces/room, plus
  - 20 spaces per 1000 SF of banquet area.
- Assembly/Theatre Uses- 1 space per 3.3 seats

Table IV.L-18, *Proposed Parking Requirements*, presents the demand-based parking alternative as proposed for the project. As shown, direct application of this alternative to the proposed project results in a total parking requirement of requirement of 1,695 spaces, of which 1,075 spaces are required for the retail component, 214 spaces for the hotel component and 406 spaces are required for the residential component. With a proposed parking supply of 1,440 parking spaces, the proposed project would be considered deficient by 255 parking spaces when compared to the City's parking requirements.

These parking requirements reflect the total parking demand of the center assuming each use is a "free-standing" development at maximum demand and does not consider the "sharing" of parking spaces or time of day parking demand needs. To further validate the adequacy of the proposed supply and determine the proposed project's peak parking demand, a shared parking analysis is provided.

(c) Shared Parking Analysis

To further assess the adequacy of parking for the retail and hotel components and the residential guests for the proposed project, the shared parking methodology was utilized. According to the Urban Land Institute's (ULI's) *Shared Parking* 2nd Edition publication, shared parking is defined as parking space that can be used to serve two or more individual land uses without conflict or encroachment. The ULI *Shared Parking* publication provides hourly parking accumulation rates for residential and retail uses, as well as other uses, to include office, theatre, restaurant, hotel, etc., expressed as a percentage of the peak demand for the day.

(i) Shared Parking Rationale and Basis

Accumulated experience in parking demand characteristics indicates that a mixing of land uses results in an overall parking need that is less than the sum of the individual peak requirements for each land use. Due to the mixed-use characteristics of the proposed project, opportunities to share parking can be expected. The

Table IV.L-18

Proposed Parking Requirements

Project Description	Square-feet of Development		Proposed Parking Ratio	Spaces Required
Second + PCH Development				
Retail	191,475	SF	4 spaces per 1,000 SF	766
Restaurant	16,000	SF	10 spaces per 1,000 SF	160
Tavern	5,092	SF	20 spaces per 1,000 SF	102
Theater	99	Seats	1 space per 3.3 Seats	30
Marine Science Center	4,175	SF	4 spaces per 1,000 SF	17
Hotel - Rooms	100	Rooms	1 space per room	100
Meeting Space	3,510	SF	20 spaces per 1,000 SF	70
Hotel Restaurant	4,368	SF	10 spaces per 1,000 SF	44
Residential Block 1	70	Units	1 spaces per unit	70
Residential Block 2	149	Units	1 spaces per unit	149
Residential Block 3	106	Units	1 spaces per unit	106
Guest Parking	325	Units	1 space per 4 units	81
			Total Parking Requirement:	**1,695**
			Proposed Parking Supply:	**1,440**
			Parking Surplus/Deficiency (+/-):	**-255**

Source: Linscott, Law & Greenspan, 2011

objective of this shared parking analysis is to forecast the peak parking demand for the proposed project based on the combined demand patterns of different land uses at the site.

Shared parking calculations recognize that different uses often experience individual peak parking demands at different times of day, or days of the week, or even months of the year. When uses share a common parking footprint, the total number of spaces needed to support the collective whole is determined by adding parking profiles (by time of day, week, and year), rather than individual peak ratios as represented in the LBMC.

Shared parking calculations for the analysis utilize hourly parking accumulations developed from field studies of single developments in free-standing settings, where travel by private auto is maximized. These characteristics permit the means for calculating peak parking needs when land use types are combined. Further, the shared parking approach will result, at other than peak parking demand times, in an excess amount of spaces that will service the overall needs of the project.

(ii) Shared Parking Ratios and Profiles

The hourly parking demand profiles (expressed in percent of peak demand) utilized in this analysis and applied to the proposed project are based on profiles developed by the ULI and published in *Shared Parking, 2nd Edition*. The ULI publication presents hourly parking demand profiles for seven general land uses: office, retail, restaurant, cinema, residential (Central Business District: CBD and non-CBD), hotel (consisting of separate factors for guest rooms, restaurant/lounge, conference room, and convention area). These factors present a profile of parking demand over time and have been used directly, by land use type, in the analysis of the proposed project.

