Section 3.13
Traffic and Transportation

SECTION SUMMARY

This section identifies the existing relevant traffic and transportation conditions within the project site and traffic study area, and assesses how the construction and operation of the proposed project would potentially affect those conditions. An analysis of potential impacts on traffic and transportation associated with the alternatives is detailed in Chapter 4 Analysis of Alternatives.

Section 3.13 Traffic and Transportation provides the following:

- A description of existing traffic and transportation conditions at and near the project site;
- A description of existing regulations relative to traffic and transportation;
- A discussion on the methodology and thresholds used to determine whether the proposed project would result in a significant impact to traffic and transportation ;
- An impact analysis of the proposed project associated with traffic and transportation;
- A description of any Conditions of Approval that the City would impose, or mitigation measures proposed to reduce any potential impacts and residual impacts (i.e., impacts remaining after mitigation), if applicable;
- An analysis of potential cumulative impacts associated with traffic and transportation;
- A summary of impact determinations associated with the proposed project, cumulative growth, and mitigation measures; and,
- A description of significant unavoidable impacts associated with traffic and transportation, if applicable.

Key Points of Section 3.13:

<u>Construction Traffic</u>: The peak construction activity would generate approximately 1,895 daily trips, which is fewer daily and peak hour net new trips than are projected for the proposed project during operation (12,550 daily trips, 344 AM peak hour trips, and 782 PM peak hour trips). The existing uses within the project site are estimated to currently generate a total of 9,684 daily trips (419 AM peak hour trips and 693 PM peak hour trips). The proposed project is projected to generate a total of 22,234 daily trips (763 AM peak hour trips and 1,475 PM peak hour trips), for a net new of 12,550 daily trips associated with the proposed project. Given that a majority of the existing uses would not be operational during project construction (only Kincaid's and the adjacent Monstad Pier would remain in operation) and the number of construction-related vehicle trips would be less than what would otherwise occur under existing conditions (i.e., existing uses being operational), no significant traffic impacts are expected during the construction period. In addition, minor roadway connections and improvements would be required on roadways immediately adjacent to the project site (e.g., Portofino Way, Harbor Drive, and Harbor Drive/Pacific Avenue). This work may require a temporary detour

for vehicles and pedestrian access into or adjacent to the project site, which may include narrowed traffic lanes or temporary traffic and pedestrian rerouting at various times during an approximately six to nine month period. As is standard for construction within City streets, the City would require traffic control plans, rerouting of traffic, and business and emergency ingress/egress for the adjacent roadway connections/improvements. The connection/improvement work on these adjacent roadways would be temporary and would not create substantial congestion, inconvenience to motorists, or hazardous conditions that would be caused by the proposed project on a regular or frequent basis in comparison to existing conditions; therefore, the impact would be less than significant. Notwithstanding, as part of the Conditional Use Permit process, the City is proposing Conditions of Approval for specific construction traffic-related measures to be included in the Construction Management Plan for the project. The Construction Management Plan would be submitted to the City's Community Development Department for review, and issuance of demolition, grading, or building permits is subject to approval of the Plan. The City is proposing the following Condition of Approval as part of its Conditional Use Permit procedures:

COA TRA-1: Construction Traffic: The following conditions are recommended:

- A flagman shall be placed at the truck entry and exit from the Project site
- To the extent feasible, deliveries and pick-ups of construction materials shall be scheduled during non-peak travel periods to the degree possible and coordinated to reduce the potential of trucks waiting to load or unload for protracted periods of time.
- Access shall remain unobstructed for land uses in proximity to the Project site during project construction.
- Minimize lane and sidewalk closures to the extent feasible. In the event of a temporary lane or sidewalk closure, a worksite traffic control plan, approved by the City of Redondo Beach, shall be implemented to route traffic, pedestrians, or bicyclists around any such lane or sidewalk closures.
- A Construction Management Plan shall be developed by the contractor and approved by the City of Redondo Beach. In addition to the measures identified above, a Construction Management Plan shall include the following:
- Schedule vehicle movements to ensure that there are no vehicles waiting off-site and impeding public traffic flow on the surrounding streets.
- Establish requirements for the loading, unloading, and storage of materials on the Project site.
- Coordinate with the City and emergency service providers to ensure adequate access is maintained to the Project site and neighboring businesses.

<u>Operational Traffic</u>: Of the 41 key intersections located within the traffic impacts study area, 27 are signalized and 14 are unsignalized. Compared to the Existing (2013) baseline, the Existing plus Project is expected to have five significantly impacted intersections, and compared to the Cumulative (2019) baseline, the Cumulative plus Project is expected to have six significantly impacted intersections. One of the intersections is a CMP arterial monitoring intersection. For signalized intersections, the following five intersections would

be significantly impacted during the PM peak hour under Existing plus Project Conditions, and would also be significantly impacted during the AM peak hour and/or PM peak hour under Cumulative plus Project Conditions:

- Intersection 7: PCH/Catalina Avenue & Herondo Street/Anita Street
- Intersection 10: PCH & Catalina Avenue
- Intersection 19: PCH & Beryl Street
- Intersection 26: PCH & Torrance Boulevard
- Intersection 36: PCH & Palos Verdes Boulevard

Implementation of mitigation measures would reduce the impacts under Existing plus Project Conditions and Cumulative plus Project Conditions to a level that is less than significant at all five intersections

Based on the applicable criteria for determining significance for unsignalized intersections, the following one intersection would be significantly impacted during the PM peak hour under Cumulative plus Project Conditions.

- Intersection 6: Valley Dr/Francisca Ave & Herondo St

A proposed mitigation measure for that intersection would reduce the impact to a level that is less than significant.

The proposed mitigation measures are as follows:

MM TRA-1: Valley Drive/Francisca Avenue & Herondo Street (Intersection 6) – City of Hermosa Beach

A traffic signal would be installed at this intersection, for which the project Applicant would provide fair share funding.

MM TRA-2: Pacific Coast Highway & Herondo/Anita Street (Intersection 7) –

An additional westbound and eastbound through lane would be added. For the westbound approach, the center-raised median would be narrowed or eliminated. The two westbound left turn lanes would be shifted to the south to accommodate the additional westbound through lane. An additional westbound receiving lane would be added extending for a minimum of half a block length to the west of Intersection 7. The additional eastbound through lane would need to extend for a minimum of half the block length to the west of Intersection 7. The on-street angled parking on Herondo Street conflicts with the additional eastbound and westbound lane, and will require their removal. Parking will be replaced at 1:1 ratio to the satisfaction of the City Engineer. In addition, the on-street bike lanes would be shifted from their current location, but can be accommodated with the addition of the two through lanes.

MM TRA-3: Pacific Coast Highway & Catalina Avenue (Intersection 10)

One additional eastbound left turn lane would be added to provide two left turn lanes onto Pacific Coast Highway northbound. The intersection would also be restriped to provide one shared left-right lane, for a total of three lanes on the eastbound approach.

MM TRA-4: Pacific Coast Highway & Beryl Street (Intersection 19)

Add a southbound dedicated right-turn lane. This additional lane would encroach into the existing sidewalk right-of-way of the Gertruda Avenue cul-de-sac, and require the removal of mature trees that line the western side of the street. The sidewalk would need to be reconstructed to the west of its current location, which would narrow the end of the cul-de-sac.

MM TRA-5: Pacific Coast Highway & Torrance Boulevard Avenue (Intersection 26)

A northbound and an eastbound right-turn lane would be added at this intersection to mitigate the project's impact. The northbound right-turn lane is an approved project identified as mitigation from a prior project in the City, and therefore, the Applicant would provide a fair share contribution for these improvements. The eastbound right-turn lane would be fully-funded by the proposed project. The eastbound right-turn lane can be accommodated through restriping the outer eastbound lane on Torrance Boulevard, which measures 24 feet.

MM TRA-6: Pacific Coast Highway & Palos Verdes Drive (Intersection 36)

Add a southbound right-turn lane. The project Applicant shall provide a fair share percentage of contribution to this mitigation measure along with other development projects that would impact this intersection.

<u>Caltrans Analysis</u>: The freeway mainline analysis indicates that, with the addition of project-generated trips, all of the segments would continue to operate at the same LOS as under existing and cumulative base conditions. For both Existing plus Project and Cumulative plus Project scenarios, the proposed project is projected to represent between 0.0 percent and 0.2 percent of the projected cumulative traffic volumes on the segments, depending on location and direction. The ramp queuing analysis indicates that, with the addition of project-generated trips at the freeway ramps, average the queue lengths on the I-405 freeway would be accommodated by the storage length of the ramps for all analysis scenarios. In addition, all ramp intersections would operate at LOS D or better during both peak hours for all scenarios of the project.

Under ICU methodology, the proposed project would impact five intersections under Existing plus Project and six intersections under Cumulative plus Project scenarios. These impacts would be mitigated for all intersections, except for the PCH/Catalina Avenue & Herondo Street/Anita Street under Existing plus Project Conditions during the PM peak hour.

Under HCM methodology, the following two signalized intersections are projected to operate at LOS E or F during one or both peak hours under all scenarios:

- 7) PCH/Catalina Avenue & Herondo Street/Anita Street (PM peak hour)
- 36) PCH & Palos Verdes Boulevard (PM peak hours)

In addition, the PCH & Torrance intersection (Intersection 26) is projected to operate at LOS E during the PM peak hour under Cumulative plus Project Conditions. After mitigations, Intersections 7 and 36 would continue to operate at LOS E for Existing plus Project and Cumulative plus Project scenarios. Intersection 26 would operate at LOS D after mitigation under HCM methodology for Existing plus Project and Cumulative plus Project scenarios.

Parking: The waterfront area is currently under-utilized with large expanses of surface parking lots surrounding isolated uses. The proposed project would better utilize the waterfront space through consolidated parking and expanded commercial and recreational opportunities and would substantially enhance the pedestrian-oriented nature of the waterfront through street-facing developments, expanded pedestrian pathways, high-quality pedestrian crossings, and other pedestrian-oriented elements such as lighting, signage, and benches. Implementation of the proposed project includes the removal of the surface parking lot in the northern portion of the project site, as well as the replacement of the existing Pier Parking Structure in the southern portion of the project site. A new parking structure is proposed in the northeast corner of the project site (near Harbor Drive and Portofino Way), parking for vehicles/trailers associated with the new small craft boat launch ramp facility, and a minor amount of parking along the new main street (also in the northern portion of the project site). Based on Redondo Beach Municipal Code (RBMC) demand factors (which are conservative in nature) by land use, there would be a shortfall in parking spaces; however, once the project is in final design, a shared parking assessment may be conducted that would likely result in significantly lower than demand factor parking requirements. Therefore, based on the conservative estimate of parking using the demand factors the shortfall is considered significant impact. To address that impact, the following parking management plan is recommended as a mitigation measure, which would reduce the impact to a level that is less than significant.

MM TRA-7: Parking Management Plan

A Parking Management Plan (PMP) shall be prepared to ensure the project site provides parking to meet demand using Urban Land Institutes (ULI) methodology. The minimum number of parking spaces for a mixed-use development or where shared parking strategies are proposed shall be determined by a study prepared by the applicant following the procedures of the ULI Shared Parking Report, Institute of Transportation Engineers (ITE) Shared Parking Guidelines, or other approved procedures. As part of the PMP, the following additional measures shall be considered as part of an overall program to meet two primary objectives that have been established with regard to the management of parking facilities at the project site, which are:

1. Provide sufficient parking on-site to meet the parking demands generated by the proposed project.

2. Support trip and emission reduction goals and encourage and support alternative transportation by implementing a Transportation Demand Management (TDM) program.

Parking measures may include, but are not limited to controls to reduce parking demand, such as a shared parking plan, alternative parking methods, satellite parking for employees during peak periods, and support of TDM measures (such as promoting alternative transportation modes). Specific potential mitigations are described as follows:

a. Shared Parking Plan: A Shared Parking Plan shall be prepared by a qualified transportation/parking engineer to the satisfaction of the City, and shall demonstrate justification for the parking plan to meet the parking requirements of the project as approved. The Shared Parking Plan would propose parking to be shared between two or more uses within the project site, as allowed under Section 10-5.1706(d) of the RBMC. The Shared Parking Plan shall detail how a lower total number of parking spaces would provide adequate parking for these uses.

b. Alternative Parking Methods: An alternative parking method includes but is not limited to tandem and valet parking of vehicles to be parked in tandem provided that attendants to move vehicles are available at all times that the parking area using tandem parking is open for use. If the attendant requirement is met, each tandem stall shall constitute the number of parking spaces equivalent to the number of cars it can accommodate.

c. Provide Satellite Parking. Parking shortfalls during peak periods would be reduced if employees parked elsewhere and walked or were shuttled to the project site. Satellite parking would be initiated during peak periods, the parking location would have to be readily identifiable to employees, and shuttle service would have to be timely and convenient. Implementation of this mitigation is complicated by the need to locate a source of available parking during the critical periods. This parking would have to be located outside the study area and would have to be designated for employee use during the peak periods.

d. Promote Alternative Transportation Modes for Employees and Patrons: Encourage employees and patrons to use existing bus service, pedestrian and bicycle connectivity to and through the site, which would decrease the number of vehicle trips. In addition, TDM measures that could further reduce trips could include:

- Shuttles to/from the Metro Green Line Station
- Shuttles to/from LAX for hotel guests
- Transit pass subsidies, vanpool services, and other incentives to employees to reduce vehicle trips.

Congestion Management Program (CMP) Impacts: Project-related trips would affect the following CMP intersections:

- Intersection 26: PCH & Torrance Boulevard
- Intersection 36: PCH & Palos Verdes Boulevard

CMP impacts at Intersection 26 (PCH & Torrance Boulevard) would be less than significant, and although impacts at Intersection 36 (PCH & Palos Verdes Boulevard) would be significant during the PM peak hour, the impact can be reduced to a level that is less than significant with implementation of mitigation measure MM TRA-6.

Implementation of the proposed project would improve pedestrian and bicycle facilities and access within the project site; no significant impacts would occur.

Development of the proposed small boat launch ramp and associated breakwater could pose a potentially significant safety hazard relative to boats at the launch ramp and personal recreational watercraft (e.g., paddle craft, kayaks, and peddle boats) to/from the nearby hand launch area operating in close proximity, being somewhat confined by the breakwater.

MM TRA-8: Boat Launch Ramp/Personal Recreational Watercraft Interface Management

In conjunction with the design and construction of the proposed boat launch ramp and associated breakwater, buoys with signage shall be placed to delineate, and segregate, waterside boat lanes and personal recreational watercraft lanes. Patrol and monitoring of King Harbor's water use and traffic activity will include the boat launch area, especially during peak use periods, consistent with the Harbor Patrol's mission to support public use and sharing of the harbor resource as safely as possible. Additionally, leases with tenants within the project site associated with the rental of paddle boards, kayaks, and peddle boats will be required to maintain records that the renters of this equipment have been instructed on safety and waterside signage.

The implementation of mitigation measure MM TRA-8 would reduce the safety hazard to less than significant.

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3.13.1 Introduction

This section describes the affected environment and regulatory setting for traffic and transportation, as well as the impacts from the implementation of the proposed project. Traffic and transportation includes roadways, pedestrian and bicycle facilities, public transit, parking, circulation, and small craft traffic. This section evaluates streets and intersections that would be used by vehicles (both automobile and truck traffic) to gain access to and from the project site during project construction (e.g., equipment and commuting workers) and operation (e.g., visitors, employees and service vehicles). The transportation analysis of the proposed project includes intersections (41 key intersections) that would be used by vehicles to gain access to and from the proposed project site. In addition, this section analyzes potential for the proposed project's traffic to affect Congestion Management Program (CMP) intersections.

The traffic and transportation analysis is based on the *Transportation Impact Study for The Redondo Beach Waterfront Project* prepared in conjunction with Fehr & Peers and the *King Harbor Small Craft Traffic Assessment* in conjunction with Noble Consultants Inc. (see Appendix L1 and L2, respectively, in this Draft EIR).

3.13.2 Environmental Setting

3.13.2.1 Local Roadway Network

A majority of the City's street network is laid out in a grid orientation with good connectivity; however, under existing conditions there are connectivity issues in the surrounding area because of the discontinuous street network that ends at North Harbor Drive and North Pacific Avenue in the northern portion of the site and Torrance Circle west of Catalina Avenue in the southern portion of the site, with no thoroughfare connecting the north and south. A few large land uses, including the AES Power Plant, Sea Hawk Stadium, and Redondo Union High School contribute to a "super-block" roadway network. Arterial streets in the study area, which include Pacific Coast Highway (PCH), Catalina Avenue, Torrance Boulevard, and Del Amo Boulevard, generally provide two to three vehicle travel lanes in each direction, with left-turn pockets at most intersections and right-turn pockets at some intersections. Posted travel speeds in the study area range from 35 to 50 miles per hour (mph), with the majority of streets allowing travel up to 40 mph. As described in detail below, regional access to the project site is provided by PCH and a network of arterial and collector streets. The arterial street network that serves the proposed project area includes Anita Street, Beryl Street, Catalina Avenue, Herondo Street, and Torrance Boulevard. The local streets include Esplanade and Harbor Drive. The following describes the key roadway facilities that serve the project site:

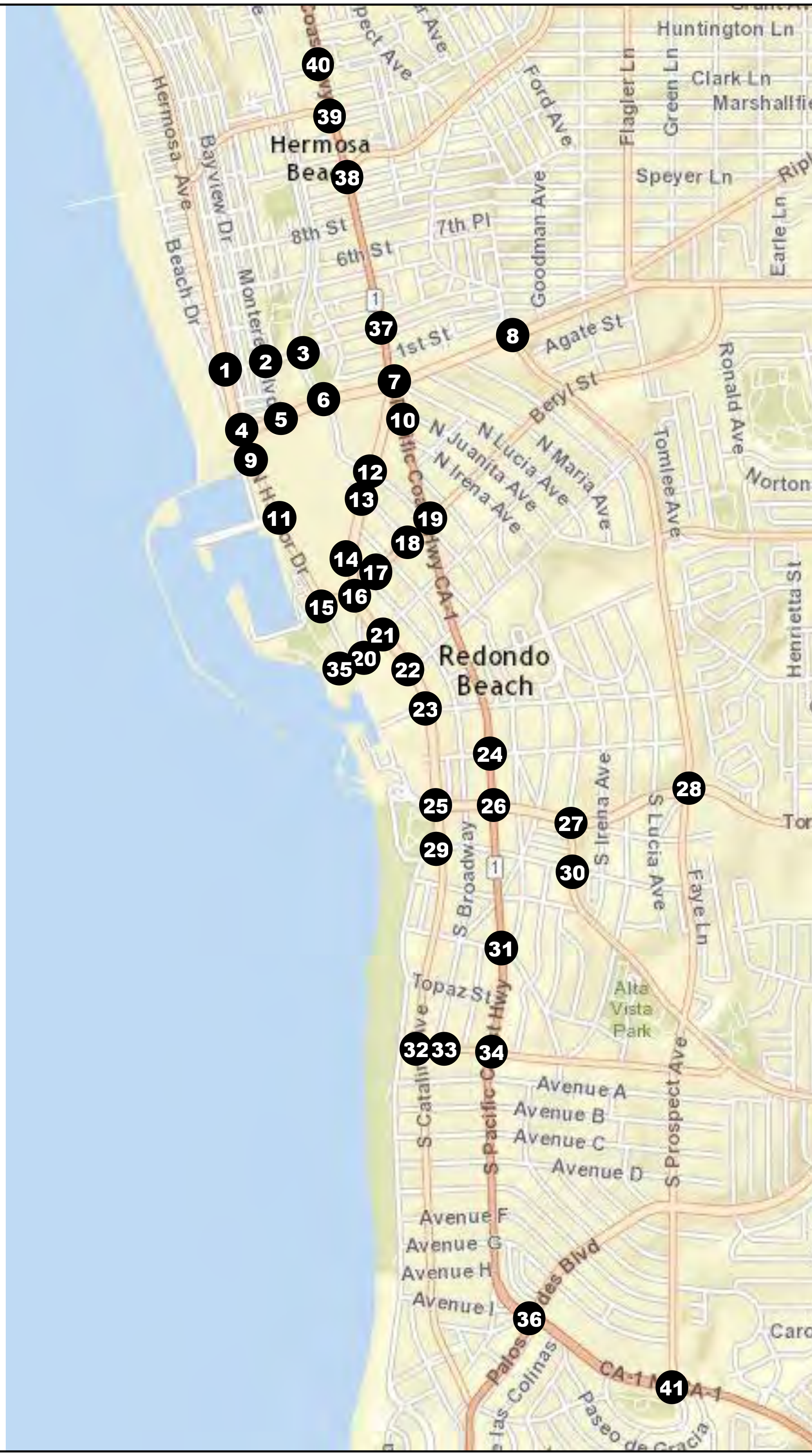
- <u>PCH (State Route 1)</u> – PCH is a four-lane north/south major arterial. Left-turn lanes are provided at major intersections. A raised median is provided south of Avenue H. On-street parking is prohibited along sections of PCH at Torrance Boulevard, Catalina Avenue and Diamond Street, and generally permitted elsewhere. As a state route, PCH is under the jurisdiction of the California Department of Transportation (Caltrans).
- <u>Anita Street</u> – Anita Street is an east/west major arterial that runs east of PCH with two lanes in each direction. Between Maria and Prospect Avenue, it has a center turning lane. East of Prospect, there are left-turn pockets at most intersections, with a raised median. On-street parking is generally permitted on both sides of Anita Street.

- Beryl Street – Beryl Street is a southwest-northeast secondary arterial that runs from Harbor Drive to 190th Street. Between Prospect Street and Catalina Avenue, Beryl Street has one lane in each direction with a center turning lane. Beryl Street narrows to two lanes east of Flagler Lane. On-street parking is permitted between Catalina Avenue and Flagler Lane.
- Catalina Avenue – Catalina Avenue is a four-lane north/south secondary arterial that runs from PCH near the northern City boundary to Palos Verdes Boulevard at the southern City boundary. On-street parking is metered on the west side from Carnelian Street to Torrance Boulevard and on the east side from Emerald Street to Pearl Street. On-street parking is metered on both the west and east side from Avenue I to Palos Verdes Boulevard. It has a raised median between Beryl Street and Torrance Boulevard.
- Herondo Street – Herondo Street is an east/west secondary arterial that runs from PCH to Harbor Drive with one lane in each direction. It has a raised median, and left-turn pockets are provided at most intersections. Diagonal on-street parking is generally provided on both sides of Herondo Street. On-street striped bike lanes are also provided.
- Torrance Boulevard – Torrance Boulevard is a four-lane east/west major arterial that ends in a cul-de-sac west of Catalina Avenue. On-street parking is permitted along most of its length in the study area.
- Esplanade – Esplanade is a 2-lane north/south collector that runs from Catalina Avenue to Vista Del Mar. On-street parking is permitted, with metered spaces on the west side between Avenue A and Avenue I, as well as the east side of Esplanade. From Knob Hill Avenue south, Esplanade has two lanes with a center turn lane and bike lanes on both sides of the street.
- Harbor Drive – Harbor Drive is a 2-lane north/south collector between Herondo Street and Beryl Street. North of Herondo Street, it continues as Hermosa Avenue. Metered on-street parking is provided. The street also includes a two-way raised median separated cycle track on the west side of the street.