One of the components for proposed project is retail space, the ULI retail use profiles are applied directly. In doing so, there is an intermediate step in expressing ULI profiles as a percentage of the week-long peak, thus arriving at a weekday profile and weekend profile each expressed as a percentage of the baseline parking ratio. (ULI actually starts with separate ratios for weekday and weekend day, and develops profiles for each accordingly; we've found it more convenient to translate both profiles to a percent of expected maximum demand, which, for retail, turns out to be on a Saturday.) The resulting profiles represent the most likely hourly parking demand profile, and are applied to the City's retail parking ratio of 4 spaces per 1000 SF. Peak demand for retail uses occurs between 1:00 P.M. – 2:00 P.M. on weekdays, and 2:00 P.M. – 4:00 P.M. on weekends.

For residential uses, peak demand for guests/visitors occurs between 7:00 P.M. to 10:00 P.M. on both weekdays and weekends. The ULI residential guest demand profile was applied to the proposed project. To remain conservative, the guest parking requirements was included and calculated based on the City's parking ratio of one space per four dwelling units (1 space/4 units).

For this analysis, the restaurant use profile for a fine/casual dining restaurant was utilized. Like the retail profiles, the restaurant profiles are derived exactly from the ULI baseline. The restaurant-parking ratio utilized in this analysis exactly matches the City's parking ratio assumed for restaurant uses in this analysis. According to the *Shared Parking* publication, casual/fining dining restaurant uses are shown to experience peak demand between 7:00 P.M. and 10:00 P.M. on weekdays, and 8:00 P.M. and 9:00 P.M. on weekends.

Non-guest adjustments were applied to the hotel restaurant and meeting space. It was presumed that 20 percent of the visitors were non-guests of these hotel facilities (the remaining 80 percent as guests of the hotel, with parking demand calculated under the "hotel" category).

(iii) Reserved Spaces/Shared Parking Supply

The shared parking analysis takes into account the number of reserved residential spaces that are included in the site's parking supply. For this analysis, a total of 325 spaces are assumed to be reserved for residents (calculated at 1 space per unit), and, therefore, would not be available within the shared parking "pool" of parking. With a proposed parking supply of 1,440 spaces, a shared parking "pool" of 1,115 spaces would be available for retail/restaurant customers and employees, hotel guests, and residential guests of the proposed project.

(iv) Project Shared Parking Assessment

Table IV.L-19, *Weekday Shared Parking Demand Analysis*, and **Table IV.L-20**, *Weekend Shared Parking Demand Analysis*, present the weekday and weekend Shared Parking Analysis, respectively, for the retail/restaurant component, hotel component and the residential guests of proposed project. Columns (1) through (7) of these tables present the parking accumulation characteristics and parking demand for the proposed project's retail, restaurant and hotel components and residential guests between the hours of 6:00 A.M. to midnight, respectively. Column (8) presents the total shared parking demand, while Column (9) presents a comparison to a potential shared "customer/employee/guest" parking supply of 1,115 spaces. Review of Tables IV.L-19 and IV.L-20 identifies the hourly variation in total parking demand for a weekday and weekend day and only a few hours of each day are shown to experience peak demand levels.

As shown in Table IV.L-19, during the weekday, the peak parking demand is forecast to occur at 7:00 P.M., with a peak demand of 1,092 spaces. With a shared parking supply of 1,115 spaces, a parking surplus of 23 spaces is forecast.

For a weekend day, Table IV.L-20 indicates that the commercial and hotel uses and condominium visitors/guests will experience a peak parking demand at 7:00 P.M. with a combined demand of 1,033 spaces. With a shared parking supply of 1,115 spaces, a parking surplus of 82 parking spaces is forecast during the weekend peak hour. Appendix I of the TIA (Appendix K of this EIR) contains the shared parking analysis calculation worksheets for the proposed project.