3.13.2.2 Study Area

In consultation with City of Redondo Beach traffic engineers, the study area was initially selected to include the intersections most likely to be affected by traffic generated by the proposed project, specifically major intersections located within roughly a 3,000-foot radius of the project site. However, with follow up consultation,[1] it was determined that additional scope elements, including intersections beyond a 3,000-foot radius should be analyzed so that the study area includes the full extent of the area where potential project-related significant transportation impacts could occur. Specifically, 41 key intersections located near the project site or on routes serving the proposed project site were chosen for analysis (Figure 3.13-1). Of those intersections, 27 intersections operate under

[1] The City also consulted with additional entities through the Notice of Preparation process. Additional details are included in Appendix A.



Source: Fehr & Peers, 2015

Figure 3.13-1
Study Intersections

signal control and the remaining 14 intersections are stop-controlled. The locations and control characteristics of the 41 study intersections are indicated in Table 3.13-1.

Table 3.13-1: Study Area Intersections

Intersection ID	North-South Street Name	East-West Street Name	Intersection Control
1	Hermosa Ave	2nd St	AWSC
2	Monterey Blvd	2nd St	AWSC
3	Valley Dr	2nd St	AWSC
4	Harbor Dr/Hermosa Ave	Herondo St	Signal
5	Monterey Blvd	Herondo St	TWSC
6	Valley Dr/Francisca Ave	Herondo St	AWSC
7	PCH/Catalina Ave	Herondo St/Anita St	Signal
8	Prospect Ave	Anita St	Signal
9	Harbor Dr	Yacht Club Way	Signal
10	PCH	Catalina Ave	Signal
11	Harbor Dr	Marina Way	Signal
12	Catalina Ave	Gertruda Ave	Signal
13	Catalina Ave	Francisca Ave	TWSC
14	Catalina Ave	Broadway	TWSC
15	Harbor Dr	Portofino Way/Beryl St	Signal
16	Catalina Ave	Beryl St	Signal
17	Broadway	Beryl St	TWSC
18	Francisca Ave	Beryl St	TWSC
19	PCH	Beryl St	Signal
20	Harbor Dr	Pacific Ave	AWSC
21	Catalina Ave	Carnelian St	Signal
22	Catalina Ave	Diamond St	Signal
23	Catalina Ave	Emerald St	Signal
24	PCH	Garnet St	Signal
25	Catalina Ave	Torrance Blvd	Signal

Table 3.13-1: Study Area Intersections

Intersection ID	North-South Street Name	East-West Street Name	Intersection Control
26	PCH	Torrance Blvd	Signal
27	Helberta Ave/Camino Real	Torrance Blvd	Signal
28	Prospect Ave	Torrance Blvd	Signal
29	Catalina Ave	Pearl St	Signal
30	Camino Real	Pearl St	AWSC
31	PCH	Sapphire St/Francisca Ave	Signal
32	Esplanade	Knob Hill Ave	AWSC
33	Catalina Ave	Knob Hill Ave	AWSC
34	PCH	Knob Hill Ave	Signal
35	Harbor Dr	Pacific Ave	AWSC
36	PCH	Palos Verdes Blvd	Signal
37	PCH	2nd St	Signal
38	PCH	10th/Aviation	Signal
39	PCH	Pier/14th St	Signal
40	PCH	16th St	Signal
41	PCH	Prospect Ave	Signal

TWSC = Two-way stop control

AWSC = All-way stop control

3.13.2.3 Existing (2013) Conditions

3.13.2.3.1 Intersections

To characterize the existing intersection operating conditions, weekday morning and afternoon peak period intersection turning movement counts were conducted at the study intersections in the summer of 2013 and the spring of 2014. The maximum peak hour traffic volumes for each intersection from the combined data sets were selected to reflect peak volumes at each intersection, regardless of the season. Generally, intersections located closest to the project site had higher peak hour traffic volumes in the summer season. Other intersections generally had higher traffic volumes in the spring when schools were in session. Regardless, the highest AM and PM peak hour of traffic volumes was selected for analysis. Additional information regarding the traffic data for existing conditions, including but not limited to, peak hour turning movement volumes and intersection lane configurations, is provided in Appendix L1.

3.13.2.3.2 Existing Level of Service

LOS is a qualitative measure used to describe the condition of traffic flow on the street system, ranging from excellent conditions at LOS A to overloaded conditions at LOS F. Two types of LOS analysis were conducted: Intersection Capacity Utilization (ICU) for signalized intersections and Highway Capacity Manual (HCM) for unsignalized intersections. LOS definitions applicable to the ICU method and to the HCM method are provided in Tables 3.13-2 and 3.13-3, respectively.

Table 3.13-2: Level of Service Definitions for Signalized Intersections – ICU Method

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

Source: Adapted from Transportation Research Board

Table 3.13-3: Intersection Level of Service Definitions– HCM Method

Level of Service	Unsignalized Intersection Control Delay (sec/veh[1])	General Description
A	0 – 10.0	Little to no congestion or delays.
B	10.1 – 15.0	Limited congestion. Short delays.
C	15.1 – 25.0	Some congestion with average delays.
D	25.1 – 35.0	Significant congestion and delays.
E	35.1 – 50.0	Severe congestion and delays.
F	> 50.0	Total breakdown with extreme delays.

Source: Highway Capacity Manual
Notes:
1. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and acceleration delay.

Based on existing AM and PM peak hour traffic volumes and the LOS definitions presented above, the existing LOS was calculated for each of the 41 study intersections, with the results being summarized in Table 3.13-4. As shown in Table 3.13-4, the following four intersections operate at LOS E during one or both peak hours. All other intersections currently operate at LOS D or better during both peak hours.

- 7 - PCH/Catalina Avenue & Herondo Street/Anita Street (PM peak hour)
- 13 - Catalina Avenue & Francisca Avenue (PM peak hour)
- 19 - PCH & Beryl Street (PM peak hour)
- 36 - PCH & Palos Verdes Boulevard (PM peak hour)

Table 3.13-4: Existing Conditions Intersection Level of Service

Int #	Intersection	Signalized?	AM Peak Hour		PM Peak Hour	
			LOS	V/C or *Delay (sec)*	LOS	V/C or *Delay (sec)*
1	Hermosa Ave & 2nd St	No	B	11.2	B	10.5
2	Monterey Blvd & 2nd St	No	A	8.3	A	9.7
3	Valley Dr & 2nd St	No	A	9.3	C	19.3
4	Harbor Dr/Hermosa Ave & Herondo St	Yes	A	0.518	A	0.491
5	Monterey Blvd & Herondo St	No	C	15.3	C	19.3
6	Valley Dr/Francisca Ave & Herondo St	No	B	12.7	C	23.4
7	PCH/Catalina Ave & Herondo St/Anita St	Yes	D	0.896	**E**	**0.989**
8	Prospect Ave & Anita St	Yes	B	0.679	B	0.664
9	Harbor Dr & Yacht Club Way	Yes	A	0.352	A	0.477
10	PCH & Catalina Ave	Yes	D	0.855	D	0.883
11	Harbor Dr & Marina Way	Yes	A	0.281	A	0.459
12	Catalina Ave & Gertruda Ave	Yes	A	0.371	A	0.540
13	Catalina Ave & Francisca Ave	No	C	17.0	**E**	**38.0**
14	Catalina Ave & Broadway	No	C	18.1	C	24.1
15	Harbor Dr & Portofino Way/Beryl St	Yes	A	0.317	A	0.592
16	Catalina Ave & Beryl St	Yes	A	0.374	A	0.565
17	Broadway & Beryl St	No	B	11.8	B	12.4
18	Francisca Ave & Beryl St	No	B	12.2	C	18.1
19	PCH & Beryl St	Yes	C	0.757	**E**	**0.901**
20	Harbor Dr & Pacific Ave	No	A	7.7	A	8.7
21	Catalina Ave & Carnelian St	Yes	A	0.438	A	0.465

Table 3.13-4: Existing Conditions Intersection Level of Service

Int #	Intersection	Signalized?	AM Peak Hour		PM Peak Hour	
			LOS	V/C or *Delay (sec)*	LOS	V/C or *Delay (sec)*
22	Catalina Ave & Diamond St	Yes	A	0.430	A	0.444
23	Catalina Ave & Emerald St	Yes	A	0.453	A	0.457
24	PCH & Garnet St	Yes	B	0.691	B	0.663
25	Catalina Ave & Torrance Blvd	Yes	A	0.424	A	0.475
26	PCH & Torrance Blvd	Yes	D	0.818	D	0.848
27	Helberta Ave/Camino Real & Torrance Blvd	Yes	A	0.476	A	0.518
28	Prospect Ave & Torrance Blvd	Yes	D	0.819	C	0.742
29	Catalina Ave & Pearl St	Yes	A	0.386	A	0.373
30	Camino Real & Pearl St	No	A	8.9	A	9.0
31	PCH & Sapphire St/Francisca Ave	Yes	B	0.611	B	0.650
32	Esplanade & Knob Hill Ave	No	A	9.1	B	10.4
33	Catalina Ave & Knob Hill Ave	No	B	11.2	B	12.5
34	PCH & Knob Hill Ave	Yes	B	0.655	B	0.698
35	Harbor Dr & Pacific Ave [a]	No	A	--	A	--
36	PCH & Palos Verdes Blvd	Yes	D	0.850	**E**	**0.957**
37	PCH & 2nd St	Yes	B	0.695	B	0.696
38	PCH & 10th/Aviation	Yes	C	0.777	C	0.743
39	PCH & Pier/14th St	Yes	A	0.565	C	0.703
40	PCH & 16th St	Yes	A	0.526	B	0.636
41	PCH & Prospect Ave	Yes	C	0.704	C	0.775

Note: [a] Harbor Dr & Pacific Ave was not analyzed for Existing Conditions because it will only function as a full intersection with the proposed project.

3.13.2.3.3 Pedestrian and Bicycle Facilities

Sidewalks are generally present throughout the study area and project site, and marked crosswalks are provided at all major arterial intersections. Most signalized intersections of major arterials and collector streets associated with the project site and study area provide marked crossings on all four legs of the intersection, while some do not provide crossing facilities on all four legs of the intersection. Pedestrian access to the north side of the project site is provided via sidewalks on Harbor Drive. The closest signalized crossings of Harbor Drive are located at Portofino Way. Pedestrian crossings are also provided at the four-way stop controlled intersection entrance of the existing Captain Kidd's restaurant. Towards the southern side of the project site, pedestrian access is provided by sidewalks and a pedestrian plaza on Torrance Circle (also known as Coral Way), where Torrance Boulevard terminates at the project site. In the study area, Harbor Drive and a connection through the site is part of the California Coastal Trail.

Existing bicycle facilities in the study area include a Class I bicycle path/cycle track connecting the Hermosa Beach Strand to the Redondo Beach Pier, which also provides bicycle access to the project site. This cycle track continues through the project site and connects to Torrance Circle. Ultimately, this bicycle lane connects to an existing Class I bicycle path along the coast and connects to a Class III bicycle route on Esplanade. The California Pacific Bike Route runs along Catalina Street in the study area. A bicycle path also runs through Veterans Park and extending south to the City boundary. Class II bicycle lanes are on Herondo Street, Catalina Avenue north of Torrance Boulevard, and Diamond Street, and a Class III bicycle route is located on Catalina Avenue south of Torrance Boulevard. The South Bay Bicycle Master Plan indicates that additional Class I, II, and III facilities are planned throughout the study area. Existing and planned bicycle facilities are presented in Figure 3.13-2.

The recently completed Herondo Gateway project introduced improved pedestrian and bicycle facilities to the study area. Elements of the Herondo Gateway project include:

- Bi-directional bike path/cycle track connecting the Hermosa Beach Strand to the Redondo Beach Pier. This facility includes a 5' median buffer separating the cycle track from traffic lanes on Harbor Drive.

- Bike lanes on Herondo Street (with back-in angled parking), and the removal of a vehicular travel lane in each direction.

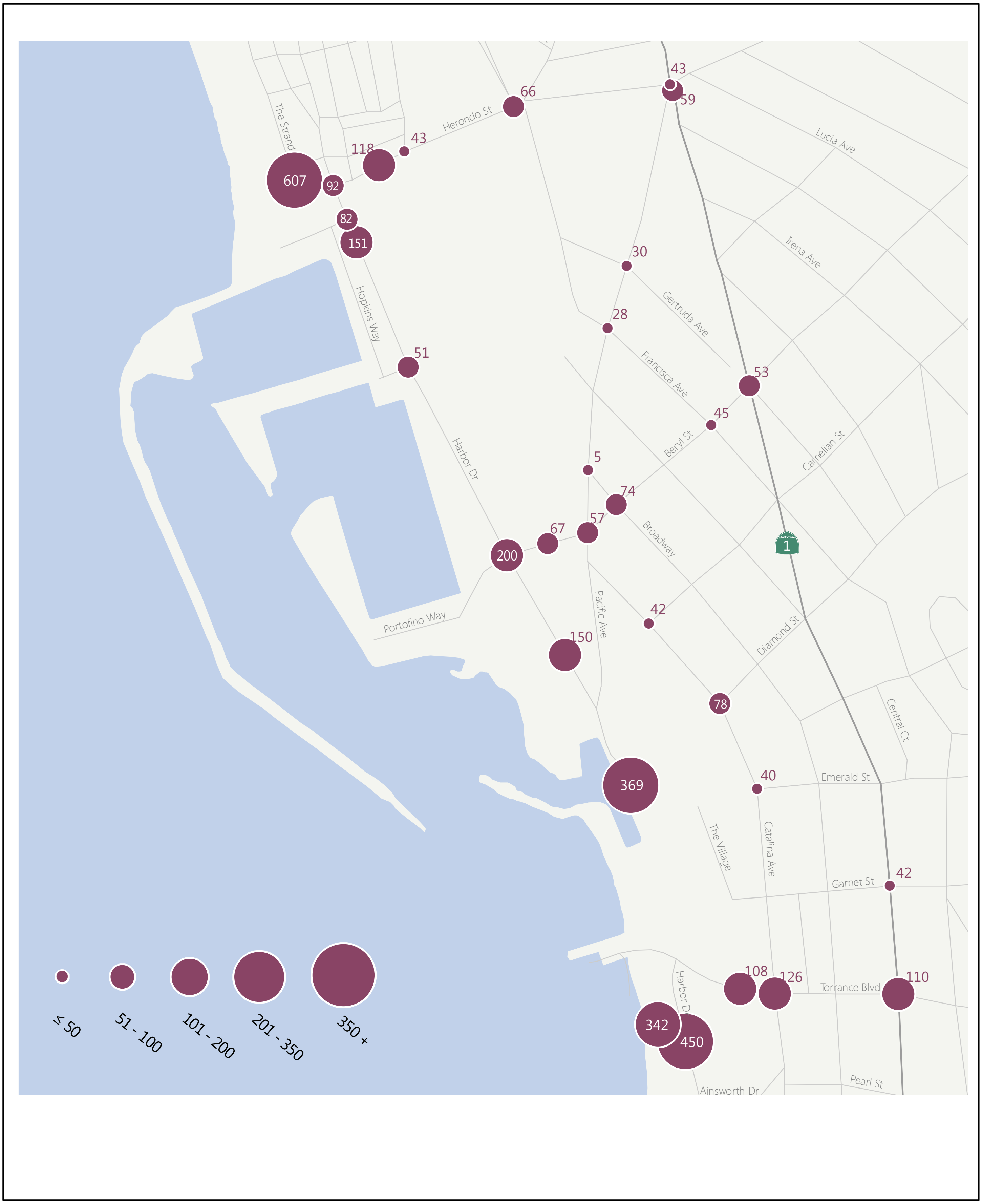
- Improved pedestrian crossings at the Herondo Street & Harbor Drive intersection, including the addition of a crosswalk on the north leg of the intersection. Other crossing improvements include high-visibility crosswalk markings.

- Installation of new streetlights on the west side of Harbor Drive to improve visibility for pedestrians and cyclists.

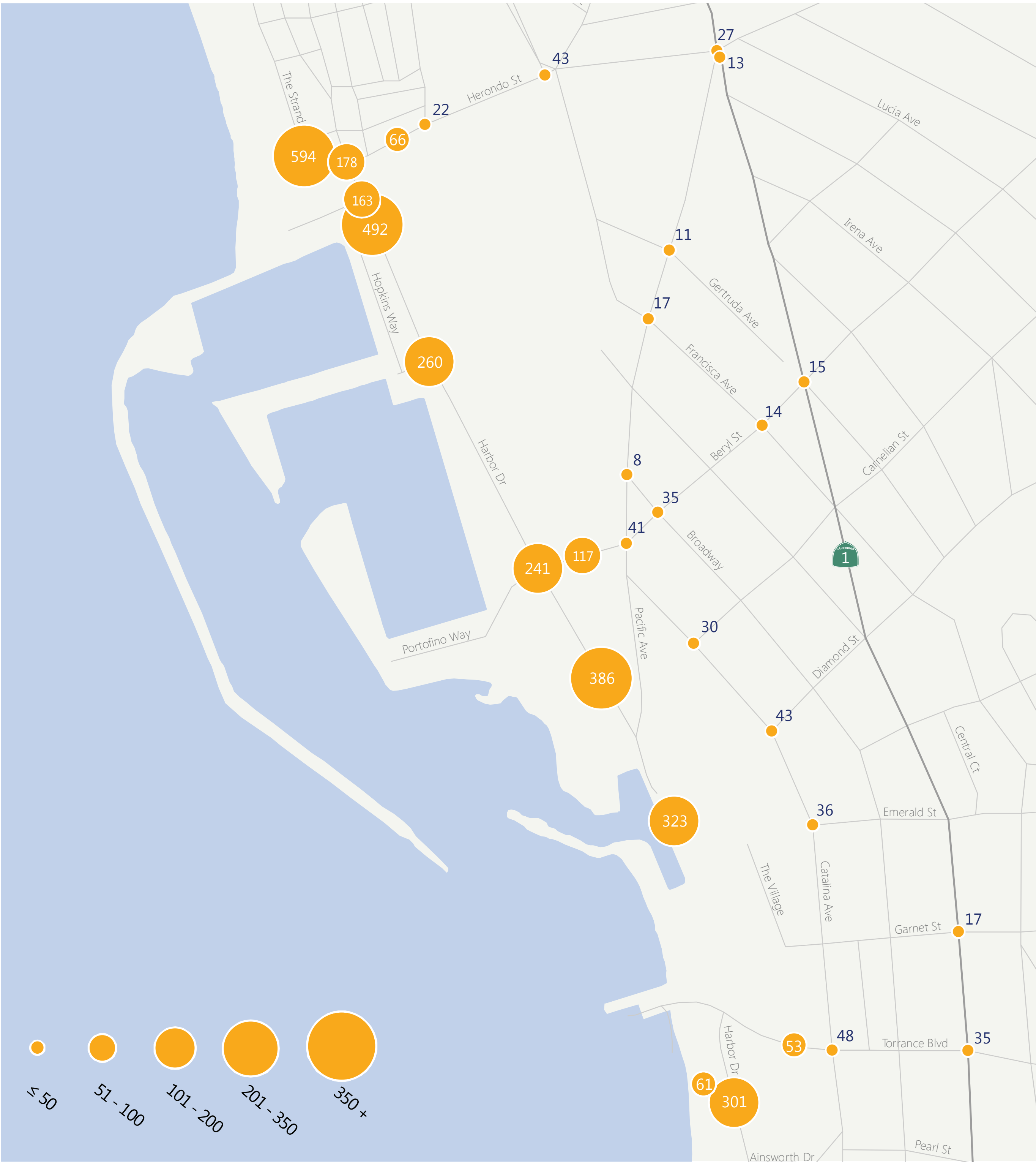
Bicycle access to the project site is provided via a Class II bicycle lane on the west side of Harbor Drive. This existing bicycle lane continues through the project site and connects to Torrance Circle. Ultimately, this bicycle lane connects to an existing Class I bicycle path along the coast and connects to a Class III bicycle route on Esplanade. The California Pacific Bike Route runs along Catalina Street in the study area.

AM and PM peak period bicycle and pedestrian counts were collected at the study intersections concurrently with intersection turning movement vehicle counts in August 2013 and March 2014. Additionally, weekend peak-hour counts were collected at a number of additional locations within the immediate waterfront area on a Saturday in August 2013. Pedestrian and bicycle volumes counted in the study area are presented in Figure 3.13-3 and Figure 3.13-4 and Table 3.13-5. Locations with high bicycle volumes occurred almost exclusively on the Strand at Herondo Street and on Harbor Drive, along existing Class I and Class II bicycle facilities. Locations with high pedestrian volumes occurred at overlapping locations, near beaches and the waterfront. Bicycle and pedestrian counts away from the immediate waterfront were generally low across the study area.