Figures 12-1 and 12-2 in the project's TIA graphically illustrate the Shared Parking demand profile under weekday and weekend conditions, respectively. Each land use component and its corresponding hourly Shared Parking demand, which were summarized in Tables IV.L-19 and IV.L-20, are depicted in these two figures relative to a shared parking supply of 1,115 spaces.

(d) Parking Conclusions

The results of the parking evaluation indicate that with a proposed parking supply of 1,440 parking spaces and a parking requirement of 1,695 spaces, the proposed project will be deficient by 225 parking spaces when compared to the City parking requirements. Of the 1,695 spaces, 1,075 spaces are required for the retail component, 214 spaces for the hotel component and 406 spaces are required for the residential component.

With 325 of the 1,440 spaces dedicated specifically for the proposed residential uses, parking will be adequate per the proposed SEADIP amendment, but will require a Parking Management Plan and approval by the City Traffic Engineer and Development Services Director; it is expected that guests will share parking with the retail and hotel components of the proposed project.

Based on the results of the shared parking analysis, the retail/restaurant component, hotel component and the residential guests of the proposed project have a combined peak parking requirement of 1,092 spaces, which results in a parking surplus of 23 spaces when compared to a shared parking supply of 1,115 spaces. As such, the proposed project would not result in inadequate parking capacity relative to projected peak parking demands; therefore, impacts would be less than significant, and no mitigation measures are required.

Table IV.L-19

Weekday Shared Parking Demand Analysis

Land Use	Retail	Fine/Casual Dining	Cineplex	Business Hotel	Restaurant/ Lounge	Conference Ctr/Banquet	Residential	Total spaces = 1,279 Shared Parking Demand	Comparison w/Parking Supply 1,115 spaces
Size Pkg Rate[a]	195,650 KSF 4/KSF	21,092 KSF 12.4/KSF [b]	99 Seats 0.202/Seat	100 Rms 1/Rm	4,368 KSF 10/KSF	3,510 KSF 20/KSF	325 DU 0.25 /DU		
Gross Spaces	783 Spc.	262 Spc	30 Spc.	100 Spc.	9 Spc. [c]	14 Spc. [c]	81 Spc.		
Time of Day	Number of Spaces	Number of Spaces	Number of Spaces	Number of Spaces	Number of Spaces	Number of Spaces	Number of Spaces		Surplus (Deficiencies)
6:00 AM	20	0	0	77	0	0	0	97	1,108
7:00 AM	53	7	0	78	1	0	8	147	968
8:00 AM	143	18	0	82	3	4	16	266	849
9:00 AM	305	27	0	74	1	8	16	431	684
10:00 AM	489	63	0	68	1	8	16	645	470
11:00 AM	617	112	0	68	0	8	16	821	294
12:00 PM	680	183	4	64	9	9	16	965	150
1:00 PM	705	183	10	64	9	9	16	996	119
2:00 PM	680	163	12	68	3	9	16	951	164
3:00 PM	648	107	13	68	1	9	16	862	253
4:00 PM	648	127	13	70	1	9	16	884	231
5:00 PM	674	187	14	70	3	14	32	994	121
6:00 PM	674	227	14	68	5	14	49	1,051	64
7:00 PM	***674***	***236***	***18***	***64***	***5***	***14***	***81***	***1,092***	***23***
8:00 PM	577	236	22	68	6	14	81	1,004	111
9:00 PM	387	236	22	72	6	14	81	818	297
10:00 PM	225	227	18	80	5	7	81	643	472
11:00 PM	78	182	15	82	4	0	65	426	689
12:00 AM	0	64	9	81	3	0	41	198	917

[a] *Parking rates for all land uses based on City of Long Beach Parking Requirements.*
[b] *Parking rate is based on an interpolation between Tavern at 20 KSF and Restaurant at 10 KSF.*
[c] *Presumes 80% Hotel guest utilization and 20% non Hotel guest utilization.*