Source: Fehr & Peers, 2015



Source: Fehr & Peers, 2015



Source: Fehr & Peers, 2015

Figure 3.13-4
Existing Bicycle Volumes

Table 3.13-5: Peak Hour Bicycle and Pedestrian Volumes

Study Intersection or Other Count Location	Peak Hour[1]	
	Pedestrians	Bicyclists
Hermosa Ave & 2nd St	119	112
Monterey Blvd & 2nd St	86	44
Valley Dr & 2nd St	111	47
Harbor Dr/Hermosa Ave & Herondo St	92	178
Monterey Blvd & Herondo St	43	22
Valley Dr/Francisca Ave & Herondo St	66	43
PCH/Catalina Ave & Herondo St/Anita St	43	27
Prospect Ave & Anita St	25	10
Harbor Dr & Yacht Club Way	82	163
PCH & Catalina Ave	59	13
Harbor Dr & Marina Way	51	260
Catalina Ave & Gertruda Ave	30	11
Catalina Ave & Francisca Ave	28	17
Catalina Ave & Broadway	5	8
Harbor Dr & Portofino Way/Beryl St	200	241
Catalina Ave & Beryl St	57	41
Broadway & Beryl St	74	35
Francisca Ave & Beryl St	45	14
PCH & Beryl St	53	15
Catalina Ave & Carnelian St	42	30
Catalina Ave & Diamond St	78	43
Catalina Ave & Emerald St	40	36
PCH & Garnet St	42	17
Catalina Ave & Torrance Blvd	126	48
PCH & Torrance Blvd	110	35
Helberta Ave/Camino Real & Torrance Blvd	66	15
Prospect Ave & Torrance Blvd	91	27
Catalina Ave & Pearl St	59	36
Camino Real & Pearl St	17	7
PCH & Sapphire St/Francisca Ave	41	15
Esplanade & Knob Hill Ave	70	29
Catalina Ave & Knob Hill Ave	96	33

Table 3.13-5: Peak Hour Bicycle and Pedestrian Volumes

Study Intersection or Other Count Location	Peak Hour[1]	
	Pedestrians	Bicyclists
PCH & Knob Hill Ave	48	14
The Strand mid-block between Lyndon St & Herondo St	607	594
Harbor Dr mid-block crosswalk n/o Yacht Club Way & Hopkins Way	151	492
Harbor Dr mid-block between Beryl St & Pacific Av	150	386
Waterfront Promenade n/o Village Dr	369	323
George Freeth Way mid-block between Torrance Blvd & Pearl St	450	301
Beryl St mid-block between Harbor Dr & Catalina Av	67	117
Herondo St mid-block between Hermosa Av & Monterey Blvd	118	66
Veteran's Park: George Freeth Way & the Strand	342	61
Mid-block w/o Catalina Av & Torrance Circle/Torrance Blvd	108	53
Prospect Av & Torrance Blvd	30	40

Note: Peak Hour volumes shown in table represent the higher of the AM and PM peak hour volumes at each intersection/location.

Collisions

A traffic collision is considered to be any event where a vehicle strikes any object while moving. That object could be another car, a pedestrian, or something fixed in place like a light post. When collisions cause damage or injury, the details are recorded by the local law enforcement agency and loaded into the California Highway Patrol (CHP) Statewide Integrated Traffic Records System (SWITRS). The latest SWITRS report was used to analyze collisions in which a vehicle struck a bicyclist or a pedestrian in the study area over a five-year period from 2008 to 2012. These data were used as a screening process to determine if there are any locations adjacent to the project site that have a greater frequency of multi-modal conflicts compared with other areas in the City.

Citywide, between 2008 and 2012, there were 105 bicycle-involved and 100 pedestrian-involved collisions. More than 70 percent of these collisions occurred at locations where just one collision was recorded over the five-year period. Fewer than 10 percent of collision locations experienced three or more collisions over the five-year period. There were six locations at which four bicycle- or pedestrian-involved collisions occurred, and two locations at which five bicycle- or pedestrian-involved collisions occurred. All of these locations are located along either Artesia Boulevard or the PCH, representing two of the principal thoroughfares through the City. Collisions in the study area follow a similar frequency distribution compared to the City as a whole.

During the same time period, there were a total of 38 bicycle-involved and 32 pedestrian-involved collisions in the study area, ranging from one, two, or three collisions per affected location over the five-year period. There were no affected locations within the study area at which four or more collisions occurred across the five-year period. Roadways in the study area with the highest number of collisions include PCH, on Pacific Avenue, and Beryl Street.

The most collisions in the five-year period occurred Pacific Avenue at the intersection with Catalina Avenue. Adjacent to the project site on Harbor Drive, Pacific Avenue, and Catalina Avenue, a total of seven pedestrian-involved collisions and five bicycle-involved collisions occurred over the five-year period. None of the intersections and roadways along the project site indicate a greater frequency of multi-modal conflicts.

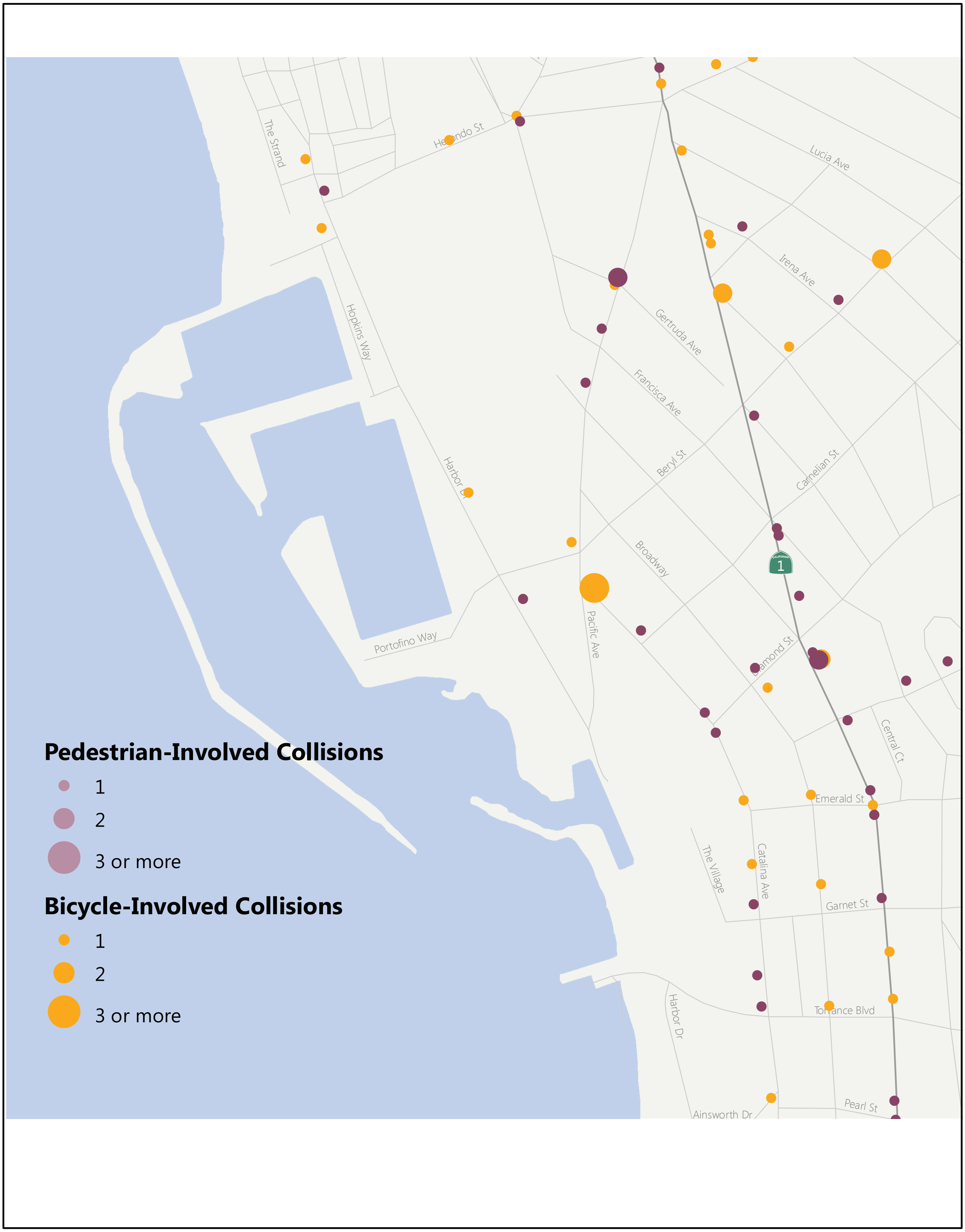
Collisions within the study area are presented in Figure 3.13-5.

3.13.2.3.4 Public Transit Facilities

The project study area is served by several bus routes operated by four transit operators, including the Los Angeles County Metropolitan Transportation Authority (Metro), Los Angeles Department of Transportation (LADOT) Commuter Express (CE), Beach Cities Transit (BCT), and Torrance Transit (TT). Figure 3.13-6 illustrates the transit routes within the study area. The following details each individual line that serves the study area:

- Metro Line 130 – Metro Line 130 provides local service between the Los Cerritos Center in Cerritos and Redondo Beach. In the study area, Line 130 travels north and south along Harbor Drive and Catalina Avenue. Service is provided seven days per week, with weekday peak period headways of approximately 20 to 30 minutes.
- Metro Line 232 – Metro Line 232 provides local service between the Los Angeles International Airport (LAX) bus center and Downtown Long Beach. In the study area, Line 210 travels north and south along PCH. Service is provided seven days per week with weekday peak period headways of approximately 10 to 20 minutes.
- CE Line 438 –CE Line 438 (operated by LADOT) provides express service between Downtown Los Angeles and the City of Redondo Beach. In the study area, Line 438 travels north and south along Harbor Drive and Catalina Avenue. Service is provided Monday through Friday, with peak period headways of approximately 15 to 30 minutes.
- BCT Line 102 –BCT Line 102 provides local service between the Metro Green Line, the South Bay Galleria, and the Redondo Beach Pier (i.e., Horseshoe Pier).[2] In the study area, Line 102 travels north and south along Catalina Avenue and northeast and southwest along Diamond Street. Service is provided seven days per week, with weekday peak period headways of approximately 30 to 40 minutes.
- BCT Line 109 – BCT Line 109 provides local service between the LAX Bus Center, Redondo Beach Pier, and Riviera Village. In the study area, Line 109 travels north and south along Catalina Avenue. Service is provided seven days per week, with weekday peak period headways of approximately 30 to 45 minutes.

[2] Although this Draft EIR refers to the City's main/municipal pier as the Horseshoe Pier, for the purposes of describing public transit, the transit providers refer to the pier as the 'Redondo Beach Pier;' hence, it is described as such in this section.



Source: Fehr & Peers, 2015

Source: Fehr & Peers, 2015

Figure 3.13-6
Existing Transit Routes

- TT Line 3 –TT Line 3 provides local service between Downtown Long Beach and the Redondo Beach Pier. In the study area, Line 3 travels east and west along Torrance Boulevard. Service is provided seven days per week, with weekday peak period headways of approximately 15 minutes.
- TT Line 7 – Line 7 provides local service between Wilmington and the Redondo Beach Pier. In the study area, Line 7 travels east and west along Torrance Boulevard. Service is provided Monday through Saturday, with weekday peak period headways of approximately 30 minutes.

3.13.2.3.5 Existing Site Circulation

Vehicular circulation through the project site is limited due to the disconnected nature of the north and south areas of the Harbor. Catalina Avenue provides the nearest north-south access. This inhibits emergency vehicle and public transportation access to the International Boardwalk and central portion of the project site. This discontinuous street network diminishes site vehicular connectivity. In addition, the existing bikeway runs through the Pier Parking Structure, and there are several shared spaces with pedestrians were cyclists need to dismount to circulate through the site. Pedestrian circulation between the north and south portions of the project site are limited to the boardwalk because Basin 3 divides the site.

3.13.2.3.6 Caltrans Analysis

Mainline Freeway Segments

Mainline freeway segment analyses were conducted using the HCM) operational analysis methodology as implemented by the Highway Capacity Software (HCS) software package for the following five segments:

- I-405 between Rosecrans Avenue and Inglewood Avenue
- I-405 between Western Avenue and I-110
- I-110 between I-405 and Torrance Boulevard
- I-110 between Torrance Boulevard and 220th Street
- I-110 between PCH and Anaheim Street

The analysis was conducted in accordance with methodologies outlined in the *Caltrans Guide for the Preparation of Traffic Impact Studies* (Caltrans TIS Guide).[3] For Existing (as well as and Existing plus Project), the freeway mainline volume and speed data was obtained from Caltrans' Performance Measurement System (PeMS) archived traffic data for the AM and PM peak periods for Tuesdays, Wednesdays, and Thursdays in March 2014 for most segments4 and the data was averaged across the days. Existing and Existing plus Project conditions on

[3] California Department of Transportation, Guide for the Preparation of Traffic Impact Studies, December 2002

[4] Specifically, March 4, 5, 6, 11, 12, 13, 18, 19, 20, 25, 26, and 27, 2014, except when data was not available for those dates. The southbound direction of the I-110 freeway had limited detectors and in the absence of data, the upstream volume was used.

the I-405 and I-110 mainline segments are presented in Table 1 of Appendix L1 (X-6) of this Draft EIR.

LOS was determined using the following definitions from the HCM as presented in Appendix C of the Caltrans TIS Guide (note that LOS F is defined as density exceeding 45 passenger cars per mile per lane and average speed below 52.2 miles per hour):

LOS Definitions For Basic Freeway Segments At 65 Miles Per Hour (mph)

Level of Service	Maximum Density (pc/mi/ln)	Minimum Speed (mph)
A	11	65.0
B	18	65.0
C	26	64.6
D	35	59.7
E	45	52.2

During the AM peak hour, all of the northbound analyzed segments on I-405 and I-110, except for I-110 between Anaheim and PCH, operate at congested levels of service (LOS) F, whereas the only the southbound I-110 segments operate at LOS F. During the PM peak hour, all of the southbound segments on the I-405 and I-110 operate at LOS F, whereas the northbound segment on I-405 from I-110 to Western operates at LOS F.

Ramp Queuing

In response to a request from Caltrans, a level of service (LOS) and queue analysis was conducted at six freeway ramp locations to determine future LOS and queuing conditions at the off-ramps as a result of traffic from the proposed project. The focus of the queuing analysis is to specifically determine if there is adequate storage capacity at the off ramps. As further described in the impacts discussion, an impact is considered significant if the off-ramp queue extends beyond the length of the ramp itself onto the mainline of the freeway during the peak arrival period and the project contributes to such an exceedance.

The LOS and queuing analysis was conducted for the following intersections and respective off-ramps:

- Inglewood Avenue & I-405 Northbound Ramps
- Inglewood Avenue & I-405 Southbound Ramps
- I-405 Southbound Ramps & Artesia Boulevard (unsignalized)
- I-405 Northbound Ramps & Artesia Boulevard
- Crenshaw Boulevard & I-405 Northbound Ramps
- Crenshaw Boulevard & I-405 Southbound Ramps

For the Existing (2013) Conditions, Table 3.13-6 and Table 3.13-7 shows the results of the ramp LOS and queuing, respectively, for the existing baseline (2013) conditions.

Table 3.13-6: Ramp Intersection HCM Level of Service for Existing (2013) Conditions

Intersection	Peak Period	Existing	
		LOS	Delay (sec)
1. Inglewood Ave & I-405 NB Ramps	AM	B	12.3
	PM	B	14.6
2. Inglewood Ave & I-405 SB Ramps	AM	B	10.1
	PM	C	21.2
3. I-405 SB Ramps & Artesia Blvd [a]	AM	B	11.4
	PM	D	31.5
4. I-405 NB Ramps & Artesia Blvd	AM	B	12.6
	PM	B	13.5
5. Crenshaw Blvd & I-405 SB Ramps	AM	D	43.3
	PM	C	25.0
6. I-405 NB Ramps & 182nd St	AM	B	15.5
	PM	D	45.1

Note: Intersections operating at LOS E or F are noted in **Bold.**
[a] For unsignalized intersections, delay from the worst case approach was reported.

Table 3.13-7: Ramp Queing Summary for Existing (2013) Conditions

	Storage Queue Length (feet)	Direction Approach	Peak Hour	Queue Type	Existing (feet)
1. Inglewood Ave & I-405 NB Ramps	1,345	WB	AM	95th	282
			PM	95th	384
2. Inglewood Ave & I-405 SB Ramps	1,265	EB	AM	95th	285
			PM	95th	353
3. I-405 SB Ramps & Artesia Blvd	1,135	NB	AM	95th	25
			PM	95th	213
4. I-405 NB Ramps & Artesia Blvd	1,135	SB	AM	95th	163
			PM	95th	336
5. Crenshaw Blvd & I-405 SB Ramps	1,275	EB	AM	95th	817
			PM	95th	635
6. I-405 NB Ramps & 182nd St	1,085	NB	AM	95th	235
			PM	95th	410

Note: Intersections operating at LOS E or F are noted in **Bold.**
*#95th percentile volume exceeds capacity, queue may be longer.

PCH Level of Service

Per Caltrans TIS Guidelines, intersections on PCH were analyzed using HCM analysis methodology. Table 3.13-8 displays the HCM results for the Existing (2013) Conditions.

Table 3.13-8: HCM Level of Service - PCH Signalized Intersections – Existing (2013) Conditions

Intersection	Peak Period	Existing	
		LOS	Delay
7. Pacific Coast Hwy/Catalina Ave & Herondo St/Anita St	AM	D	44.8
	PM	**E**	**57.2**
10. Pacific Coast Hwy & Catalina Ave	AM	B	18.6
	PM	B	13.5
19. Pacific Coast Hwy & Beryl St	AM	A	10.0
	PM	B	15.7
24. Pacific Coast Hwy & Garnet St	AM	A	5.0
	PM	A	4.8
26. Pacific Coast Hwy & Torrance Blvd	AM	D	38.3
	PM	D	47.3
31. Pacific Coast Hwy & Sapphire St/Francisca Ave	AM	A	4.9
	PM	A	6.8
34. Pacific Coast Hwy & Knob Hill Ave	AM	A	9.7
	PM	B	12.1
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	D	48.8
	PM	**E**	**68.4**
37. Pacific Coast Hwy & 2nd St	AM	B	18.1
	PM	B	16.9
38. Pacific Coast Hwy & 10th/Aviation	AM	C	27.3
	PM	D	41.9
39. Pacific Coast Hwy & Pier/14th St	AM	B	16.0
	PM	C	20.8
40. Pacific Coast Hwy & 16th St	AM	B	13.1
	PM	B	15.7
41. Pacific Coast Hwy & Prospect Ave	AM	C	30.3
	PM	C	34.0

Note: Intersections operating at LOS E or F are noted in **Bold.**
[a] Harbor Dr & Pacific Ave was not analyzed for Existing Conditions because it will only function as a full intersection with the Project.

3.13.2.3.7 Existing Parking

Overall, the existing parking at the approximately 36-acre project site includes the Plaza Parking Structure, the Pier Parking Structure, and a large surface parking lot in the northern portion of the project site (Figure 3.13-7). The total number of existing parking spaces at the project site is approximately 2,192 (Table 3.13-9).

Northern Portion of the Project Site

Parking in the northern portion of the site consists of the surface parking lots and the Plaza Parking Structure. Surface parking lots include approximately 673 single stalls and 67 double stalls for trailers associated with the Redondo Beach Marina lots and approximately 102 stalls near Joe's Crab Shack. Surface parking makes up approximately 40 percent of the 19.5-acre northern portion of the project site.

The Plaza Parking Structure is a 332-stall structure constructed in 1980. The structure has three-levels. The lower two levels are available for parking and the top plaza level is only open to pedestrians. Vehicular access to the structure is provided from Pacific Avenue through the Plaza Driveway, with single entrance and exit lanes on the upper parking level. One third of the upper parking level is uncovered and the remaining two-thirds are beneath the plaza level. A ramp on the northern end provides circulation to the lower parking level. The lower level provides direct pedestrian access to the International Boardwalk.

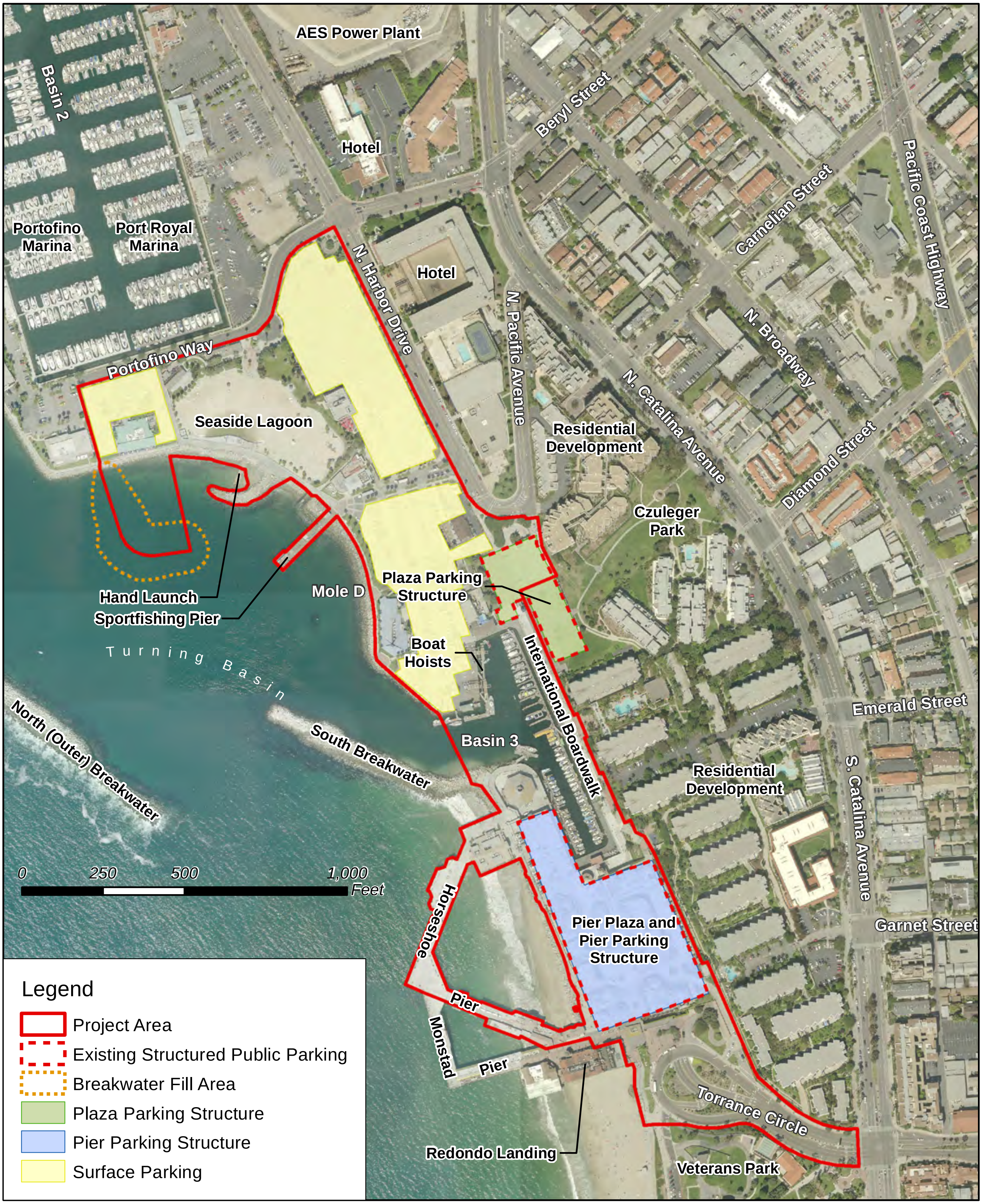
Southern Portion of the Project Site

Parking in the southern portion of the site is located at the Pier Parking Structure. This is an approximately 495,000 square foot 1,018 stall structure consisting of a North Pier Parking Structure, constructed in the 1960s, and the South Pier Parking Structure, constructed in 1973. The North Pier Parking Structure is only accessible through the South Pier Parking Structure and the two structures are operated as a single parking facility.