Source: ULI-Urban Land Institute "Shared Parking," Second Edition, 2005

Table IV.L-20

Weekend Shared Parking Demand Analysis

Land Use	Retail	Fine/Casual Dining	Cineplex	Business Hotel	Restaurant/ Lounge	Conference Ctr/Banquet	Residential	Total spaces = 1,279 Shared Parking Demand	Comparison w/Parking Supply 1,115 spaces
Size Pkg Rate[a]	195,650 KSF 4/KSF	21,092 KSF 12.4/KSF [b]	99 Seats 0.202/Seat	100 Rms 1/Rm	4,368 KSF 10/KSF	3,510 KSF 20/KSF	325 DU 0.25 /DU		
Gross Spaces	783 Spc.	262 Spc	30 Spc.	100 Spc.	9 Spc. [c]	14 Spc. [c]	81 Spc.		
Time of Day	Number of Spaces	Number of Spaces	Number of Spaces	Number of Spaces	Number of Spaces	Number of Spaces	Number of Spaces		Surplus (Deficiencies)
6:00 AM	22	0	0	69	0	0	0	91	1024
7:00 AM	55	8	0	69	1	0	16	149	966
8:00 AM	126	12	0	70	3	4	16	231	884
9:00 AM	306	23	0	63	1	8	16	417	698
10:00 AM	446	29	0	58	1	8	16	558	557
11:00 AM	556	62	0	58	0	8	16	700	415
12:00 PM	658	141	7	55	9	9	16	895	220
1:00 PM	720	152	14	55	9	9	16	975	140
2:00 PM	783	129	17	58	3	9	16	1015	100
3:00 PM	783	129	17	58	1	9	16	1013	102
4:00 PM	752	129	17	59	1	9	16	983	132
5:00 PM	712	173	18	61	3	14	32	1013	102
6:00 PM	634	240	18	63	5	14	49	1023	92
7:00 PM	***596***	***251***	***24***	***62***	***5***	***14***	***81***	***1033***	***82***
8:00 PM	515	262	30	65	6	14	81	973	132
9:00 PM	415	240	30	69	6	14	81	855	260
10:00 PM	290	240	30	75	5	7	81	728	387
11:00 PM	118	234	24	78	4	0	65	523	592
12:00 AM	0	132	16	75	3	0	41	267	848

[a] *Parking rates for all land uses based on City of Long Beach Parking Requirements.*
[b] *Parking rate is based on an interpolation between Tavern at 20 KSF and Restaurant at 10 KSF.*
[c] *Presumes 80% Hotel guest utilization and 20% non Hotel guest utilization.*

Source: ULI-Urban Land Institute "Shared Parking," Second Edition, 2005

(6) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

The proposed project would comply with all applicable plans, policies, and programs regarding public transit, bicycle, and pedestrian facilities, such as the CMP (regarding public transit services), General Plan Circulation Element, and Long Beach Bicycle Master Plan. As noted above, the proposed project would implement a TDM plan on-site that would include subsidized transit passes for all residents and employees, on-site flex cars, guaranteed ride home, airport shuttle for hotel guests and a bike facility on-site. The proposed project would also implement a shuttle service along 2nd Street between Bay Shore Avenue and the project site. Additionally, the proposed project would include Class II bike lanes along both sides of Marina Drive, which would connect to regional Class I bike paths such as the San Gabriel River trail, and provide an on-site cycling center with bike racks, lockers, and changing facilities. Furthermore, the proposed project would provide enhanced pedestrian access and mobility through improved landscaped sidewalks, crosswalks, and a new pedestrian bridge over Marina Drive directly linking the project site with the Alamitos Bay Marina. Given the extent of alternative transportation programs and facilities provided on-site, the proposed project would support and would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Impacts would be less than significant and no mitigation measures are required.