The Pier Parking Structure consists of three levels. The upper level includes uncovered parking stalls and the two-level Pier Plaza development. Access to the upper and lower level of the Pier Parking Structure is available from Torrance Circle. The driveway serving the lower levels is referred to as the Basin Driveway and has an entry lane, two exit lanes, and a reversible lane. The driveway serving the roof level is referred to as the Village Driveway and has two entry lanes and an exit lane (Walker Restoration Consultants, 2012).

Table 3.13-9: Existing Parking

<table>
<tr><th>Location</th><th colspan="2">Number of Stalls</th></tr>
<tr><td>Plaza Parking Structure</td><td colspan="2">332</td></tr>
<tr><td>Pier Parking Structure</td><td colspan="2">1,018</td></tr>
<tr><td rowspan="4">Surface Parking</td><td>RB Marina Single Stalls</td><td>673</td></tr>
<tr><td>RB Marina double stalls (Trailer parking)</td><td>67</td></tr>
<tr><td>Joe's Crab Shack</td><td>102</td></tr>
<tr><td colspan="2">842</td></tr>
<tr><td>Total</td><td colspan="2">2,192</td></tr>
</table>



Source: City of Redondo Beach, 2015

Figure 3.13-7
Existing Parking Facilities

3.13.2.4 Small Craft Boat Traffic

3.13.2.4.1 Existing Facilities

The total water footprint of King Harbor is about 99 acres and consists of three mooring basins for wet storage (marina slips) of small craft, an outer harbor navigation channel and transient mooring area, and a turning basin that is offset from the main channel near the harbor entrance. The three marina basins (Basins 1-3) total approximately 45 acres. About 36 percent of the 44-acre outer harbor area is dedicated as the harbor's main navigation entrance channel. The turning basin adjacent to Moles C and D comprises the remaining 10 acres of water area and serves as navigable waterway to and from Basin 3, temporary staging space for small craft, and recreation area for personal recreational watercraft (such as paddle craft, kayaks, and peddle boat) activity. There are four marinas operating within the harbor's three marina/mooring basins. Basin 1 has King Harbor Marina, the SEA Lab and King Harbor Yacht Club. Basin 2 consists of Port Royal Marina, Portofino Marina, and slips associated with a portion of the Redondo Beach Marina. Port Royal Marina includes the Port Royal Yacht Club and additional boat slips. Basin 3 (which is within the project site) consists of the majority of the Redondo Beach Marina. The distribution of boat slips is summarized in Table 3.13-10. The table was compiled and adjusted from recent aerial photography of the harbor. As shown by the tabulation, the percentage of sail and powerboats in King Harbor is about evenly divided.

Table 3.13-10: Existing Wet Storage Slip Count and Boat Type Distribution in King Harbor

Location	Total	Number of Boat Slips			
		Powerboats	Sailboats	Power (percent)	Sail (percent)
Basin 1	498	234	264	47	53
Basin 2	785	418	367	53	47
Basin 3	67	38	28	57	42
Outer Harbor Mooring[a]	29	-	-	-	-
Total	**1,379**	**690**	**659**	**50**	**48**

Source: Noble, 2015 (Appendix L2 of this Draft EIR)
a. Discrepancies in the in the total amounts pertain to lack of data associated with outer harbor mooring.

In addition to the permanent boat slips, there are additional boats and watercraft within upland dry storage areas adjacent to the outer harbor. Over 70 sail boats are kept in a mast up yard at the King Harbor Yacht Club, and a number of outrigger boats and ocean canoes are stored at the Lanakila and Nahoa Outrigger Canoe Clubs' site on Mole B.

Transient boat use in King Harbor consists of activity at the Mole D boat hoist facility, the outer harbor mooring field, day visitors who hand launch paddle craft from the Seaside Lagoon dock, and commercial vendors who rent peddle boats, kayaks, and standup paddle boards to the general public on an hourly basis. Tarsan in Basin 1, Oympus at Rocky Point, and Paddle House and the Redondo Beach Marina in Basin 3 are the four rental outlet locations.

Main access to and from the harbor's mooring basins is provided by the outer harbor navigation channel that is divided by marker buoys into an in-bound and out-bound lane. The total width of the 3,100 foot long waterway varies from about 230 feet at the entrance to 180 feet at the north end. At its widest point the two-lane channel is approximately 280 feet wide.

3.13.2.4.2 Existing Harbor Traffic

Despite the fact that King Harbor is a relatively small facility, no major operational problems or traffic congestion issues have been identified. For the most part, boaters appear to observe the "rules of the road" and small craft typically enter and exit the harbor without incident. On summer days when weather conditions are most favorable, the outer harbor area can be busy, which, in turn, results in increased presence of, and patrolling by, the Harbor Patrol to monitor activity and promote safety.

The different existing water uses of the harbor may be generally classified as follows:

1) *Navigation of wet storage boats to and from Basins 1, 2, and 3 to points around and outside of the harbor.*

The 1,400 small craft that berth in the harbor's marinas are the main boat population. For purposes of this study, it is assumed that, on average, no more than 10 percent of the harbor's fleet is in use on a given day. The maximum peak weekend day use is assumed to not exceed 25 percent in keeping with studies of other Southern California small craft harbors. Of this total, it is assumed that the boats in use will be evenly divided between sail and power craft in reflection of the harbor's near equal distribution between the two boat types. Boats use will vary throughout the day. Sailboats generally leave the harbor for offshore cruising in the early to late afternoon, when winds are more favorable. Powerboats tend to leave the harbor in the early morning hours and regularly throughout the day to fish, day cruise, or travel to more distant ports on extended trips.

2) *Yacht club sponsored events and activities*

The harbor's yacht clubs at Mole A and Basin 1 sponsor regattas and sailing activities regularly throughout the year. Evening offshore sail races are generally scheduled late in the day on Tuesdays and Thursdays when other boating activity in the harbor is generally light. On average, about 30 to 40 sailboats are estimated to participate in the evening events. Weekend race activity starts at mid-day when boats depart the harbor for open ocean courses. Youth sailing classes are conducted from June through August with beginner instruction conducted using Optimist dinghy sailboats in the protected outer harbor waters in the afternoon.

3) *Commercial boat activity from vessels moored in Basins 1 and 3*

There are only 41 commercial slips in the harbor with most of them located in Basin 3. The boats consist of small commercial fishing boats, oil terminal service boats, sportfishing, and sightseeing vessels. Because the boats are operated by experienced pilots and are berthed closest to the harbor entrance, they tend to have the least effect on water traffic in comparison to other locations in the Harbor.

4) Transient boats who may visit King Harbor from other ocean ports or launch ramps

Day visitors to King Harbor are estimated to constitute a small volume of boat traffic in the harbor. Boats may temporarily berth at any of the 25 available transient moorings adjacent to the North Breakwater or drop anchor west of the entrance channel. For the most part, the component does not significantly impact the harbor's water use. However, the transient mooring area does occupy a significant space adjacent to the entrance channel that could be used to relieve more restricted navigation conditions in the outer harbor during higher volume summer peak demand days.

5) Day use of trailered boats

Launch statistics from the Mole D boat hoist between 1997 and 2014 are summarized in Figure 3.13-8 below. The data indicate a progressive decrease in demand of trailed boat launches over the past 17 years. The peak number of monthly launches reduced from a high of 784 in July 1997 to 160 in August 2014. Redondo Beach Marina personnel indicate that the maximum daily number of boats launched between 2012 and 2014 varied from only 12 to 14.

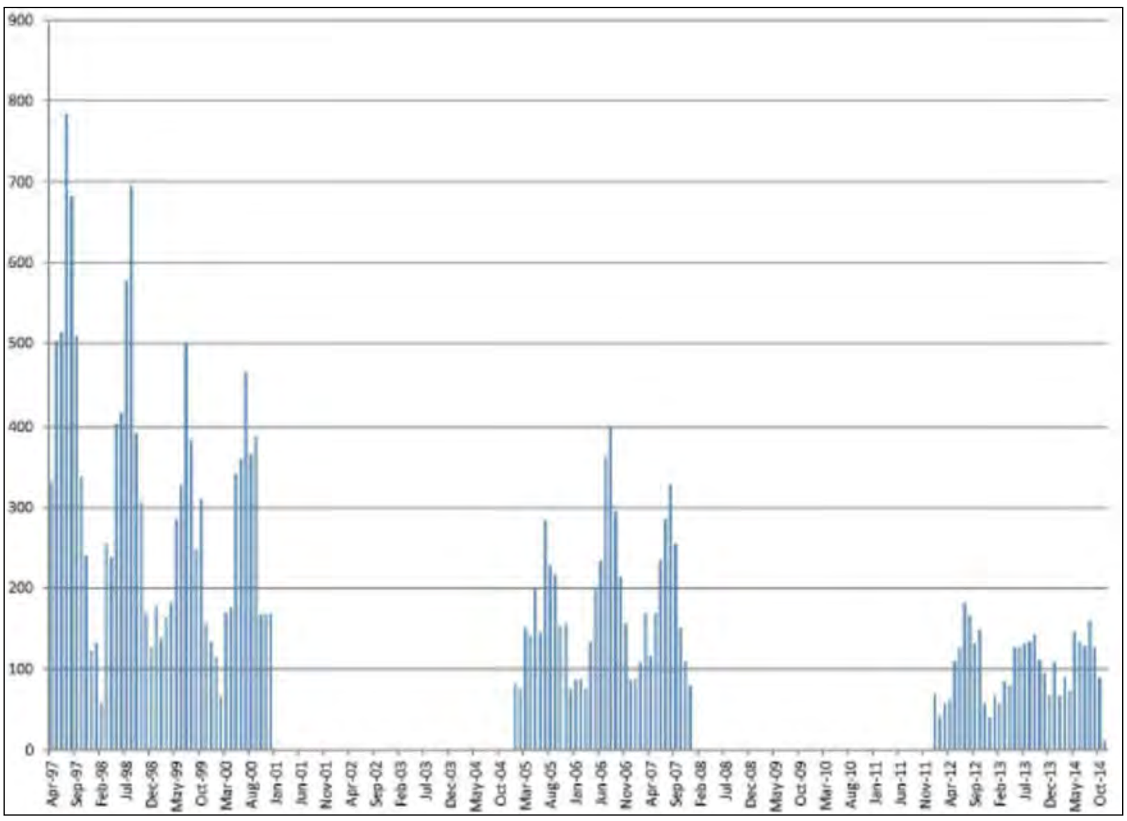


Figure 3.13-8
Boat Hoist Launch Statistics (1997 and 2014)

6) Peddle boat and paddle sports activity

As with most other Southern California harbors, the popularity of standup paddle boarding, and paddle sports has increased tremendously and the growing recreation demand for the sport presents challenges for harbor operations. The four concessions in King Harbor are estimated to collectively rent at least 200 or more boards on a peak summer weekend day. Standup paddlers, kayakers, and peddle boats will emerge from their Basin 1, 2, or 3 points of origin. From there they will generally paddle close to the shoreline of Moles B and C, around the turning basin, or venture across the main channel near the Portofino Hotel to cruise along the North (Outer) Breakwater shoal.

Not all of the paddle craft users are experienced and familiar with the harbor's rules of the road. Consequently members from King Harbor's boating community regularly report incidents of novice paddle boarders drifting into the navigation channel or crossing in front of oncoming traffic. The rental concessions instruct visitors on paddle craft rules in the harbor and how to safely maneuver about, and the Harbor Patrol actively patrols the waterways in a continuing effort to educate users and help keep paddlers out of boat navigation lanes. Harbor Patrol management practice is generally considered to be the most effectively measure for dealing with this activity interface issue and promote safe separation between boat traffic and paddle craft.

Additional paddle craft are launched from the existing hand launch adjacent to the Seaside Lagoon. It is assumed that at least 50 launches per day may occur from the hand launch dock on peak weekends. The paddle craft activity is assumed to be continuous from late morning through late afternoon. The volume of hand launch activity from the launch adjacent to the Seaside Lagoon may double if the lagoon is directly connected to the outer harbor to allow beach launching.

The two ocean canoe and outrigger clubs that operate from Mole B sponsor weekday activities that usually start late in the day and last until dark when water traffic is light. Times of weekend activity vary. Club members are knowledgeable mariners and experienced in maneuvering and navigating inside King Harbor.

3.13.2.4.3 Entrance Channel Capacity

All of the water use activity outlined above share and use the outer harbor area in different ways and times. The ability of the entrance channel, turning basin, and mooring area to accommodate the volume of existing and future demand during times of normal and peak activity will determine the safe carrying capacity of the space.

A first approximation of the entrance channel's traffic volume carrying capacity may be derived from review of a simple spatial relationship. By assuming a safe boat separation distance and transit speed, the volume capacity of the channel may be roughly estimated. A prior comprehensive study of boater activity in Channel Islands Harbor1[5] indicated that the preferred safe separation distance between adjacent small craft is about 2-1/2 boat lengths. The average boat length of small craft berthed in King Harbor's marinas is about 32 feet. This implies a minimum center to center separation distance of at least 100 feet to avoid congested

[5] Noble Consultants, Inc., 1992. Final report, Channel Islands Harbor Entrance Channel Study, prepared for the U.S. Army Corps of Engineers, Los Angeles District, May 1992.

conditions in the channel. Based upon this assumption, approximately 30 outbound and 30 inbound boats can safely transit through the channel simultaneously in single file succession.

If all of the boats are sailing at the allowable no wake speed of 5 knots, the maximum capacity of each navigation lane is about 30 boats per six minutes or 300 boats per hour. This rate represents about 20 percent of the King Harbor's total wet storage capacity. Rarely are more than 10 percent of moored boats in a Southern California harbors in use on any given weekday day. The maximum peak summer day use of any Southern California harbor has been estimated to not exceed 25 percent of its fleet.[6] However, not all of the boats will be in use at the same time. As previously discussed, the daily number of sail and power boats in use will spread out over the day. Consequently it is conservatively estimated that boat traffic volume in King Harbor's entrance channel does not exceed one-half of its theoretical maximum volume capacity under existing conditions.

3.13.2.5 Existing Coastal Access

Currently, public access to the shoreline is disjointed and not of high quality. There is access along Horseshoe Pier (reconstructed in 1995), a boardwalk within the southern portion of the project site, and along the Sportfishing Pier and associated boardwalk in the northern portion of the project site; however, access within the northern and southern portions of the site do not easily connect today. The existing marina within the central portion of the project site lies between the northern and southern portions, leaving only limited pedestrian and bicycle access along the eastern edge of the site. There is no public vehicle access between the northern and southern portions of the site; vehicles currently need to circulate back out to South Catalina Avenue when moving between the two areas.

The northern portion of the site is primarily occupied by surface parking lots and three restaurants near the water, which limits the pedestrian experience at the site. Also occurring within the northern portion of the site is the Seaside Lagoon, which encompasses approximately 1.2 acres, is fee-based, and is only open during the summer.

The southern portion of the project site has a boardwalk along most of the area and two piers accessible to the public, although the subject boardwalk is adjacent to a parking structure, which limits the pedestrian experience.

In summary, the public currently has access to approximately 84 percent of the coastline within the project site, but the quality of the experience is limited. Some of the access is adjacent to a chain-link fence or next to a parking lot, and does not encourage a relaxing stroll along the shoreline for visitors and nearby residents to enjoy the various amenities of the harbor area.

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[6] Moffatt & Nichol, 2007. Dana Point Harbor Boat Traffic Study, November, 2007.

3.13.3 Regulatory Framework

3.13.3.1 Senate Bill 743

The State Office of Planning and Research (OPR) is currently developing revisions to the CEQA Guidelines under Senate Bill (SB) 743. The revised CEQA Guidelines will establish new criteria for determining the significance of transportation impacts and define alternative metrics to replace LOS in transportation priority areas. The legislation does not preclude the application of local general plan policies, zoning codes, conditions of approval, or any other planning requirements. On August 7, 2014, OPR released the draft SB 743 guidelines in a document entitled *Updating Transportation Impacts Analysis in the CEQA Guidelines.* Vehicle miles of travel (VMT) is the proposed transportation metric for CEQA and the use of LOS as a sole basis for impact significance will be prohibited in Transit Priority Areas once the law goes into effect, which is anticipated to occur in 2016 after the draft guidelines are submitted to the Natural Resources Agency and go through the formal rulemaking process. Outside of the Transit Priority Areas, lead agencies may elect to be governed by the new guidelines once they go into effect or wait until they become mandatory, which OPR initially identified as applying to new projects which begin environmental review after January 1, 2016.

3.13.3.2 Sustainable Community Strategy (RTP/SCS)

Every four years, SCAG updates its Regional Transportation Plan (RTP) for the 191-city SCAG region. The RTP assembles a regional project list based on input from cities, counties, transit agencies, congestion management agencies, regional transportation planning agencies, and Caltrans. This project list is then combined with population and employment growth forecasts to project how future (a minimum of 20 years) travel, air quality, and greenhouse gas (GHG) conditions will change. Beginning with the 2012 RTP, SB 375 required the inclusion of a Sustainable Communities Strategy (SCS) in RTPs prepared by metropolitan planning organizations (MPOs) such as SCAG. The key goal of the SCS is to achieve GHG emission reduction targets through integrated land use and transportation strategies, although SB 375 did not require any modification of the regional project list contained in the RTP. Instead, the focus is on other transportation and land use strategies that influence vehicle travel; a key objective is for planners and developers to consider how land use patterns influence travel demand.

As part of the transportation modeling and analysis for the RTP/SCS, SCAG prepares population and employment growth projections by Transportation Analysis Zone (TAZ) and creates a future transportation network that represents the changes to the existing network based on the regional project list. TAZs are geographic polygons representing communities and neighborhoods at a sub-city level of detail.

3.13.3.3 Los Angeles County Congestion Management Program

The Congestion Management Program (CMP) is a state-mandated program that was enacted by the California Legislature to address the impact of local growth on the regional transportation system (Metro, 2010). Within Los Angeles County, Metro is responsible for planning and managing vehicular congestion and coordinating regional transportation policies. The 2010 CMP for Los Angeles County adopted by Metro requires a traffic impact assessment be prepared to determine the potential impacts on designated monitoring locations on the CMP system. Specifically, the CMP Guidelines require the evaluation of all arterial monitoring intersections where a project would add 50 or more trips during the morning or evening weekday peak hours, and all freeway segments where a project could add 150 or more trips, in either direction, during the morning or evening weekday peak hours. If, based on these screening criteria, no CMP facilities are identified for study, no further highway or freeway system analysis need be conducted and project impacts are deemed to be less than significant. If the project meets the minimum CMP screening thresholds for including the location in a more detailed analysis, according to the CMP Traffic Impact Analysis Guidelines, an increase of 0.02 or more in the demand-to-capacity (D/C) ratio with a resulting LOS F at a CMP freeway monitoring station is deemed a significant impact. At non-CMP freeway segments, an increase of 0.02 or more in the demand-to-capacity (D/C) ratio with a resulting LOS F at a CMP freeway monitoring station is deemed a significant impact.

3.13.3.4 City of Redondo Beach General Plan

The City of Redondo Beach's General Plan Circulation Element includes goals to reduce trip generation, promote bicycle and pedestrian modes and link existing and proposed bicycle facilities, creating opportunities for physical activity. The City's Circulation Element, Policy 10 also contains thresholds of significance for signalized intersections, which are provided below in Section 3.13.4.2.

The Circulation Element includes a number of goals related to active transportation and alternative modes, including the promotion of alternative modes, the pursuit of bicycle and pedestrian priorities, the enhancement of bicycle infrastructure, and the creation of opportunities for physical activity. The proposed project has been determined to be consistent with the General Plan and its Circulation Element. Additional details regarding General Plan consistency are included in Draft EIR Section 3.9 Land Use and Planning and Draft EIR Appendix L1, Section 7.2.

3.13.3.5 Redondo Beach Parking Requirements

RBMC Title 10, Chapter 5, Article 5. Parking Regulations (Section 10-5.1700 et seq) provides the City's parking regulations. Section 10-5.1706 delineates the minimum required off-street parking standards for commercial, industrial, and other nonresidential uses. The following are the uses and space requirements associated with similar land uses as proposed at the project site:

Use	Spaces Required
Places of assembly, including theaters:	One space for every five (5) seats or one space for every forty (40) square feet of seating area where there are no fixed seats.
Bars and cocktail lounges:	One space for every four (4) seats, but not less than one space for each fifty (50) square feet of gross floor area designated for seating, including aisles.
Boat slips:	Three-fourths space for each boat slip.
Business offices:	One space for each 300 square feet of gross floor area.
Food and beverage sales and snack shops:	One space for every 250 square feet of gross floor area, except if this use shall contain more than twelve (12) seats, there shall be required one space for each 100 square feet of gross floor area. Outdoor seating shall be subject to subsection (a)(3) of Section 10-5.1706.
Hotels:	The maximum required shall be as follows: one space for each guest room without kitchen facilities and one and one-half spaces for each guest room with kitchen facilities; plus one space per each 100 square feet of banquet, assembly, meeting or restaurant seating area. The decision-making body may require less than the maximum requirement based on factors including, but not limited to, the size of the project, the range of services offered, and the location.
Restaurant, sit-down:	One space for every four (4) seats, but not less than one space for each fifty (50) square feet of gross floor area designated for seating, including aisles. Outdoor seating shall be subject to subsection (a)(3) of Section 10-5.1706.
Restaurant, fast-food:	One space for each seventy-five (75) square feet of gross floor area. Outdoor seating shall be subject to subsection (a)(3) of Section 10-5.1706.
Restaurant, delivery:	One space for each 100 square feet of gross floor area.
Restaurant, take-out:	One space for each 250 square feet of gross floor area. Outdoor seating shall be subject to subsection (a)(3) of Section 10-5.1706.
Restaurant, pedestrian-oriented:	One space for each 250 square feet of gross floor area (limited to the C-2-PD, C-3-PD, C-4-PD, MU-1, MU-2, MU-3, MU-3A, MU-3B and MU-3C pedestrian-oriented commercial zones).
Restaurant, unclassified:	One space for each seventy-five (75) square feet of gross floor area. Outdoor seating shall be subject to subsection (a)(3) of Section 10-5.1706.
Commercial uses not listed:	One space per each 250 square feet of gross floor area, except that uses subject to a Conditional Use Permit shall provide a minimum of one space per each 250 square feet of gross floor area and a maximum of one space per 100 square feet of gross floor area, depending upon the specific nature of the project.

For outdoor seating for food-serving establishments, no additional parking is required for the first twelve (12) seats or a number of outdoor seats equivalent to 25 percent of the number of indoor seats, whichever is greater. Thereafter, one parking space shall be provided for every six (6) seats.