4. MITIGATION MEASURES

For the study intersections where project-related traffic volumes are expected to have a significant traffic impact and result in unacceptable operating conditions, the TIA identifies traffic improvement measures that change the intersection geometry to increase capacity. These capacity improvements involve roadway widening and re-striping to reconfigure (add lanes) to specific approaches of a key intersection. The identified improvements are expected to accomplish the following:

- Mitigate the impact of future non-project (ambient traffic growth and cumulative project) traffic and project traffic, and/or
- Improve LOS to acceptable ranges and/or to pre-project conditions.

a. Traffic Reduction Measures

The following improvements, included as mitigation measures, will be implemented by the proposed project to help offset the project's significant impacts at the key study intersections:

Mitigation Measure L-1 – TDM Plan. The proposed project shall implement a TDM Plan. The TDM Plan shall consist of subsidized transit passes for all residents and employees, on-site flex cars, guaranteed ride home, airport shuttle for hotel guests and a bike facility on-site.

Mitigation Measure L-2 – Shuttle Service. The proposed project shall implement a shuttle service along 2nd Street between Bay Shore Avenue and the project site.

b. Intersection Improvements for Existing Plus Project Traffic Conditions

The results of the existing plus project LOS analysis as summarized in Table IV.L-10 indicates that the proposed project will significantly impact four (4) of the twenty-five (25) key study intersections. The following are improvements recommended to mitigate the existing plus project traffic impacts:

Mitigation Measure L-3 – Intersection No. 6 – PCH at 7th Street: Modify the existing medians on PCH and restripe PCH to provide a second northbound left-turn lane. Modify the existing traffic signal accordingly. Implementation of this improvement completely offsets the impact of the proposed project. The installation of this mitigation measure is subject to the approval of the City of Long Beach and/or Caltrans.

Mitigation Measure L-4 – Intersection No. 14 – Bay Shore Avenue at 2nd Street: Project shuttle service. Implementation of this improvement completely offsets the impact of the proposed project.

Mitigation Measure L-5 – Intersection No. 17 – PCH at 2nd Street: Project shuttle service. Purchase right-of-way from the Mobil gas station located on the southeast corner of the intersection and construct an exclusive northbound right-turn lane. Restripe 2nd Street to convert the eastbound shared through/right-turn lane into an exclusive third eastbound through lane. Modify the existing traffic signal to provide an eastbound right-turn overlap phase. Modify the median and extend the left-turn storage for the dual westbound left-turn lanes on 2nd Street. The installation of these mitigation measures are subject to the approval of the City of Long Beach and/or Caltrans.

Based on existing constraints, any additional mitigation beyond what was identified above would be considered non-feasible. Hence the project's impact at this key intersection would be considered significant and unavoidable.

Intersection No. 19 – Studebaker Road at 2nd Street: No physical mitigation measures are feasible; any additional turn lanes will require widening and additional right-of-way. Hence the project's impact at this key intersection would be considered significant and unavoidable.

d. Intersection Improvements for Year 2015 Plus Project Traffic Conditions (Mitigation Measures)

The results of the Year 2015 LOS analysis as summarized in IV.L-11 indicates that the proposed project will significantly impact six (6) of the twenty-five (25) key study intersections. The following are improvements recommended to mitigate the Year 2015 plus project traffic impacts:

No. 6 – PCH at 7th Street *(Same as Mitigation Measure L-3)***:** Modify the existing medians on PCH and restripe PCH to provide a second northbound left-turn lane. Modify the existing traffic signal accordingly. Implementation of this improvement completely offsets the impact of the proposed project. The installation of this mitigation measure is subject to the approval of the City of Long Beach and/or Caltrans.

Mitigation Measure L-6 – Intersection No. 8 – Studebaker Road at SR-22 Westbound Ramps: Modify the intersection to create two separate intersections. The northerly intersection will be entirely new and will consist of the SR-22 westbound off-ramp. The new intersection will provide two northbound through lanes, three southbound through lanes, dual westbound left-turn lanes and a free westbound right-turn lane controlled by a two-phase traffic signal. The existing southerly intersection will consist of the SR-22 westbound on-ramp and will provide two northbound through lanes, a free northbound right-turn lane, an exclusive southbound left-turn lane and two southbound through lanes controlled by a two phase traffic signal. Implementation of these improvements completely offsets the impact of the proposed project. The installation of these mitigation measures are subject to the approval of the City of Long Beach and/or Caltrans.