Subsection (d) of the Parking Regulations allows for shared parking (i.e., “overlap parking”) for non-residential uses, subject to review and approval by the City’s Community Development Department. Approval of shared parking is based on a determination that the typical utilization of the parking area would be staggered or shared to such an extent that the reduced number of parking spaces would be adequate to serve all uses on the site or parcel. If the site is in a pedestrian-oriented commercial zone, the Community Development Department may also approve shared parking subject to a determination that the use mix is conducive to customers parking and walking to visit more than one business on the same trip.

3.13.3.6 Redondo Beach Transportation Demand Management

Section 10-2.2406 of the Redondo Beach Municipal Code requires nonresidential developments of 25,000 square feet or more to provide transportation demand measures to reduce the number of vehicles traveling to and from the project site. The proposed project consists of construction of up to 511,460 square feet (304,058 square feet of net new development). The following is required of nonresidential developments greater than 50,000 square feet:

- A bulletin board, display case, or kiosk displaying transportation information located where the greatest number of employees are likely to see it.
- One space shall be signed and striped for carpool/vanpool vehicles.
- Preferential spaces reserved for vanpools must be accessible to vanpool vehicles and adequate turning radii and parking dimensions shall be included.
- Bicycle racks or other secure bicycle parking shall be provided to accommodate four bicycles for the first 50,000 square feet of nonresidential development and one bicycle per each additional 50,000 square feet of nonresidential development.

3.13.3.7 Encroachment Permit Requirements

Any work within the existing right of way would have to comply with Caltrans permitting requirements. This includes a traffic control plan that adheres to the standards set forth in the California Manual of Uniform Traffic Control Devices (MUTCD) (2012).[7] As part of these requirements, there are provisions for coordination with local emergency services, training for flagman for emergency vehicles traveling through the work zone, temporary lane separators that have sloping sides to facilitate crossover by emergency vehicles, and vehicle storage and staging areas for emergency vehicles. MUTCD requirements also provide for construction work during off-peak hours and flaggers.

[7] CALTRANS Manual on Uniform Traffic Control Devices available online at: http://www.dot.ca.gov/hq/traffops/engineering/mutcd/pdf/camutcd2012/CAMUTCD2012_TTC.pdf

3.13.4 Impacts and Mitigation Measures

3.13.4.1 Methodology

The following section describes the methodologies used in evaluating transportation impacts.

3.13.4.1.1 Intersection Analysis

Vehicle Trip Generation

Standard trip generation methodologies typically use the Institute of Transportation Engineers (ITE) Trip Generation Manual to establish trip rates for each individual land use in isolation. However, most trip generation studies used to develop ITE trip generation rates were conducted in isolated, suburban settings, and so do not accurately predict trip generation for mixed use and urban infill sites with transit proximity and a density, scale, and design that can facilitate walking and biking. Research indicates that the ITE Trip Generation Manual overestimates peak traffic generation for mixed-use development (MXD) by an average of 35 percent.[8] [9]

Reflecting the mixed-use nature of the proposed project, a mixed-use trip generation model (MXD+) was used. MXD+ represents a substantial improvement over conventional traffic estimation methods. It improves accuracy, virtually eliminates overestimation and is supported by substantial evidence (refer to Appendix L1 of this Draft EIR for a description of the successful use of this type of model by the U.S. Environmental Protection Agency and others). The model starts with ITE trip generation rates for each individual land use, but through the statistical processes of the model, calibrates the ITE rates to reflect the site specific and area contexts of the project, including its mixture of uses, site and area demographics, accessibility to other land uses, such as adjacent residential, availability of transit service, pedestrian connectivity, and other factors. The model calibrates ITE rates based on these factors to provide a much more accurate estimate of external project trip generation than the application of ITE trip rates alone. Trip generation rates under existing conditions and the proposed project are included in Table 3.13-11 below. The difference between the net new trip generation rates was added to baseline conditions (and Cumulative without Project Conditions) to create the “plus Project” scenarios described below.

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[8] Ewing, Reid, Michael Greenwald, Ming Zhang, Jerry Walters, Robert Cervero, Lawrence Frank, and John Thomas. 2011. “Traffic Generated by Mixed-Use Developments — Six-Region Study Using Consistent Built Environmental Measures.” ASCE Journal of Urban Planning and Development 137(3): 248–61. http://ascelibrary.org/action/showAbstract?page=248&volume=137&issue=3&journalCode=jupddm&isAuthorized=no

[9] Additional research papers documenting the MXD model development and process are at: http://asap.fehrandpeers.com/wp-content/uploads/2012/05/APA_PAS_May2013_GettingTripGenRight.pdf

Table 3.13-11: Project Trip Generation Estimates

Designation	Size	Units	Trip Generation Rates			Trip Generation Estimates						
							AM Peak Hour			PM Peak Hour		
			Daily	AM Peak Hour	PM Peak Hour	Daily	In	Out	Total	In	Out	Total
Proposed Project												
Retail [a]	97	KSF	Equation			6,658	95	58	153	282	305	587
Movie Theater [b]	700	Seats	1.80	0.00	0.07	1,260	0	0	0	27	22	49
Quality Restaurant[c]	128	KSF	89.95	0.81	7.49	11,514	57	47	104	643	316	959
High Turnover Rest. [d]	45	KSF	127.15	10.81	9.85	5,722	267	219	486	266	177	443
Hotel [e]	130	Rooms	8.17	0.53	0.60	1,062	41	28	69	40	38	78
Office [f]	60	KSF	11.03	1.56	1.49	662	83	11	94	15	74	89
Total Trips (base ITE rates)						26,878	543	363	906	1,273	932	2,205
MXD+ Model calibration of base ITE rates reflecting project & site specific characteristics						-4,804	-93	-62	-155	-428	-314	-742
Boat Launch Ramp	40	Stalls				160	8	4	12	4	8	12
Project Vehicle Trips						**22,234**	**458**	**305**	**763**	**849**	**626**	**1,475**
Existing Active Uses												
Retail [a]	31.005	KSF	Equation			3,172	47	29	76	131	142	273
Quality Restaurant[c]	45.094	KSF	89.95	0.81	7.49	4,056	20	17	37	226	112	338
High Turnover Rest. [d]	30.083	KSF	127.15	10.81	9.85	3,825	179	146	325	178	118	296
Office [f]	71.174	KSF	11.03	1.56	1.49	785	98	13	111	18	88	106
Total Trips (base ITE rates)						11,838	344	205	549	553	460	1,013
MXD+ Model calibration of base ITE rates reflecting project & site specific characteristics						-2,154	-81	-49	-130	-175	-145	-320
Existing Vehicle Trips						9,684	263	156	419	378	315	693
NET NEW EXTERNAL PROJECT TRIPS						***12,550***	***195***	***149***	***344***	***471***	***311***	***782***

Notes:

[a] Trip generation fitted curve equation for Land Use 820 from *Trip Generation*, 9th *Edition*, Institute of Transportation Engineers, 2012. Existing retail includes the arcade.

[b] Trip generation rate for Land Use 444 from *Trip Generation*, 9th *Edition*, Institute of Transportation Engineers, 2012. For a worst-case weekday analysis, ITE Friday trip generation rates for the movie theater use have been used. For the daily trip rate, the weekday daily rate was obtained from SANDAG's Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (SANDAG, April 2002).

[c] Trip generation rate for Land Use 931 from *Trip Generation*, 9th *Edition*, Institute of Transportation Engineers, 2012

[d] Trip generation rate for Land Use 932 from *Trip Generation*, 9th *Edition*, Institute of Transportation Engineers, 2012. Existing restaurant uses at the project site include a variety of types, include quality restaurant (typically closed for breakfast on weekdays), and high-turnover restaurant (typically open for breakfast). Assumed 60% quality restaurant and 40% high turnover restaurant. Quality restaurants generate fewer trips than high-turnover restaurants, so applying this 60/40 split for the existing uses results in a smaller existing trip generation credit applied to future uses.

[e] Trip generation rate for Land Use 310 from *Trip Generation*, 9th *Edition*, Institute of Transportation Engineers, 2012

[f] Trip generation rate for Land Use 710 from *Trip Generation*, 9th *Edition*, Institute of Transportation Engineers, 2012

[g] Gross leasable area that was occupied at the time baseline traffic counts were collection (Summer 2013, Spring 2014). Because fewer spaces were occupied in Summer 2013, and therefore the trip generation credit for existing uses would be smaller) the summer 2013 GLA data were used.

Trip Distribution

Two model sources were reviewed in the preparation of a trip distribution pattern for the operation of the proposed project. The Redondo Beach Traffic Model (RBTM) developed for *the Redondo Beach Circulation Element* was used to run a select zone analysis for the TAZ containing the proposed project, in order to evaluate the roadway distribution and assignment of proposed project trips. The SCAG 2012 RTP Travel Demand Model was also used to run a select zone analysis of the project TAZ to evaluate the roadway distribution and assignment of proposed project trips. The SCAG model iteratively assigns traffic until it is optimally distributed over the roadway network. This assignment process accounts for congested travel time on roadways and iteratively assigns trips until equilibrium is reached (e.g. no trips can be assigned to a quicker route than the route they are assigned. Based on the two select zone assignment analyses, a trip distribution pattern was developed, which took into account the model distribution patterns, as well as the hierarchy of streets in the study area, areas of known congestion, and expected travel patterns of the proposed project based on the economic feasibility study completed for the project. Separate model runs were prepared both with and without the proposed Pacific Avenue Reconnection to evaluate how proposed project traffic and background traffic is expected to shift with this additional roadway segment. Figures 3 and 12 in Appendix L1 (X-2) of this Draft EIR illustrate the intersection project distribution pattern at study intersections for the proposed project and for Alternative 5 (No Pacific Avenue Reconnection)

Additionally, the *Market Feasibility Analysis Study* (AECOM, 2015) was reviewed to determine the market area for the operation of the proposed project. The study concluded that up to 80 percent of the proposed project's sales are expected to come from daytime workers and residents living within eight to nine miles of the project site. The trip distribution pattern for the proposed project reflects this geographic concentration of project trips.

Analyzed Scenarios

The analysis of potential impacts to key intersections was based on the following scenarios:

- **"Without Project" Scenarios**:
  - ***Existing (2013) Conditions*** – The existing conditions analysis includes an assessment of streets, traffic volumes, and operating conditions. Traffic volumes for this scenario were obtained from two data collection periods (summer 2013 and spring 2014). The maximum traffic volume for each intersection was selected (whether from the summer 2013 or the spring 2014 counts), and used to represent existing baseline conditions without the project.
  - ***Cumulative (2019) Conditions Without Project*** – Future traffic conditions without the proposed project are provided in this scenario. The annual growth rates applied to the existing traffic volumes were obtained from SCAG's population growth forecast for the City of Redondo Beach, an average growth rate of 0.36 percent per year.[10] Population growth rates were conservatively used rather than traffic growth rates to

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[10] SCAG Integrated Forecast available online at: http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP_GrowthForecast.pdf. SCAG 2012 RTP available online at: http://rtpscs.scag.ca.gov/Documents/2012/final/f2012RTPSCS.pdf.

estimate future conditions through the year 2019 because SCAG forecasts a slight decline in average City-wide traffic volumes.

The SCAG travel demand model was performed and compared the model-assigned traffic on roadways in the City of Redondo Beach citywide between the base year (2008) and the forecast year (2035). The net change in volumes projects a decline of two percent, due to the transportation infrastructure improvements, land use changes, and policy strategies associated with the RTP and the Sustainable Community Strategy (SCS).[11] Therefore, the use of the population growth rate is considered a conservative worst-case analysis. Additional details about what the SCAG model is and how it was applied in this analysis is provided in Appendix L1.

CEQA allows public agencies to rely exclusively upon (1) growth projections or (2) a list of projects for assessing cumulative impacts. While the City is relying primarily upon the growth projections approach, the City also conservatively incorporated the trip generation from several specific development projects located in proximity to the primary routes of trip distribution for the project site. These specific projects are known development projects with the greatest likelihood to add trips to the intersections located closest to the project site. Traffic estimated to be generated by four development projects in the study area (i.e., Shade Hotel Redondo Beach, Legado Redondo, Kensington Assisted Living Facility, and the Seabreeze project) were also incorporated into the traffic volumes to characterize Cumulative (2019) Conditions without Project. The study intersections are expected to remain consistent with their existing lane geometries under the Cumulative without Project scenario.

- **"With Project" Scenarios (Project Conditions):**
  - ***Existing (2013) plus Project Conditions*** – This scenario provides the analysis of the effects of the proposed project's trips and network changes on existing operating conditions, which, in turn, is used to identify potential significant impacts associated with the proposed project. Proposed project-related trips were assigned to the roadway network based on the trip generation and trip distribution analyses described above, and were added to Existing (2013) Conditions to assess project impacts. This scenario includes the Pacific Avenue Reconnection. Detailed trip distribution percentages at each study intersection and turning movement are illustrated for the proposed project in Appendix L1(X-2).
  - ***Cumulative plus Project Conditions (2019)* –** This scenario provides the analysis of future conditions when the project becomes operational. This scenario includes traffic associated with future regional growth, with the addition of traffic generated by the proposed project. The objective of this scenario is to assess the potential for the proposed project to contribute to significant cumulative impacts in the future. Proposed project-related trips were assigned to the roadway network based on the trip generation and trip distribution analyses, and were added to the Cumulative (2019) Conditions Without Project scenario in order to assess project impacts. This scenario includes the Pacific Avenue Reconnection. Detailed trip distribution percentages at each study intersection and turning movement are illustrated for the proposed project in Appendix L1(X-2).

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[11] SCAG 2012 RTP is available online at: http://rtpscs.scag.ca.gov/Pages/2012-2035-RTP-SCS.aspx

Signalized Intersection Impact Analysis Methodology

Consistent with City of Redondo Beach requirements, signalized intersections were analyzed using the ICU methodology. The ICU methodology is used to determine the intersection V/C ratio and corresponding LOS for the turning movements and intersection characteristics at the signalized intersections. The ICU value is calculated by summing the V/C ratio sum of the critical movements, plus a factor for yellow signal time. AM and PM peak hour ICU ratios and LOS were calculated using an ICU spreadsheet tool and assuming lane capacities that do not exceed 1,600 vehicles per lane per hour. This methodology addresses impact to all motor vehicles utilizing the Redondo Beach roadways, including transit vehicles.

For the intersections in the City of Torrance, an additional impact analysis discussion was completed. The City of Torrance requires the use of both the ICU methodology and the HCM methodology for signalized intersections. In consultation with Hermosa Beach staff, the City agreed with Redondo Beach's approach of utilizing Redondo Beach impact criteria for determining significant traffic impacts for both signalized and unsignalized intersections at intersections with shared jurisdiction or within the City Hermosa Beach.

Unsignalized Intersection Level of Service Methodology

Unsignalized intersections were analyzed using the HCM (TRB, 2010) methodologies for unsignalized intersections both within the City of Redondo Beach and within the City of Hermosa Beach. The Synchro software was used for to calculate peak hour intersection delay and LOS at unsignalized intersections.

Caltrans Facilities Analysis Methodology

The following analysis methodologies were used to analyze Caltrans facilities, based on input from Caltrans staff:

- HCM signalized intersection analysis for signalized intersections on Pacific Coast Highway
- Ramp queuing analysis using the HCM methodologies for freeway off-ramps
- HCM mainline segment analysis for freeway segments

3.13.4.1.2 Congestion Management Program (CMP) Analysis

The CMP (Los Angeles Metro, 2010)[12] for Los Angeles County requires that a screening analysis be conducted to determine if CMP analyses are needed at adjacent CMP arterial intersections (50 additional peak hour trips) and freeway monitoring locations (150 additional peak hour trips) based on the number of project trips added to those locations. The CMP also requires that project-related transit trips be estimated and their potential to impact current and planned transit services be evaluated.

[12] 2010 CMP. http://media.metro.net/docs/cmp_final_2010.pdf

3.13.4.1.3 Small Craft Boat Traffic

The consulting firm Noble Consultants, Inc. prepared a memorandum assessing potential impacts of the proposed small craft boat launch ramp facility to King Harbor's boat traffic and recreation (Appendix L2 of this Draft EIR). The assessment looked at the existing water uses within King Harbor and estimated the potential for use of the proposed small craft boat launch ramp facility to determine if the new facility would create a substantial increase in boating hazards due to a design feature or incompatible uses.

3.13.4.2 Criteria and Thresholds for Determining Significance

The proposed project would result in significant impacts on traffic and transportation if it would:

TRA-1 Exceed the applicable significance thresholds

Construction Traffic Impacts

- Construction traffic impacts would be significant if substantial congestion, inconvenience to motorists, or hazardous conditions would be caused by the proposed project on a regular or frequent basis in comparison to existing conditions.

Operational Traffic Impacts

Signalized Intersections

Based on the City's adopted thresholds for determining operational significant impacts at signalized intersections, the significance of the project's incremental increase in the ICU volume to capacity at a signalized intersection is dependent upon the underlying LOS value for that specific peak hour based on the following thresholds under existing and cumulative conditions:

Intersection LOS Under "Without Project" Conditions	Change in Volume to Capacity (Future with Project less Future without Project)
A	----
B	----
C	0.040
D	0.020
E	0.010
F	0.010

As indicated above, the thresholds of significance for impacts at a signalized intersection take effect where the operating characteristics of the intersection, without the addition of project traffic, are at LOS C and are progressively more stringent for lesser (worse) LOS values. For example, at an intersection where the project-related change in the ICU V/C is 0.035, that change would constitute a significant impact if the intersection's LOS value for "without project" conditions is D or worse, but would not be a significant impact if the LOS value is C or better.

Signalized intersections in the City of Hermosa Beach, or those signalized intersections with shared jurisdiction with the City of Redondo Beach, were also analyzed with the same significance threshold criteria presented above, based on concurrence by City of Hermosa staff that such criteria are suitable for evaluating the impacts of the proposed project.

Signalized intersections in the City of Torrance, or those signalized intersections with shared jurisdiction with the City of Redondo Beach, were analyzed with the threshold criteria used by Torrance for traffic impact analyses, as follows:

- Based on the ICU analysis, a significant traffic impact would occur when the project causes a change from LOS D or better to LOS E or F. If the project increases traffic at the intersection by two percent of capacity (ICU increase ⩾ 0.020), causing or worsening LOS E or F (ICU > 0.901), the impact would be considered significant.
- Based on the HCM analysis, a significant traffic impact would occur when the project causes a change from LOS D or better to LOS E or F, or the project causes an increase in delay of two percent or more at an intersection operating LOS E or F.

<u>Unsignalized Intersections</u>

The following factors were taken into account to determine whether or not the project would have a significant impact at an unsignalized intersection:

- Intersection is projected to decline to LOS E or F from LOS D or better with the addition of traffic volumes associated with the proposed project; and
- The intersection meets signal warrants either caused by project volumes, or project volumes are added at an intersection that meets signal warrants in the baseline scenario(s).

Signal warrants are volume based thresholds to determine whether a signal would be recommended, as determined in the Manual on Uniform Traffic Control Devices (Federal Highway Administration). The peak hour signal warrant test was used for the analysis. The volume threshold to determine whether a signal warrant is met is based on a curve for the major and minor street volumes, as well as the number of lanes. Additional details on signal warrants are available online.[13]

The criteria for determining significance presented above, relative to both signalized and unsignalized intersections, address impacts for all motorists, including private motor vehicles, taxis, limousines, trucks, and multi-party vehicles, such as buses, etc.

Freeway Ramps

An impact is considered significant if the off-ramp queue extends beyond the length of the ramp itself onto the mainline of the freeway during the peak arrival period and the project contributes to such an exceedance.

[13] http://mutcd.fhwa.dot.gov/htm/2009/part4/part4c.htm

Parking Impacts

The project would have a significant impact on parking if the project provides less parking than needed as determined through an analysis of demand for the proposed project.

TRA-2 Conflict with an applicable congestion management program

This analysis addresses impacts to freeway segments and transit service. As noted above, the CMP for Los Angeles County requires that a screening analysis be conducted to determine if CMP analyses are needed at adjacent CMP arterial (50 additional peak hour trips) and freeway monitoring locations (150 additional peak hour trips), based on the number of project trips added to those locations. If trip generation is under these screening thresholds, impacts are considered less than significant. Where the screening analysis determines that a project's trip generation characteristics warrant a CMP Traffic Impact Analysis, the LA County 2010 Congestion Management Program applies the following significance threshold:

> A significant impact occurs when the proposed project increases traffic demand on a CMP facility by two percent of capacity (V/C ⩾ 0.02), causing LOS F (V/C > 1.00); if the facility is already at LOS F, a significant impact occurs when the proposed project increases traffic demand on a CMP facility by two percent of capacity (V/C ⩾ 0.02).

As noted above, the CMP also requires that project-related transit trips be estimated and their potential to impact current and planned transit services be evaluated. The threshold of significance used for assessing project-related transit trips is as follows:

> Whether project-related transit trips would exceed the available capacity of transit service that serves the project site.

An additional analysis for freeway segments and PCH intersections has been included, which is consistent with Caltrans' HCM methodology. However, Caltrans does not provide significance thresholds; consequently, the City of Redondo Beach is relying upon the CMP methodology and significance thresholds for determining the significance of impacts on freeway segments and PCH intersections.

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

The proposed project does not create any hazardous design features such as sharp curves or dangerous intersections. For the types of transportation-related issues addressed in this section, the analysis of potential impacts related to pedestrian and bicycle facilities and to small craft boat traffic in the marina take into account safety considerations, and are therefore discussed under the TRA-3 impact.

<u>Pedestrian and Bicycle Facilities</u>

The project's potential to impact pedestrian and bicycle facilities and conditions is evaluated based on the following criteria:

- Does the project substantially disrupt any existing pedestrian or bicycle facilities?
- Does the project substantially increase hazards due to a design feature?

Small Craft Boat Traffic

A general qualitative analysis is provided for evaluating potential safety considerations associated with implementation of the proposed project, based on the following criteria:

- Would the project substantially increase watercraft safety hazards?

3.13.4.3 Impact Determination

Impact TRA-1: The proposed project could exceed the applicable significance thresholds, as follows:

Construction

The project site can be generally be divided into two construction sites, the northern and the southern portion of the site. In addition, there is construction areas associated with the area of Basin 3 and waterside elements (e.g., Sportfishing Pier, Seaside Lagoon, and the proposed small craft boat launch ramp).

Should work be performed within the existing State highway right-of-way, the work would have to comply with Caltrans permitting requirements. This includes a traffic control plan, which adheres to the standards set forth in MUTCD (2012).[14] As part of these requirements, there are provisions for coordination with local emergency services, training for flagman for emergency vehicles traveling through the work zone, temporary lane separators that have sloping sides to facilitate crossover by emergency vehicles, and vehicle storage and staging areas for emergency vehicles. MUTCD requirements also provide for construction work during off-peak hours and flaggers.

Haul Trucks - Peak hauling activity for the north site and south site is anticipated to occur during timing of the north site utility work, structural concrete work, parking structure work, and core and shell work and the overlapping south site utility demolition work, retaining wall, and earthwork on the south site would generate the single day with the highest number of trips. Haul activity during that phase is projected to generate an average of approximately 110 haul trucks on the peak day of activity. The hauling activity is likely to use double belly dump haul trucks. Hauling hours are anticipated to be 7:00 AM to 3:00 PM on weekdays.

The anticipated haul routes are illustrated in Figure 3.13-9. The north side is accessible from Beryl Street and the south side is accessible from Torrance Boulevard. Access to both sites from the I-405 Freeway traverses Hawthorne Boulevard, 190th Street, Anita Street, and Catalina Avenue. For southbound access from I-405 Freeway, the truck haul route will utilize Artesia Boulevard to access the I-405. For northbound access to/from I-405 Freeway, the haul truck routes will utilize Redondo Beach Boulevard to access the I-405. Haul routes accessing the south site will continue along Catalina to Torrance Boulevard to enter from the south. Trips between both sites will utilize Beryl Street and Catalina Avenue and Torrance Boulevard. All truck queuing would occur within the project site.

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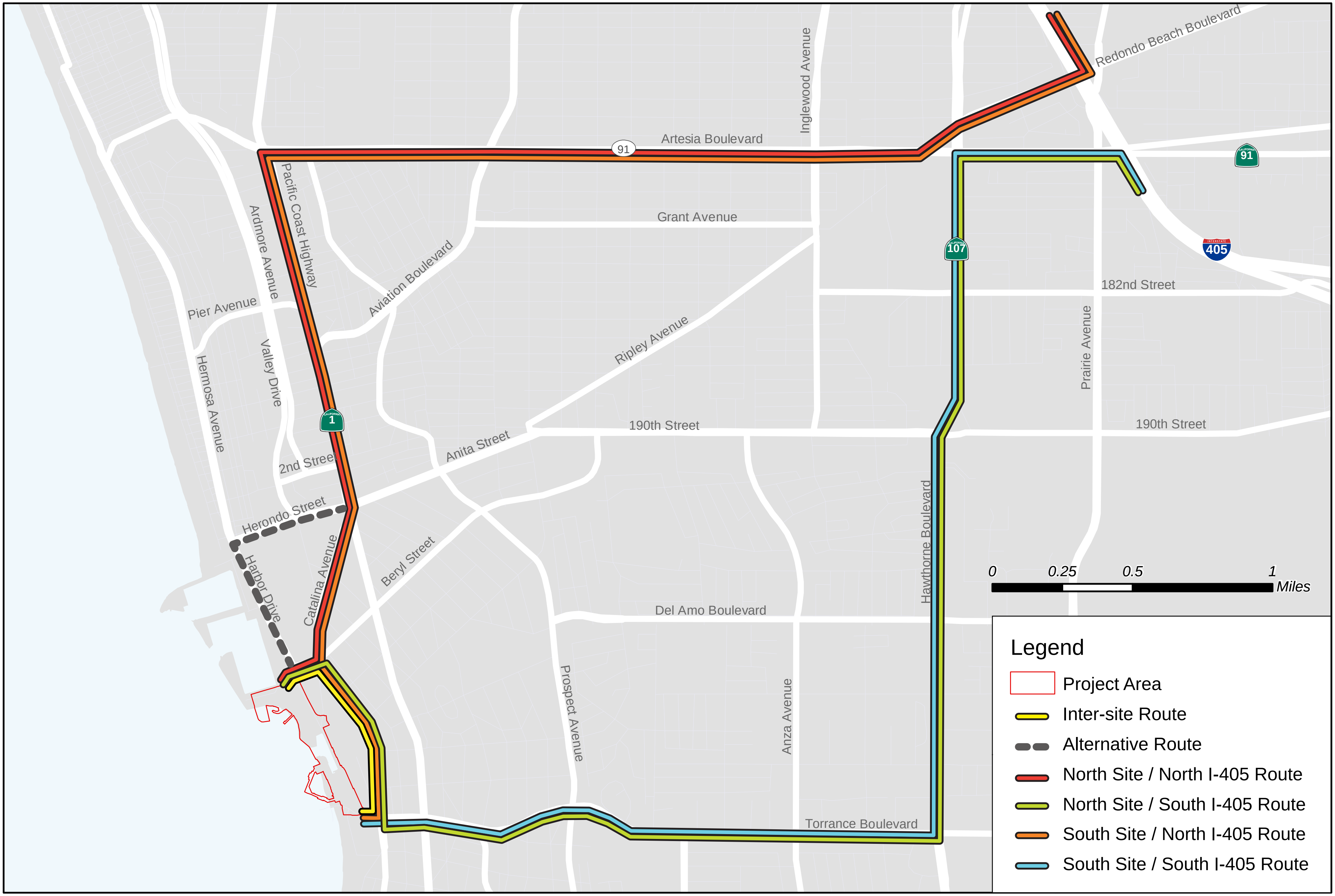
[14] CALTRANS Manual on Uniform Traffic Control Devices available online at: http://www.dot.ca.gov/hq/traffops/engineering/mutcd/pdf/camutcd2012/CAMUTCD2012_TTC.pdf



Source: City of Redondo Beach, 2015

Figure 3.13-9

Potential Haul Routes

Equipment and Delivery Trucks -- In addition to haul trucks, the site is expected to generate equipment and delivery trucks, including concrete delivery, during each phase of construction. On-site staging for trucks is anticipated to occur through most of the construction period. Typical of most construction projects, it is anticipated that the majority of equipment and materials deliveries would occur outside the typical commute peak hours.

Construction Employees -- The number of construction workers would vary throughout the construction period. The maximum number of workers expected to be generated during the peak construction period is 280 workers on the north site and 153 workers on the south site, and a combined total of 187 workers on the additional construction areas of the project sites (e.g., waterside project elements, such as Basin 3, Seaside Lagoon, Sportfishing Pier, etc.). Parking for all construction workers will be provided on-site during construction. Typical of most construction projects, it is anticipated that construction workshifts for the proposed project would have construction employees travelling to and from the project site during hours other than normal peak hours (i.e., normal day shift would typically start work early in the morning, before the AM peak hour and end work around mid-afternoon before the PM peak hour).

Construction Trip Generation -- Based on the above information, a construction period trip generation analysis was conducted to estimate daily, morning and evening peak hour passenger car equivalent (PCE) trips.[15] Table 3.13-12 shows a summary of the maximum construction period trip generation. As shown, on a peak construction activity day, a total of up to 1,895 daily PCE trips are expected to occur, of which 328 PCE trips would occur during the morning peak hour and 328 PCE trips during the evening peak hour.

[15] Passenger Car Equivalent (PCE), is a metric used in Transportation Engineering, to assess traffic-flow rate on a highway. A Passenger Car Equivalent is essentially the impact that a mode of transport has on traffic variables (such as headway, speed, density) compared to a single car.

Table 3.13-12: Peak Construction Period Trip Generation

Trip Type	Approximate Size	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
North Site Worker Trips [a]	280 Workers/day	560	112	0	112	0	112	112
North Site Truck Trips [b]	2 Trucks/day	4	*	*	*	*	*	*
Passenger Car Equivalents (PCEs)		10	*	*	*	*	*	*
Subtotal		570	112	*	112	*	112	112
South Site Worker Trips [a]	153 Workers/day	306	61	0	61	0	61	61
South Site Truck Trips [b]	56 Trucks/day	112	7	7	14	7	7	14
Passenger Car Equivalents (PCEs)		280	18	18	35	18	18	35
Subtotal		586	79	18	96	18	79	96
Additional Construction on Site [a] [c] [d]	187 Workers/day	374	75	0	75	0	75	75
Additional Construction on Site [b] [c] [d]	73 Trucks/day	146	9	9	18	9	9	18
Passenger Car Equivalents (PCEs)		365	23	23	45	23	23	45
Subtotal		739	98	23	120	23	98	120
Total Construction-Related Trips		1,895	288	40	328	40	288	328
Current Trip Generation from Existing Uses		9,684	263	156	419	378	315	693

[a] Workers and visitors were assumed to arrive before 7:00 AM and depart after 3:00 PM. 40 percent of the worker trips were assumed to arrive and depart within the AM and PM peak hours.

[b] Truck trips were assumed to arrive and depart between 7:00 AM and 3:00 PM, an 8-hour work day.

[c] To be conservative, additional construction sites were assumed to be under construction at the same time as the north and south sites in the peak construction activity time period.

[d] Additional Construction on the Site includes waterside project elements, such as Basin 3, Seaside Lagoon, Sportfishing Pier, etc.

Construction Impacts -- During construction, Kincaid's restaurant is expected to remain open, but all other existing uses will not be in operation. The peak construction activity in combination with Kincaid's would generate fewer daily and peak hour trips than the existing site is estimated to generate 419 AM peak hour trips and 693 PM peak hour trips. Because the construction period is expected to generate fewer trips than the existing site, no significant impacts are expected during the construction period. Construction traffic would also be less than the operational trip generation for the proposed project (12,550 daily trips, 344 AM peak hour trips, and 782 PM peak hour trips). Based on the level of peak hour construction PCE trips, fewer/lesser impacts than those described above for operation of the proposed project could be expected.

Although a majority of the construction would occur on the project site, as detailed in Section 2.4.1.5 in Chapter 2 Project Description of this Draft EIR, minor roadway connections and improvements would be required on roadways immediately adjacent to the project site (e.g., Portofino Way, Harbor Drive, and Harbor Drive/Pacific Avenue). This work may require a temporary detour for vehicles and pedestrian access into or adjacent to the project site, which may include narrowed traffic lanes or temporary traffic and pedestrian rerouting at various times during an approximately six to nine month period. As is standard for construction within City streets, the City would require traffic control plans, rerouting of traffic, and business and emergency ingress/egress for the adjacent roadway connections/improvements. The standards include maintaining a reasonable number of travel lanes during construction. The connection/improvement work on these adjacent roadways would be temporary and would not create substantial congestion, inconvenience to motorists, or hazardous conditions that would be caused by the proposed project on a regular or frequent basis in comparison to existing conditions; therefore, the impact would be less than significant.

Worker Parking – All construction workers/employees would be parked on-site; therefore, there would be no impact on adjacent off-site parking.

While construction impacts are less than significant, as part of the Conditional Use Permit process, the City is proposing Conditions of Approval for specific measures to be included in the Construction Management Plan for the project. The Construction Management Plan shall be submitted to the City's Community Development Department for review, and issuance of demolition, grading, or building permits is subject to approval of the Plan. The City is proposing the following Condition of Approval as part of its Conditional Use Permit procedures:

Condition of Approval

COA TRA-1: Construction Traffic: The following conditions are recommended:

- A flagman shall be placed at the truck entry and exit from the project site
- To the extent feasible, deliveries and pick-ups of construction materials shall be scheduled during non-peak travel periods to the degree possible and coordinated to reduce the potential of trucks waiting to load or unload for protracted periods of time.
- Access shall remain unobstructed for land uses in proximity to the project site during project construction.

- Minimize lane and sidewalk closures to the extent feasible. In the event of a temporary lane or sidewalk closure, a worksite traffic control plan, approved by the City of Redondo Beach, shall be implemented to route traffic, pedestrians, or bicyclists around any such lane or sidewalk closures.
- A Construction Management Plan shall be developed by the contractor and approved by the City of Redondo Beach. In addition to the measures identified above, a Construction Management Plan shall include the following:
  - Schedule vehicle movements to ensure that there are no vehicles waiting off-site and impeding public traffic flow on the surrounding streets.
  - Establish requirements for the loading, unloading, and storage of materials on the project site.
  - Coordinate with the City and emergency service providers to ensure adequate access is maintained to the project site and neighboring businesses.

Operation

Trip Generation

Based on the trip generation approach described in Section 3.13.4.1.1, Table 3.13-13 summarizes the vehicle trip generation characteristics associated with the proposed project.

Table 3.13-13: Project Operations Vehicle Trip Generation

Designation	Size	Units	Trip Generation Rates			Trip Generation Estimates						
						Daily	AM Peak Hour			PM Peak Hour		
			Daily	AM Peak Hour	PM Peak Hour		In	Out	Total	In	Out	Total
Proposed Project												
Retail [a]	97	KSF	Equation			6,658	95	58	153	282	305	587
Movie Theater [b]	700	Seats	1.80	0.00	0.07	1,260	0	0	0	27	22	49
Quality Restaurant [c]	128	KSF	89.95	0.81	7.49	11,514	57	47	104	643	316	959
High Turnover Rest. [d]	45	KSF	127.15	10.81	9.85	5,722	267	219	486	266	177	443
Hotel [e]	130	Rooms	8.17	0.53	0.60	1,062	41	28	69	40	38	78
Office [f]	60	KSF	11.03	1.56	1.49	662	83	11	94	15	74	89
Total Trips (base ITE rates)						26,878	543	363	906	1,273	932	2,205
MXD+ Model calibration of base ITE rates reflecting project & site specific characteristics						-4,804	-93	-62	-155	-428	-314	-742
Boat Launch Ramp	40	Stalls				160	8	4	12	4	8	12
Project Vehicle Trips						**22,234**	**458**	**305**	**763**	**849**	**626**	**1,475**
Existing Active Uses												
Retail [a]	31.005	KSF	Equation			3,172	47	29	76	131	142	273

Quality Restaurant [c]	45.094	KSF	89.95	0.81	7.49	4,056	20	17	37	226	112	338
High Turnover Rest. [d]	30.083	KSF	127.15	10.81	9.85	3,825	179	146	325	178	118	296
Office [f]	71.174	KSF	11.03	1.56	1.49	785	98	13	111	18	88	106
Total Trips (base ITE rates)						11,838	344	205	549	553	460	1,013
MXD+ Model calibration of base ITE rates reflecting project & site specific characteristics						-2,154	-81	-49	-130	-175	-145	-320
Existing Vehicle Trips						**9,684**	**263**	**156**	**419**	**378**	**315**	**693**
NET NEW EXTERNAL PROJECT TRIPS						**12,550**	**195**	**149**	**344**	**471**	**311**	**782**

Notes:

[a] Trip generation fitted curve equation for Land Use 820 from Trip Generation, 9th Edition, Institute of Transportation Engineers, 2012. Existing retail includes the arcade.

[b] Trip generation rate for Land Use 444 from Trip Generation, 9th Edition, Institute of Transportation Engineers, 2012. For a worst-case weekday analysis, ITE Friday trip generation rates for the movie theater use have been used. For the daily trip rate, the weekday daily rate was obtained from SANDAG's Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (SANDAG, April 2002).

[c] Trip generation rate for Land Use 931 from Trip Generation, 9th Edition, Institute of Transportation Engineers, 2012

[d] Trip generation rate for Land Use 932 from Trip Generation, 9th Edition, Institute of Transportation Engineers, 2012. Existing restaurant uses at the project site include a variety of types, include quality restaurant (typically closed for breakfast on weekdays), and high-turnover restaurant (typically open for breakfast). Assumed 60% quality restaurant and 40% high turnover restaurant. Quality restaurants generate fewer trips than high-turnover restaurants, so applying this 60/40 split for the existing uses results in a smaller existing trip generation credit applied to future uses.

[e] Trip generation rate for Land Use 310 from Trip Generation, 9th Edition, Institute of Transportation Engineers, 2012 [f] Trip generation rate for Land Use 710 from Trip Generation, 9th Edition, Institute of Transportation Engineers, 2012

[g] Gross leasable area (GLA) that was occupied at the time baseline traffic counts were collection (Summer 2013, Spring 2014). Because fewer spaces were occupied in Summer 2013, and therefore the trip generation credit for existing uses would be smaller) the summer 2013 GLA data were used.

Intersections

Signalized Intersections

Table 3.13-14 summarizes the results of the AM and PM peak hour signalized intersection LOS analysis for Existing plus Project Conditions.

To assess where the project-related changes to the operational characteristics of the signalized intersections would result in a significant impact(s), the V/C values of the Existing (2013) plus Project Condition scenario were compared against those of the Existing (2013) Conditions scenario. As shown in Table 3.13-10, after applying significance thresholds described above in Section 3.13.4.2, the project is expected to result in significant traffic impacts to the following five signalized intersections under the PM peak hour of Existing (2013) plus Project Conditions:

7) PCH/Catalina Avenue & Herondo Street/Anita Street

10) PCH & Catalina Avenue

19) PCH & Beryl Street

26) PCH & Torrance Boulevard

36) PCH & Palos Verdes Boulevard

Table 3.13-14: Existing (2013) Plus Project Conditions Level of Service Signalized Intersections

Intersection	Peak Period	Existing		Existing plus Project		Change in V/C	Significant Impact?
		LOS	V/C	LOS	V/C		
4. Harbor Dr/Hermosa Ave & Herondo St	AM	A	0.518	A	0.553	0.035	NO
	PM	A	0.491	B	0.611	0.120	NO
7. Pacific Coast Hwy/Catalina Ave & Herondo St/Anita St	AM	D	0.896	E	0.914	0.018	NO
	PM	**E**	**0.989**	**F**	**1.037**	**0.048**	**YES**
8. Prospect Ave & Anita St	AM	B	0.679	B	0.689	0.010	NO
	PM	B	0.664	B	0.681	0.017	NO
9. Harbor Dr & Yacht Club Way	AM	A	0.352	A	0.386	0.034	NO
	PM	A	0.477	A	0.567	0.090	NO
10. Pacific Coast Hwy & Catalina Ave	AM	D	0.855	D	0.866	0.011	NO
	PM	D	0.883	**E**	**0.906**	0.023	**YES**
11. Harbor Dr & Marina Way	AM	A	0.281	A	0.315	0.034	NO
	PM	A	0.459	A	0.549	0.090	NO
12. Catalina Ave & Gertruda Ave	AM	A	0.371	A	0.384	0.013	NO
	PM	A	0.540	A	0.588	0.048	NO

Table 3.13-14: Existing (2013) Plus Project Conditions Level of Service Signalized Intersections

Intersection	Peak Period	Existing		Existing plus Project		Change in V/C	Significant Impact?
		LOS	V/C	LOS	V/C		
15. Harbor Dr & Portofino Way/Beryl St	AM	A	0.317	A	0.366	0.049	NO
	PM	A	0.592	B	0.650	0.058	NO
16. Catalina Ave & Beryl St	AM	A	0.374	A	0.402	0.028	NO
	PM	A	0.565	B	0.610	0.045	NO
19. Pacific Coast Hwy & Beryl St	AM	C	0.757	C	0.767	0.010	NO
	PM	**E**	**0.901**	**E**	**0.929**	0.028	**YES**
21. Catalina Ave & Carnelian St	AM	A	0.438	A	0.410	-0.028	NO
	PM	A	0.465	A	0.404	-0.061	NO
22. Catalina Ave & Diamond St	AM	A	0.430	A	0.403	-0.027	NO
	PM	A	0.444	A	0.378	-0.066	NO
23. Catalina Ave & Emerald St	AM	A	0.453	A	0.427	-0.026	NO
	PM	A	0.457	A	0.392	-0.065	NO
24. Pacific Coast Hwy & Garnet St	AM	B	0.691	B	0.693	0.002	NO
	PM	B	0.663	B	0.666	0.003	NO
25. Catalina Ave & Torrance Blvd	AM	A	0.424	A	0.450	0.026	NO
	PM	A	0.475	A	0.516	0.041	NO
26. Pacific Coast Hwy & Torrance Blvd	AM	D	0.818	D	0.829	0.011	NO
	PM	D	0.848	D	0.881	0.033	**YES**
27. Helberta Ave/Camino Real & Torrance Blvd	AM	A	0.476	A	0.482	0.006	NO
	PM	A	0.518	A	0.532	0.014	NO
28. Prospect Ave & Torrance Blvd	AM	D	0.819	D	0.823	0.004	NO
	PM	C	0.742	C	0.751	0.009	NO
29. Catalina Ave & Pearl St	AM	A	0.386	A	0.391	0.005	NO
	PM	A	0.373	A	0.380	0.007	NO
31. Pacific Coast Hwy & Sapphire St/Francisca Ave	AM	B	0.611	B	0.620	0.009	NO
	PM	B	0.650	B	0.664	0.014	NO
34. Pacific Coast Hwy & Knob Hill Ave	AM	B	0.655	B	0.663	0.008	NO
	PM	B	0.698	C	0.712	0.014	NO
35. Harbor Dr & Pacific Ave [a]	AM	A	--	A	0.273	--	NO
	PM	A	--	A	0.398	--	NO

Table 3.13-14: Existing (2013) Plus Project Conditions Level of Service Signalized Intersections

Intersection	Peak Period	Existing		Existing plus Project		Change in V/C	Significant Impact?
		LOS	V/C	LOS	V/C		
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	D	0.850	D	0.860	0.010	NO
	PM	**E**	**0.957**	**E**	**0.978**	**0.021**	**YES**
37. Pacific Coast Hwy & 2nd St	AM	B	0.695	C	0.702	0.007	NO
	PM	B	0.696	C	0.715	0.019	NO
38. Pacific Coast Hwy & 10th/Aviation	AM	C	0.777	C	0.783	0.006	NO
	PM	C	0.743	C	0.762	0.019	NO
39. Pacific Coast Hwy & Pier/14th St	AM	A	0.565	A	0.571	0.006	NO
	PM	C	0.703	C	0.723	0.020	NO
40. Pacific Coast Hwy & 16th St	AM	A	0.526	A	0.532	0.006	NO
	PM	B	0.636	B	0.655	0.019	NO
41. Pacific Coast Hwy & Prospect Ave	AM	C	0.704	C	0.711	0.007	NO
	PM	C	0.775	C	0.793	0.018	NO

Notes: Intersections operating at LOS E or F are noted in **Bold**.
[a] Existing V/C values for Intersection 35 (Harbor Dr. & Pacific Ave) are not provided because under existing conditions, the intersection is unsignalized, but would become signalized with project implementation.

City of Torrance Analysis

As shown above in Table 3.13-14, Intersection 36 (Pacific Coast Highway & Palos Verdes Boulevard) is expected to operate at LOS D in the AM peak hour and LOS E in the PM peak hour under Existing plus Project Conditions using the ICU methodology. The project-related incremental increase in the ICU ratio is 0.021; therefore, as with the impact analysis using the City of Redondo Beach criteria, the intersection is expected to have a significant PM peak hour impact. The AM peak hour would not be significantly impacted using the City of Torrance's ICU impact criteria. Intersection 41 (Prospect Avenue & Pacific Coast Highway) is expected to operate at LOS C in both the AM and PM peak hour under Existing plus Project Conditions using the ICU methodology. Therefore, no significant project-related impact is expected at that intersection.