No. 14 – Bay Shore Avenue at 2nd Street *(Same as Mitigation Measure L-4)***:** Project shuttle service. Implementation of this improvement completely offsets the impact of the proposed project.

No. 17 – PCH at 2nd Street *(Same as Mitigation Measure L-5)***:** Project shuttle service. Purchase right-of-way from the Mobil gas station located on the southeast corner of the intersection and construct an exclusive northbound right-turn lane. Restripe 2nd Street to convert the eastbound shared through/right-turn lane into an exclusive third eastbound through lane. Modify the existing traffic signal to provide an eastbound right-turn overlap phase. Modify the median and extend the left-turn storage for the dual westbound left-turn lanes on 2nd Street. The installation of these mitigation measures are subject to the approval of the City of Long Beach and/or Caltrans.

Based on existing constraints, any additional mitigation beyond what was identified above would be considered non-feasible. Hence the project's impact at this key intersection would be considered significant and unavoidable.

Mitigation Measure L-7 – Intersection No. 18 – Shopkeeper Road at 2nd Street: Restripe Shopkeeper Road to provide a separate northbound right-turn lane. Extend the storage capacity for the westbound left-turn lane on 2nd Street. Modify the existing traffic signal accordingly. Implementation of these improvements completely offsets the impact of the proposed project. The installation of these mitigation measures are subject to the approval of the City of Long Beach.

No. 19 – Studebaker Road at 2nd Street *(Same as under Existing Plus Project Conditions)***:** No physical mitigation measures are feasible; any additional turn lanes will require widening and additional right-of-way. Hence, the project's impact at this key intersection would be considered significant and unavoidable.

e. Construction Traffic Mitigation Measures

The following mitigation measure would reduce impacts related to construction traffic:

Mitigation Measure L-8 – Construction Truck Traffic – In order to minimize the temporary construction impact at the intersection of PCH/2nd Street, construction travel patterns to the site shall be modified and trucks shall circulate the site in a "counterclockwise" manner. Trucks traveling to the site shall travel through the PCH/2nd Street intersection,

make a westbound left-turn at Marina Drive and make a southbound left-turn into the site through the existing median break. This path of travel would require a flag person at the Marina Drive entrance to facilitate the safe travel of trucks through the existing median break along Marina Drive.

f. Transportation Improvement Fee

Mitigation Measure L-9 – Transportation Improvement Fee – Pursuant to the requirements of the City of Long Beach Municipal Code, Transportation Improvement Fees shall be required of the project. The Transportation Improvement Fee, based on the size of all new residential and commercial development in the City of Long Beach, is assessed as shown below:

- Residential: $1,125.00 per unit
- Retail (City-Wide): $3.00 per square-foot
- Hotel (City-Wide): $750 per quest room
- Movie Theatre (City-Wide): $140.00 per seat

Based on a total project development of 325 residential dwelling units, a 100-room hotel, 216,935 SF of commercial (retail/restaurant) space, and a 99-seat theatre and using the above-referenced unit costs, the proposed Second + PCH Development can be expected to pay up to $1,104,711 in Transportation Improvement Fees. The precise fee, plus any credit for existing development, shall be determined by the City of Long Beach upon issuance of project building permits.

g. CALTRANS Analysis Traffic Improvements

Recommended improvements required at the following location to mitigate the proposed project's impact per Caltrans' methodology include the following:

No. 17 – PCH at 2nd Street *(Same as Mitigation Measure L-3)***:** Project shuttle service. Purchase right-of-way from the Mobil gas station located on the southeast corner of the intersection and construct an exclusive northbound right-turn lane. Restripe 2nd Street to convert the eastbound shared through/right-turn lane into an exclusive third eastbound through lane. Modify the existing traffic signal to provide an eastbound right-turn overlap phase. Modify the median and extend the left-turn storage for the dual westbound left-turn lanes on 2nd Street. The installation of these mitigation measures are subject to the approval of the City of Long Beach and/or Caltrans.