Per City of Torrance methodology, HCM signalized analysis was also conducted. Table 3.13-15 presents the results. Based on Torrance impact criteria for the HCM signalized methodology, a significant project impact is also expected in the PM peak hour at Intersection 36.

Table 3.13-15: Existing (2013) Plus Project Conditions Level of Service Signalized Intersections in City of Torrance (HCM Methodology)

Intersection	Peak Period	Existing		Existing plus Project		Change in Delay	Significant Impact?
		LOS	Delay	LOS	Delay		
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	D	48.8	D	50.6	1.8	NO
	PM	**E**	**68.4**	**E**	**76.2**	7.8	**YES**
41. Pacific Coast Hwy & Prospect Ave	AM	C	30.3	C	30.6	0.3	NO
	PM	C	34.0	D	36.1	2.1	NO

Note: Intersections operating at LOS E or F are noted in **Bold**.

Unsignalized Intersections

Table 3.13-16 summarizes the results of the AM and PM peak hour unsignalized intersection LOS analysis for Existing (2013) plus Project Conditions. The following intersection is projected to operate at LOS E or F during both peak hours under this scenario:

- Intersection 13: Catalina Avenue & Francisca Avenue

Table 3.13-16: Existing (2013) Plus Project Conditions Level of Service Unsignalized Intersections

Intersection	Traffic Control	Peak Period	Existing		Existing plus Project		Change in Delay (sec)	Significant Impact?
			LOS	Delay (sec)	LOS	Delay (sec)		
1. Hermosa Ave & 2nd St	AWSC	AM	B	11.2	B	11.6	0.4	NO
		PM	B	10.5	B	11.4	0.9	NO
2. Monterey Blvd & 2nd St	AWSC	AM	A	8.3	A	8.3	0.0	NO
		PM	A	9.7	A	9.7	0.0	NO
3. Valley Dr & 2nd St	AWSC	AM	A	9.3	A	9.5	0.2	NO
		PM	C	19.3	C	22.0	2.7	NO
5. Monterey Blvd & Herondo St	TWSC	AM	C	15.3	C	16.3	1.0	NO
		PM	C	19.3	C	23.6	4.3	NO
6. Valley Dr/Francisca Ave & Herondo St	AWSC	AM	B	12.7	B	13.3	0.6	NO
		PM	C	23.4	D	29.8	6.4	NO

13. Catalina Ave & Francisca Ave	TWSC	AM	C	17.0	C	18.5	1.5	NO
		PM	**E**	**38.0**	**F**	**51.1**	13.1	NO
14. Catalina Ave & Broadway	TWSC	AM	C	18.1	C	20.0	1.9	NO
		PM	C	24.1	D	30.5	6.4	NO
17. Broadway & Beryl St	TWSC	AM	B	11.8	B	12.4	0.6	NO
		PM	B	12.4	B	13.5	1.1	NO
18. Francisca Ave & Beryl St	TWSC	AM	B	12.2	B	12.6	0.4	NO
		PM	C	18.1	C	20.5	2.4	NO
20. Pacific Ave & Harbor Dr	AWSC	AM	A	7.7	A	7.4	-0.3	NO
		PM	A	8.7	A	8.2	-0.5	NO
30. Camino Real & Pearl St	AWSC	AM	A	8.9	A	9.0	0.1	NO
		PM	A	9.0	A	9.1	0.1	NO
32. Esplanade & Knob Hill Ave	AWSC	AM	A	9.1	A	9.1	0.0	NO
		PM	B	10.4	B	10.4	0.0	NO
33. Catalina Ave & Knob Hill Ave	AWSC	AM	B	11.2	B	11.4	0.2	NO
		PM	B	12.5	B	13.0	0.5	NO

Notes:
AWSC = All-way stop control TWSC = 2-way stop control
Note: For unsignalized intersections, the worst case approach delay for two-way stop controlled, and average intersection delay for all-way stop controlled is reported.
Intersections operating at LOS E or F are noted in **Bold**.

Under Existing plus Project Conditions, Intersection 6 (Valley Dr/Francisca Ave & Herondo Street) is expected to operate at LOS D. Because it would operate at this LOS standard, the proposed project's impact on this intersection would not be considered significant, though the intersection does meet the peak hour signal warrant. At Intersection 13 (Catalina Ave & Francisca Ave), the delay increase associated with the addition of project trips is expected to degrade the LOS from LOS E to LOS F. However, because the intersection does not meet the peak hour signal warrant, the project's impact would not be considered significant.

Caltrans Analysis

Mainline Freeway Segment Analysis

Based on the Caltrans TIS Guide, Table 3.13-17 is a summary of the volume of proposed project's trips that are anticipated to affect the five mainline freeway segments (i.e., Caltrans facilities).

Table 3.13-17: Summary of Mainline Freeway Segment Analysis for Existing plus Project Conditions

Freeway Name	Segment		Dir	Existing plus Project Volume	Existing plus Project LOS	Project Volume (already added to volume)	Change in MOE?
AM Peak							
I-405	Inglewood	Rosecrans	NB	8,364	F	4	NO
			SB	6,079	C	6	NO
I-405	I-110	Western	NB	5,517	F	4	NO
			SB	7,304	D	3	NO
I-110	Torrance	I-405	NB	7,241	F	1	NO
			SB	5,382	F	1	NO
1-110	220th	Torrance	NB	6,757	F	1	NO
			SB	5,382	F	1	NO
I-110	Anaheim	PCH	NB	3,920	B	1	NO
			SB	5,382	F	1	NO
PM Peak							
I-405	Inglewood	Rosecrans	NB	7,028	D	9	NO
			SB	6,044	F	14	NO
I-405	I-110	Western	NB	6,084	F	9	NO
			SB	5,416	F	6	NO
I-110	Torrance	I-405	NB	5,585	C	2	NO
			SB	5,454	F	2	NO
1-110	220th	Torrance	NB	4,944	C	2	NO
			SB	5,454	F	2	NO
I-110	Anaheim	PCH	NB	2,764	A	2	NO
			SB	5,454	F	2	NO

For both Existing Conditions and Existing plus Project Conditions during the AM peak hour, all of the northbound analyzed segments on I-405 and I-110, except for I-110 between Anaheim and PCH, operate at congested LOS F, whereas the only the southbound I-110 segments operate at LOS F. During the PM peak hour, all of the southbound segments on the I-405 and I-110 operate at LOS F, whereas the northbound segment on I-405 from I-110 to Western operates at LOS F. With the proposed project, all of the segments would continue to operate at the same LOS as under Existing conditions. The project is projected to represent between 0.0 percent and 0.1 percent of the Existing plus Project traffic volumes on the segments, depending on location and direction.

Ramp Queue Analysis

For the Existing plus Project Conditions, Table 3.13-18 and Table 3.13-19 shows the results of the ramp LOS and queuing, respectively, which mirrors the existing baseline (2013) conditions (Tables 3.13-6 and 3.13-7, above).

Table 3.13-18: Ramp Intersection HCM Level of Service for Existing plus Project Conditions

Intersection	Peak Period	Existing plus Project	
		LOS	Delay (sec)
1. Inglewood Ave & I-405 NB Ramps	AM	B	12.3
	PM	B	14.6
2. Inglewood Ave & I-405 SB Ramps	AM	B	10.1
	PM	C	22.6
3. I-405 SB Ramps & Artesia Blvd [a]	AM	B	11.4
	PM	D	31.5
4. I-405 NB Ramps & Artesia Blvd	AM	B	12.6
	PM	B	13.6
5. Crenshaw Blvd & I-405 SB Ramps	AM	D	43.4
	PM	C	25.1
6. I-405 NB Ramps & 182nd St	AM	B	15.5
	PM	D	45.9

Source: Fehr & Peers, 2015

Note: Intersections operating at LOS E or F are noted in **Bold.**
[a] For unsignalized intersections, delay from the worst case approach was reported.

Table 3.13-19: Ramp Queing Summary for Existing plus Project Conditions

	Storage Queue Length (feet)	Direction Approach	Peak Hour	Queue Type	Existing plus Project (feet)
1. Inglewood Ave & I-405 NB Ramps	1,345	WB	AM	95th	282
			PM	95th	384
2. Inglewood Ave & I-405 SB Ramps	1,265	EB	AM	95th	287
			PM	95th	363
3. I-405 SB Ramps & Artesia Blvd	1,135	NB	AM	95th	25
			PM	95th	213
4. I-405 NB Ramps & Artesia Blvd	1,135	SB	AM	95th	164
			PM	95th	340
5. Crenshaw Blvd & I-405 SB Ramps	1,275	EB	AM	95th	817
			PM	95th	635
6. I-405 NB Ramps & 182nd St	1,085	NB	AM	95th	236
			PM	95th	413

Source: Fehr & Peers, 2015

Note: Intersections operating at LOS E or F are noted in **Bold.**
*#95th percentile volume exceeds capacity, queue may be longer.

All ramp intersections would operate at LOS D or better during both peak hours for all scenarios of the project. In addition, the freeway ramps queues would not extend beyond the storage length for any of the ramps for all scenarios of the project and therefore impacts would be less than significant. See Appendix L1(X-6) for additional details.

PCH Level of Service

Table 3.13-20 displays the HCM results for the Existing plus Project scenario. While Caltrans' TIS guidelines provide screening criteria to determine whether a Traffic Impact Study is needed, their guidance does not provide criteria to determine whether the project's trip generation should be considered "significant." . As such, the City of Redondo Beach,City of Torrance, and CMP significance criteria were utilized for the impact analysis.

Table 3.13- 20: HCM Level of Service Pacific Coast Highway Signalized Intersections

Intersection	Peak Period	Existing plus Project	
		LOS	Delay
7. Pacific Coast Hwy/Catalina Ave & Herondo St/Anita St	AM	D	45.6
	PM	E	71.3
10. Pacific Coast Hwy & Catalina Ave	AM	C	20.3
	PM	B	16
19. Pacific Coast Hwy & Beryl St	AM	B	10.8
	PM	B	18.1
24. Pacific Coast Hwy & Garnet St	AM	A	5.0
	PM	A	4.8
26. Pacific Coast Hwy & Torrance Blvd	AM	D	39.8
	PM	D	54.7
31. Pacific Coast Hwy & Sapphire St/Francisca Ave	AM	A	4.9
	PM	A	6.9
34. Pacific Coast Hwy & Knob Hill Ave	AM	A	9.6
	PM	B	12.1
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	D	50.6
	PM	E	76.2
37. Pacific Coast Hwy & 2nd St	AM	B	18.4
	PM	B	17.7
38. Pacific Coast Hwy & 10th/Aviation	AM	C	27.3
	PM	D	41.5
39. Pacific Coast Hwy & Pier/14th St	AM	B	15.9
	PM	C	20.7
40. Pacific Coast Hwy & 16th St	AM	B	13.1
	PM	B	15.7
41. Pacific Coast Hwy & Prospect Ave	AM	C	30.6
	PM	D	36.1

Note: Intersections operating at LOS E or F are noted in **Bold.**
[a] Harbor Dr & Pacific Ave was not analyzed for Existing Conditions because it will only function as a full intersection with the project.

Based on the HCM analysis, the following two signalized intersections are projected to operate at LOS E or F during one or both peak hours under Existing plus Project:

7) PCH/Catalina Avenue & Herondo Street/Anita Street (PM peak hour)

36) PCH & Palos Verdes Boulevard (PM peak hour)

The PCH & Torrance (Intersection 26) is projected to operate at LOS E during the PM peak hour under Existing plus Project Conditions.

Parking

As described in Section 3.13.2.3.6, there are currently a total of 2,192 parking spaces within the project site, including 1,350 spaces within the two existing parking structures and 842 spaces within existing surface lots. The waterfront area is currently under-utilized with large expanses of surface parking lots surrounding isolated uses. The proposed project would better utilize the waterfront space through consolidated parking and expanded commercial and recreational opportunities and would substantially enhance the pedestrian-oriented nature of the waterfront through street-facing developments, expanded pedestrian pathways, high-quality pedestrian crossings, and other pedestrian-oriented elements such as lighting, signage, and benches. Implementation of the proposed project includes the removal of the surface parking lot in the northern portion of the project site, as well as the replacement of the existing Pier Parking Structure in the southern portion of the project site. A new parking structure is proposed in the northeast corner of the project site (near Harbor Drive and Portofino Way), parking for vehicles/trailers associated with the new small craft boat launch ramp facility, and a minor amount of parking along the new main street (also in the northern portion of the project site).

In order to address the potential parking impacts of the proposed project, an assessment of the project's parking supply was conducted based on Redondo Beach Municipal Code (RBMC) parking rates for each of the proposed land uses. Based on this assessment, the RBMC parking requirement for the proposed project slightly exceeds the proposed parking supply, resulting in a moderate shortfall. Once the project is in final design, however, the RBMC analysis will be updated based on the final land use program; and should the RBMC parking requirement still exceed the parking supply due to the conservative nature of the RMBC parking rates, which calculate the parking requirement based on the anticipated peak parking demand for each individual land use, a shared parking assessment may also be conducted in order to determine the actual parking needs of the mixed-use development based on overall peak parking demand, as allowed under Section 10-5.1706(d) of the RBMC. Table 3.13-21 provides a summary of parking under the proposed project.

Table 3.13-21: Amount of Proposed Parking

Location	Number of Stalls	
New Northern Structure	757	
Plaza Parking Structure	300	
New Southern Parking Structure	1,157	
Surface Parking	*New main street*	*109*
	Boat Ramp	*40 (20 single and 20 double)*
	149	
Total	**2,363**	

Based on the type of uses it is anticipated that with an emphasis on retail, restaurant and other commercial uses, the peak parking demand is expected to occur during the evening and on weekends, particularly summer months and later part of the year during the holiday season. As shown in Table 3.13-22, the analysis makes conservative parking assumptions by assuming that each use would result in peak parking simultaneously.

Table 3.13-22: Estimated Parking Demand

Land Use Category[1]	Proposed Project Size (square footage unless otherwise noted)	Demand Factor (RBMC Section 10-5.1706)	Spaces Required
Retail	97,000[2]	1 space/ 250 square feet	388
Restaurant (high quality)	64,000[3]	1 space/50 square feet gross floor area	1,280
Restaurant (high turnover)	45,000[2]	1 space/250 square feet gross floor area	180
Theater	700 seats	1 space/5 seats	140
Hotel	130 rooms	1 space/room	130
	6,600	1 space/100 square feet of banquet, assembly, meeting, or restaurant seating area	66
	900	1 space/50 square feet gross floor area	18
Office	60,000[2]	1 space/300 square feet	200
Boat slips[4]	60	¾ space/slip	45
Monstad[5]	30,000[6]	1 space/ 250 square feet	120
Total			**2,567**

Notes:
1. The small craft boat launch ramp is not included in the parking calculation. 40 stalls (20 single and 20 double) would be provided at the boat launch ramp site.
2. Estimated gross leasable area (GLA)
3. Estimated gross floor area for dining area only
4. Maximum number of slips that may be provided under the proposed project
5. The Pier Parking Structure provides parking for the Monstad Pier
6. Square footage is estimated and the parking demand factor is based on general commercial uses and take out and pedestrian oriented restaurants.

As indicated in the table above, the conservative estimate of 2,567 total parking spaces needed for the proposed project (parking demand) would exceed the 2,363 parking spaces that are included in the proposed project (parking supply) by 204 spaces. As described above, the evaluation of the project parking supply under the basic provisions of the RBMC would result in a significant parking impact without mitigation. However, the RBMC also allows for the use of shared parking and other parking management strategies to reduce or eliminate the significant impact. Therefore, the preparation of a detailed parking management plan is recommended as a mitigation measure.

Mitigation Measures

The following mitigation measures are proposed for adoption:

Intersections

MM TRA-1: Valley Drive/Francisca Avenue & Herondo Street (Intersection 6) – City of Hermosa Beach

A traffic signal would be installed at this intersection, for which the project Applicant would provide fair share funding.

MM TRA-2: Pacific Coast Highway & Herondo/Anita Street (Intersection 7) – Existing Plus Project Conditions

An additional westbound and eastbound through lane would be added. For the westbound approach, the center-raised median would be narrowed or eliminated. The two westbound left turn lanes would be shifted to the south to accommodate the additional westbound through lane. An additional westbound receiving lane would be added extending for a minimum of half a block length to the west of Intersection 7. The additional eastbound through lane would need to extend for a minimum of half the block length to the west of Intersection 7. The on-street angled parking on Herondo Street conflicts with the additional eastbound and westbound lane, and will require their removal. Parking will be replaced at 1:1 ratio to the satisfaction of the City Engineer. In addition, the on-street bike lanes would be shifted from their current location, but can be accommodated with the addition of the two through lanes.

MM TRA-3: Pacific Coast Highway & Catalina Avenue (Intersection 10)

One additional eastbound left turn lane would be added to provide two left turn lanes onto Pacific Coast Highway northbound. The intersection would also be restriped to provide one shared left-right lane, for a total of three lanes on the eastbound approach.

MM TRA-4: Pacific Coast Highway & Beryl Street (Intersection 19)

Add a southbound dedicated right-turn lane. This additional lane would encroach into the existing sidewalk right-of-way of the Gertruda Avenue cul-de-sac, and require the removal of mature trees that line the western side of the street. The sidewalk would need to be reconstructed to the west of its current location, which would narrow the end of the cul-de-sac.

MM TRA-5: Pacific Coast Highway & Torrance Boulevard Avenue (Intersection 26)

A northbound, and an eastbound right-turn lane would be added at this intersection to mitigate the project's impact. The northbound right-turn lane is an approved project identified as mitigation from a prior project in the City, and therefore, the Applicant would provide a fair share contribution for this improvements. The eastbound right-turn lane would be fully-funded by the project. The eastbound right-turn lane can be accommodated through restriping the outer eastbound lane on Torrance Boulevard, which measures 24 feet.

MM TRA-6: Pacific Coast Highway & Palos Verdes Drive (Intersection 36)

Add a southbound right-turn lane. The Applicant shall provide a fair share percentage of contribution to this mitigation measure along with other development projects that would impact this intersection.

Figures 3.13-10 through 3.13-14 show the proposed mitigation measures relative to the affected streets and intersections for mitigation measures MM TRA-2 through MM TRA-6.

Table 3.13-23 presents the intersection performance results for the Mitigated Existing plus Project scenario using the ICU methodology, which is also applicable for the CMP analysis. Table 3.13-24 presents the intersection performance results for Intersection 36 under the Mitigated Existing plus Project scenario using the HCM methodology. The City of Torrance utilizes both the ICU and HCM methodology for signalized intersections.

Table 3.13-23: Existing Plus Project Mitigation Analysis (ICU Methodology)

Intersection	Peak Period	Existing		Existing plus Project plus Mitigation		Change in V/C	Significant Impact?
		LOS	V/C	LOS	V/C		
7. Pacific Coast Hwy/Catalina Ave & Herondo St/Anita St	AM	D	0.896	D	0.896	0.000	NO
	PM	**E**	**0.989**	**F**	**0.948**	-0.041	NO
10. Pacific Coast Hwy & Catalina Ave	AM	D	0.855	C	0.799	-0.056	NO
	PM	D	0.883	D	0.856	-0.027	NO
19. Pacific Coast Hwy & Beryl St	AM	C	0.757	C	0.767	0.010	NO
	PM	**E**	**0.901**	**E**	**0.908**	0.007	NO
26. Pacific Coast Hwy & Torrance Blvd	AM	D	0.818	C	0.792	-0.026	NO
	PM	D	0.848	D	0.837	0.001	NO
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	D	0.850	D	0.815	-0.035	NO
	PM	**E**	**0.957**	D	0.867	-0.090	NO

Notes: Intersections operating at LOS E or F are noted in **Bold.**

Source: Fehr & Peers, 2015

Source: Fehr & Peers, 2015

Figure 3.13-11

The Waterfront Draft EIR Mitigation Diagram - MM TRA-10: Pacific Coast Highway at Catalina Avenue

Source: Fehr & Peers, 2015

Mitigation Diagram - MM TRA-19: Pacific Coast Highway at Beryl Street

Source: Fehr & Peers, 2015

Figure 3.13-13

The Waterfront Draft EIR Mitigation Diagram - MM TRA-26: Pacific Coast Highway at Torrance Boulevard

Source: Fehr & Peers, 2015

Table 3.13-24: Existing Plus Project Mitigation Analysis (HCM Methodology)

Intersection	Peak Period	Existing		Existing plus Project plus Mitigation		Change Delay	Significant Impact?
		LOS	Delay (sec)	LOS	Delay (sec)		
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	--	--	--	--	--	--
	PM	E	68.4	D	50.2	-18.2	NO

Notes: Intersections operating at LOS E or F are noted in **Bold.**

Based on the above tables, the mitigation measures would be sufficient to fully mitigate the proposed project impact using the ICU methodology and impacts would be less than significant.

Caltrans Analysis

PCH Level of Service

Table 3.13-25: HCM Level of Service - PCH Signalized Intersections Plus Mitigation – Existing plus Project

Intersection	Peak Period	Existing		Existing plus Project plus Mitigation	
		LOS	Delay	LOS	Delay
7. Pacific Coast Hwy/Catalina Ave & Herondo St/Anita St	AM	D	44.8	D	45.2
	PM	**E**	**57.2**	**E**	**56.8**
10. Pacific Coast Hwy & Catalina Ave	AM	B	18.6	B	15.6
	PM	B	13.5	B	14.4
19. Pacific Coast Hwy & Beryl St	AM	A	10.0	B	11.2
	PM	B	15.7	B	17.5
26. Pacific Coast Hwy & Torrance Blvd	AM	D	38.3	D	38.1
	PM	D	47.3	D	46.1
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	D	48.8	B	46.6
	PM	**E**	**68.4**	**D**	**50.2**

Note: Intersections operating at LOS E or F are noted in **Bold.**

Similar to under Existing plus Project, after mitigation (implementation of mitigation measures MM TRA-2 and MM TRA-6 presented above), Intersections 7 and 36 would continue to operate at LOS E for Cumulative plus Project Conditions, and with mitigation (MM TRA-5 presented above) Intersection 26 would operate at LOS D.