Based on existing constraints, any additional mitigation beyond what was identified above would be considered non-feasible. Hence, the Project's impact at this key intersection would be considered significant and unavoidable.

Mitigation Measure L-10 – No. 25 – Seal Beach Boulevard at PCH: Convert the westbound right turn lane into a third westbound through lane and widen to allow for an exclusive right-turn lane. Implementation of these improvements completely offsets the impact of the proposed project. The installation of this mitigation measure is subject to the approval of the City of Seal Beach and/or Caltrans.

As an alternative to the aforementioned improvements, the proposed project could pay the appropriate City of Seal Beach Transportation Facilities and Programs Development Fees to offset its impact at this location. It should be noted that if the aforementioned recommended roadway improvements are not implemented, then the project's impact at this key intersection would be considered significant and unavoidable.

5. CUMULATIVE IMPACTS

Inasmuch as the analysis of project-related impacts utilized cumulative growth of one percent per year to establish future traffic conditions to Year 2015, as well as consideration of the five known related development projects, cumulative traffic impacts have been addressed in the analysis presented above. Accordingly, as indicated previously, the proposed project would contribute to cumulative intersection impacts at the following intersections:

17. PCH at 2nd Street

19. Studebaker Road at 2nd Street

The ambient growth, related project traffic, and proposed project traffic would exceed the level of service thresholds at these intersections, and because intersection improvements at these locations are considered infeasible, cumulative intersection impacts are considered significant and unavoidable, and the project's contribution to these impacts would be considerable.

As is the case with the proposed project, each cumulative project would be subject to review and approval of project plans by the City of Long Beach or City of Seal Beach, as applicable, and Long Beach Fire Department/Orange County Fire Authority to ensure adequate right-of-way for on-site circulation and vehicle access, including emergency vehicles. Therefore, it is anticipated that cumulative development projects would not substantially increase hazards due to a design feature or result in inadequate emergency access, and cumulative impacts would be less than significant. The project's contribution to these impacts would not be cumulatively considerable.

As cumulative development occurs, public transit agencies are expected to respond by expanding their services and facilities to meet growing demands. It is also expected that cumulative development projects would also provide adequate public transit facilities, such as bus turnouts, shelters, and signage, to the satisfaction of affected transit agencies. Assuming public transportation keeps pace with demand based on market forces, as is expected, cumulative transit impacts would be less than significant, and the proposed project's contribution to this impact would not be cumulatively considerable.

Parking for future development projects under the cumulative growth scenario would be required to either provide off-street parking per the requirements of the LBMC, or provide parking pursuant to an approved shared parking program. In either case, future development projects would be required to provide parking in sufficient quantity that a parking deficiency does not occur, which would result in parking overflow or otherwise affect the parking availability for nearby land uses. As such, cumulative parking impacts would be less than significant, and the proposed project's contribution to this impact would not be cumulatively considerable.

6. LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts related to transit service and facilities, vehicular and emergency access, parking adequacy, and consistency with applicable regulations under the future 2015 scenario are either less than significant or can be reduced to less than significant levels with implementation of applicable mitigation measures. As such, no significant unavoidable impacts would result from project implementation in this regard.

However, recommended improvements to the following two (2) study area intersections (including one CMP intersection), are not expected to be feasible due to right-of-way restrictions, as indicated previously:

- No. 17 – PCH at 2nd Street
- No. 19 – Studebaker Road at 2nd Street

Since recommended improvements at these intersections are considered infeasible, full implementation of the proposed project would result in significant unavoidable traffic impacts at these locations. Additionally, physical improvements to reduce construction-related truck traffic impacts at the Studebaker/2nd Street intersection are considered infeasible, and therefore significant unavoidable construction traffic impacts at this location would occur.

As such, if the City approves the proposed project, the City shall cite its findings in accordance with Section 15091 of the CEQA *Guidelines* and adopt a Statement of Overriding Considerations in accordance with Section 15093 of the CEQA *Guidelines*.