Parking

MM TRA-7: Parking Management Plan

A Parking Management Plan (PMP) shall be prepared to ensure the project site provides parking to meet demand using Urban Land Institutes (ULI) methodology. The minimum number of parking spaces for a mixed-use development or where shared parking strategies are proposed shall be determined by a study prepared by the applicant following the procedures of the ULI Shared Parking Report, Institute of Transportation Engineers (ITE) Shared Parking Guidelines, or other approved procedures. As part of the PMP, the following additional measures shall be considered as part of an overall program to meet two primary objectives that have been established with regard to the management of parking facilities at the project site, which are:

1. Provide sufficient parking on-site to meet the parking demands generated by the proposed project.

2. Support trip and emission reduction goals and encourage and support alternative transportation by implementing a Transportation Demand Management (TDM) program.

Parking measures may include, but are not limited to controls to reduce parking demand, such as a shared parking plan, alternative parking methods, satellite parking for employees during peak periods, and support of TDM measures (such as promoting alternative transportation modes). Specific potential mitigations are described as follows:

a. Shared Parking Plan: A Shared Parking Plan shall be prepared by a qualified transportation/parking engineer to the satisfaction of the City, and shall demonstrate justification for the parking plan to meet the parking requirements of the project as approved. The Shared Parking Plan would propose parking to be shared between two or more uses within the project site, as allowed under Section 10-5.1706(d) of the RBMC. The Shared Parking Plan shall detail how a lower total number of parking spaces would provide adequate parking for these uses.

b. Alternative Parking Methods: An alternative parking method includes but is not limited to tandem and valet parking of vehicles to be parked in tandem provided that attendants to move vehicles are available at all times that the parking area using tandem parking is open for use. If the attendant requirement is met, each tandem stall shall constitute the number of parking spaces equivalent to the number of cars it can accommodate.

c. Provide Satellite Parking. Parking shortfalls during peak periods would be reduced if employees parked elsewhere and walked or were shuttled to the project site. Satellite parking would be initiated during peak periods, the parking location would have to be readily identifiable to employees, and shuttle service would have to be timely and convenient. Implementation of this mitigation is complicated by the need to locate a source of available parking during the critical periods. This parking would have to be located outside the study area and would have to be designated for employee use during the peak periods.

d. Promote Alternative Transportation Modes for Employees and Patrons: Encourage employees and patrons to use existing bus service, pedestrian and bicycle connectivity to and through the site, which would decrease the number of vehicle trips. In addition, TDM measures that could further reduce trips could include:

- Shuttles to/from the Metro Green Line Station
- Shuttles to/from LAX for hotel guests
- Transit pass subsidies, vanpool services, and other incentives to employees to reduce vehicle trips.

Residual Impacts

Intersections

With implementation of mitigation measures MM TRA-1 through MM TRA-6, the project impacts at intersections within the study area would be reduced to a level that is less than significant.

It should be noted that the decision to require implementation of the above measures occurs at the time of project approval, pursuant to CEQA Guidelines Section 15091 and 15097; in the event these mitigation measures are not adopted, impacts identified in the analysis above would remain significant and unavoidable.

Parking

The mitigation program outline above in MM TRA-8 provides a variety of means to satisfy future parking requirements, which would reduce parking impacts to a level that is less than significant.

Impact TRA-2: The project would not conflict with an applicable congestion management program

Several analyses were also conducted to comply with the Los Angeles County CMP requirements, including: (1) a regional analysis to quantify potential impacts of the proposed project on the regional freeway system serving the project area, including impacts on the I-405 CMP freeway monitoring locations, and CMP intersection monitoring stations included in the Los Angeles County CMP road network; and (2) a transit analysis that determines the transit demand and potential impacts of the proposed project on the regional transit system.

CMP Arterial Intersection Analysis

Two study area intersections are CMP arterial monitoring stations:

- Intersection 26 – Pacific Coast Highway & Torrance Boulevard
- Intersection 36 – Pacific Coast Highway & Palos Verdes Boulevard

Pacific Coast Highway & Torrance Boulevard is located southeast of the proposed project site. Based on the project trip distribution and trip generation, 80 AM peak hour project trips and 172 PM peak hour trips would be traversing through this monitoring station during either peak hour. Pacific Coast Highway & Palos Verdes Boulevard is located south of the proposed project site. Based on the project trip distribution and trip generation, 50 AM peak hour project trips and 113 PM peak hour trips would be traversing through this monitoring station during either peak hour. Given that the project-related trips at each of the two intersections exceeded the screening level criteria, both intersections were advanced to the full CMP Traffic Impact Analysis.

Table 3.13-26 details the LOS analysis and CMP impact analysis for these two intersections. Neither intersection would be impacted under Existing plus Project Conditions based on CMP impact criteria, since the intersections would operate at LOS E or better.

Table 3.13-26: Existing Plus Project Conditions Level Of Service - CMP Intersection Impact Analysis

Intersection	Peak Period	Existing		Existing plus Project		Change in V/C	Significant CMP Impact?
		LOS	V/C	LOS	V/C		
26. Pacific Coast Hwy & Torrance Blvd	AM	D	0.818	D	0.829	0.011	NO
	PM	D	0.848	D	0.881	0.033	NO
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	D	0.850	D	0.860	0.010	NO
	PM	**E**	**0.957**	**E**	**0.978**	0.021	NO

Source: Fehr & Peers, 2015 (Appendix L1 of this Draft EIR)

CMP Freeway Analysis

A regional analysis was conducted to quantify potential impacts of the project traffic on the regional freeway system serving the project area. One freeway mainline CMP monitoring location was identified near the proposed project site, I-405 Freeway at Artesia Boulevard, according to 2010 CMP for Los Angeles County.

Intersection 8 (Prospect Avenue & Anita Street) is the study area intersection located closest to the I-405 freeway. There are 59 AM peak hour trips and 133 PM peak hour project trips that are forecast to traverse through this intersection. Of the project's total 344 AM peak hour and 782 PM peak hour project trips, less than 150 would be traversing through this intersection, and therefore even fewer trips would travel through the CMP freeway monitoring location on the I-405 freeway in either direction, during either peak hour. The proposed project would add enough new traffic to exceed the freeway screening analysis criteria of 150 vehicle trips at the aforementioned location. Therefore, impacts would be less than significant and no further CMP freeway analysis is required.

Regional Transit Impact Analysis

Section D.8.4 of the CMP provides a methodology for estimating the number of transit trips expected to result from a proposed project based on the number of vehicle trips. This methodology assumes an average vehicle ridership (AVR) factor of 1.4 in order to estimate the number of person trips to and from the project.

The Los Angeles County CMP defines a transit center as a fixed facility supporting passenger loading, containing a passenger rail station and served by at least eight transit lines. The nearest designated CMP transit center is the Marine Station of the Metro Green Line System, over three miles from the project site. Therefore, the proposed project is not within one-quarter mile of a CMP transit center, multi-modal transportation center, or CMP transit corridor. The CMP allows for the assignment of 3.5 percent of person trips to transit for residential and commercial developments not within one-quarter mile of a designated CMP transit facility such as those described above.

As discussed above, the project is anticipated to generate 344 and 782 peak hour vehicle trips in the AM and PM peak hours, respectively (excluding boat launch ramp trips, which cannot be made via transit). Using the prescribed approach in the CMP, this totals 462 and 1,144 peak hour person trips in the AM and PM peak hours, respectively. Applying a 3.5 percent of total person trips generated to transit trips results in approximately 17 AM peak hour person transit trips and approximately 38 PM peak hour transit trips on weekdays. At this level of increase, project-related impacts on the regional transit system are less than significant under existing and cumulative conditions.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact TRA-3: The proposed project could substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses.

Pedestrian and Bicycle Conditions

Construction

Sidewalks and bike lane/routes located within the project site would likely be closed to the public during project construction. Temporary closure of sidewalks or bike lanes adjacent to the site may occur periodically during project construction, and provisions for, and/or directions to, detours and alternate routes would be provided, consistent with the MUTCD requirements. In accordance with Chapter 33 of the California Building Code (CBC), sidewalk canopies must be provided to protect pedestrians from potential harm associated with construction where construction activities occur in close proximity to active sidewalks. The impact of construction relative to pedestrian and bicycle access would be temporary and is anticipated to be less than significant.

Operation

The proposed project is intended to revitalize the waterfront area in the City of Redondo Beach with expanded local and visitor serving commercial uses. A major component of the proposed project is improved site connectivity between the pier and harbor area with resident and visitor serving uses to the east. Site connectivity improvements include new pedestrian and bicycle pathways, many of which are separated from vehicular traffic, a new pedestrian bridge across the Redondo Beach Marina/Basin 3 entrance, and the reconnection of Pacific Avenue to Torrance Circle (also known as Coral Way) south of the Waterfront area.

Within the City, the highest bicycle and pedestrian volumes occur along the Waterfront where there are numerous pedestrian generators and relatively safe conditions for bicycling and walking including one-lane vehicle travel, slow speeds, on-street parking, wide sidewalks, and car-free zones. Implementation of the proposed project would further enhance the bicycle and pedestrian environment, providing even more favorable conditions for bicycling and walking.

The Pacific Avenue Reconnection will convert an existing car-free, pedestrian-only facility into a full-access roadway for vehicles, bicyclists, and pedestrians with sidewalks and a marked crossing. The provision of high-quality crossings and other new pedestrian facilities, including new pedestrian pathways and a pedestrian bridge across Basin 3, would enhance access within the project site. Additionally, the character and mix of uses included in the proposed project are compatible with pedestrian-oriented areas. Visitors to the proposed project arriving on foot, or those choosing to circulate around the project site on foot after having parked, will be able to utilize wide sidewalks provided throughout the project site, particularly along the Pacific Avenue Reconnection and an enhanced crosswalk. While operation of the proposed project would add vehicular traffic to new pedestrian crossing points, the added traffic would not exceed the capacity of these facilities based on their design, and this additional traffic would not be expected to add significant delay for pedestrians. Pedestrian crossings along the Pacific Avenue Reconnection will provide sufficient capacity to accommodate the added pedestrian volumes based on the design of those facilities. The proposed project would also create a more typical four-way perpendicular intersection geometry for the intersection of Pacific Avenue and Harbor Drive compared with the existing condition, which has a near 270 degree turn from southbound Harbor Drive to northbound Pacific Avenue.

Visitors to the proposed project arriving by bicycle may utilize existing bicycle facilities on Harbor Drive, Catalina Avenue, Diamond Street, and through Veterans Park. A Class IV cycle track was recently completed as part of the Herondo Gateway project. It will be extended through the project site along the Pacific Avenue Reconnection to connect to the existing Class I bicycle path in Veterans Park, providing high-quality bicycle facilities along the Waterfront where today there are none.

Overall, implementation of the proposed project would enhance both existing and planned pedestrian and bicycle facilities through and adjacent to the project site. While the project will introduce new vehicular crossing locations for pedestrian associated with the Pacific Avenue Reconnection, and additional driveway locations on Harbor Drive, these crossing locations would be designed to applicable standards and best practices, and would include elements such as high visibility crosswalk markings at all crossing locations, and raised crosswalks (where feasible). Based on the discussion above, the proposed project: (1) would not disrupt existing or planned pedestrian or bicycle facilities; (2) would provide for pedestrian, bicycle, and roadway facilities that are designed with applicable design standards; and (3) would not substantially increase hazards due to design features or incompatible uses. As such, the impacts of the project would be less than significant. Therefore, the proposed project is not expected to significantly impact pedestrian and bicycle modes.

Small Craft Boat Traffic

The small craft boat launch facility included in the proposed project is designed as a two-lane ramp with up to 40 parking spaces for vehicles with trailers. Assuming approximately 15 minutes is required to launch a trailered boat during times of peak demand the estimated maximum boat launch rate would be four launches per hour per lane. As such, even if the proposed launch ramp facility were to be quickly filled in the morning, the introduction of boats into the turning basin or main channel areas would be regulated by the limiting launch rate, which, at two boats entering the harbor every 15 minutes from the proposed boat launch facility is not expected to significantly disrupt existing harbor traffic or impact water use.

Boats returning to the launch ramp for retrieval may arrive at more frequent intervals in the afternoon. Based on a very conservative (i.e., worst-case) assumption that one-half of the 40 boats (i.e., the maximum capacity of the boat launch ramp parking lot) return within a 2.5 hour mid- to late-afternoon time window, the boat retrieval activity during such a high peak demand period could be accommodated with an assumed retrieval rate of eight boats per hour and the remaining 12 boats may queue nearby at any one time. Four of 12 boats could wait at the boarding float and the remaining eight boats could stage immediately offshore of the ramp to wait their turn. Sufficient space within the turning basin or the north end of the outer harbor near the mooring area is available for temporary mooring until boarding float space becomes available. On non-peak days, boat launches are estimated to be much lower.

The proposed launch ramp is situated within the Turning Basin and, as such, more proximate to Basin 3 and the Seaside Lagoon hand launch traffic. Construction of a protective breakwater at the proposed small craft boat launch site may impact water traffic patterns and increase the potential for conflict with personal recreational watercraft (e.g., paddle boards, kayaks, peddle boats and other hand launch craft) emanating from Seaside Lagoon. The magnitude of such potential conflicts would, however, be offset because of the slow speeds that the motor boats would operate at during departure from or return to the ramp area. This would allow time for sufficient maneuvering as necessary to avoid errant personal recreational watercraft if encountered. Nevertheless, the proximity of the small craft boat launch ramp and the Seaside Lagoon hand launch ramp combined with the fact that the interface area between the activities would be somewhat confined by the presence of the breakwater, which may also limit sight lines, could pose a potential safety hazard, particularly during times of peak use, which for the purposes of this EIR is considered to be a significant impact.

Mitigation Measures

The following mitigation measure would be implemented:

MM TRA-8: Boat Launch Ramp/Personal Recreational Watercraft Interface Management

In conjunction with the design and construction of the proposed boat launch ramp and associated breakwater, buoys with signage shall be placed to delineate, and segregate, waterside boat lanes and paddle craft lanes. Patrol and monitoring of King Harbor's water use and traffic activity will include the boat launch area, especially during peak use periods, consistent with the Harbor Patrol's mission to support public use and sharing of the harbor resource as safely as possible. Additionally, leases with tenants within the project site associated with the rental of paddle boards, kayaks, and peddle boats will be required to maintain records that the renters of this equipment have been instructed on safety and waterside signage.

Residual Impacts

Implementation of MM TRA-8 and the slow speeds in the area of the entrance of the proposed small craft boat launch facility and the open Seaside Lagoon would serve to enhance safety and reduce the potential for interface conflicts between boats and personal recreational watercraft operating in proximity to each other. As such, the residual impact is considered to be less than significant.

3.13.4.4 Cumulative Impacts

3.13.4.4.1 Cumulative (2019) Conditions Without Project

Following are the details of the traffic volume forecasts prepared to evaluate cumulative conditions, the analysis of transportation network changes related to planned study area transportation projects, and the resulting forecast cumulative operating conditions.

3.13.4.4.2 Cumulative Without Project Vehicular Traffic

As noted earlier, Cumulative without Project traffic volumes were estimated by increasing the existing (2013) traffic volumes by 0.36 percent per year (2.16 percent total growth over six years), using the SCAG population growth rate, and adding traffic expected to be generated by four additional cumulative development projects in the study area.

3.13.4.4.3 Cumulative Without Project Level of Service

The AM and PM peak hour Cumulative without Project traffic volumes and intersection lane geometries were analyzed using the same methodologies documented for Existing Conditions, above.

As shown in Table 3.13-27, of the 41 study area intersections selected for analysis for Cumulative without Project conditions, seven intersections, as follows, are projected to operate at LOS E or F during one or both peak hours:

- 6 - Valley Drive/Francisca Avenue & Herondo Street (PM peak hour)
- 7 - PCH/Catalina Avenue & Herondo Street/Anita Street (both peak hours)
- 10 - PCH & Catalina Avenue (PM peak hour)
- 13 - Catalina Avenue & Francisca Avenue (PM peak hour)
- 19 - PCH & Beryl Street (PM peak hour)
- 36 - PCH & Palos Verdes Boulevard (both peak hours)

All other intersections are estimated to operate at LOS D or better during both peak hours.

Table 3.13-27: Cumulative Without Project Conditions Intersection Level of Service

Intersection [a]		AM Peak Hour		PM Peak Hour	
	Intersection Control	LOS	V/C or Delay (sec)	LOS	V/C or Delay (sec)
1.Hermosa Ave & 2nd St	AWSC	B	11.4	B	10.6
2. Monterey Blvd & 2nd St	AWSC	A	8.3	A	9.7
3.Valley Dr & 2nd St	AWSC	A	9.4	C	20.5
4.Harbor Dr/Hermosa Ave & Herondo St	Signal	A	0.528	A	0.504
5.Monterey Blvd & Herondo St	TWSC	C	15.6	C	20.0
6.Valley Dr/Francisca Ave & Herondo St	AWSC	C	16.6	**E**	**43.3**
7.Pacific Coast Hwy/Catalina Ave & Herondo St/Anita St	Signal	**E**	**0.918**	**F**	**1.022**
8.Prospect Ave & Anita St	Signal	B	0.689	B	0.678
9.Harbor Dr & Yacht Club Way	Signal	A	0.358	A	0.488
10.Pacific Coast Hwy & Catalina Ave	Signal	D	0.878	**E**	**0.912**
11.Harbor Dr & Marina Way	Signal	A	0.286	A	0.471
12.Catalina Ave & Gertruda Ave	Signal	A	0.377	A	0.551
13.Catalina Ave & Francisca Ave	TWSC	C	17.4	**E**	**40.3**
14.Catalina Ave & Broadway	TWSC	C	18.7	C	25.3
15.Harbor Dr & Portofino Way/Beryl St	Signal	A	0.321	A	0.602
16.Catalina Ave & Beryl St	Signal	A	0.384	A	0.598
17.Broadway & Beryl St	TWSC	B	11.9	B	12.5
18.Francisca Ave & Beryl St	AWSC	B	12.3	C	18.5
19.Pacific Coast Hwy & Beryl St	Signal	C	0.777	**E**	**0.932**
20.Harbor Dr & Pacific Ave	AWSC	A	7.7	A	8.7
21.Catalina Ave & Carnelian St	Signal	A	0.445	A	0.472
22.Catalina Ave & Diamond St	Signal	A	0.438	A	0.451
23.Catalina Ave & Emerald St	Signal	A	0.459	A	0.465
24.Pacific Coast Hwy & Garnet St	Signal	C	0.711	B	0.686
25.Catalina Ave & Torrance Blvd	Signal	A	0.431	A	0.483
26.Pacific Coast Hwy & Torrance Blvd	Signal	D	0.848	D	0.892
27.Helberta Ave/Camino Real & Torrance Blvd	Signal	A	0.487	A	0.534
28.Prospect Ave & Torrance Blvd	Signal	D	0.834	C	0.755
29.Catalina Ave & Pearl St	Signal	A	0.392	A	0.379
30.Camino Real & Pearl St	AWSC	A	9.0	A	9.1
31.Pacific Coast Hwy & Sapphire St/Francisca Ave	Signal	B	0.635	B	0.678
32.Esplanade & Knob Hill Ave	AWSC	A	9.2	B	10.6
33.Catalina Ave & Knob Hill Ave	AWSC	B	11.5	B	13.1
34.Pacific Coast Hwy & Knob Hill Ave	Signal	B	0.682	C	0.736

Table 3.13-27: Cumulative Without Project Conditions Intersection Level of Service

Intersection [a]		AM Peak Hour		PM Peak Hour	
	Intersection Control	LOS	V/C or Delay (sec)	LOS	V/C or Delay (sec)
35.Harbor Dr & Pacific Ave [b]	TWSC	A	--	A	--
36.Pacific Coast Hwy & Palos Verdes Blvd	Signal	D	0.878	**E**	**0.997**
37.Pacific Coast Hwy & 2nd St	Signal	C	0.707	C	0.717
38.Pacific Coast Hwy & 10th/Aviation	Signal	C	0.792	C	0.757
39.Pacific Coast Hwy & Pier/14th St	Signal	A	0.574	C	0.717
40.Pacific Coast Hwy & 16th St	Signal	A	0.536	B	0.647
41.Pacific Coast Hwy & Prospect Ave	Signal	C	0.723	C	0.793

Notes: [a] Intersections estimated to operate at LOS E or F during one or both of the peak hours indicated in **Bold**.

[b] Harbor Dr & Pacific Ave was not analyzed for Cumulative without Project conditions because it will only function as a full intersection with the Project.

TWSC = 2-way stop control , worst approach delay reported

AWSC = All-way stop control, average intersection delay reported

3.13.4.4.4 Cumulative Pedestrian and Bicycle Facilities

No substantial changes to the pedestrian and bicycle system are expected under Cumulative without Project Conditions by 2019, although the South Bay Bicycle Master Plan indicates that additional Class I, II, and III facilities are planned in the study area.

3.13.4.4.5 Cumulative Transit Facilities

No substantial changes to the transit system are expected under Cumulative Conditions. The Metro Green Line South Bay extension is a planned regional transit project on the east side of the City, but is not expected to be implemented by the 2019 project-opening year.

3.13.4.5 Cumulative Impacts – Signalized Intersections

Table 3.13-28 summarizes the results of the AM and PM peak hour signalized intersection LOS analysis for Cumulative plus Project Conditions.

To determine the projects impacts under cumulative conditions, the Cumulative plus Project Conditions (2019) scenario was compared against (2) the Cumulative Conditions (2019) without Project scenario. As shown in Table 3.13-18, after applying the significance threshold criteria described above in Section 3.13-3.13.4.2, the project is expected to result in significant traffic impacts to the following five signalized intersections under Cumulative plus Project Conditions:

7) PCH/Catalina Avenue & Herondo Street/Anita Street (both peak hours)

10) PCH & Catalina Avenue (PM peak hour)

19) PCH & Beryl Street (PM peak hour)

26) PCH & Torrance Boulevard (PM peak hour)

36) PCH & Palos Verdes Boulevard (PM peak hour)

Table 3.13-28: Cumulative Plus Project Conditions Level of Service Signalized Intersections

Intersection	Peak Period	Cumulative		Cumulative plus Project		Change in V/C	Significant Impact?
		LOS	V/C	LOS	V/C		
4. Harbor Dr/Hermosa Ave & Herondo St	AM	A	0.528	A	0.563	0.035	NO
	PM	A	0.504	B	0.623	0.119	NO
7. Pacific Coast Hwy/Catalina Ave & Herondo St/Anita St	AM	**E**	**0.918**	**E**	**0.936**	0.018	**YES**
	PM	**F**	**1.022**	**F**	**1.070**	0.048	**YES**
8. Prospect Ave & Anita St	AM	B	0.689	B	0.700	0.011	NO
	PM	B	0.678	B	0.695	0.017	NO
9. Harbor Dr & Yacht Club Way	AM	A	0.358	A	0.392	0.034	NO
	PM	A	0.488	A	0.578	0.090	NO
10. Pacific Coast Hwy & Catalina Ave	AM	D	0.878	D	0.889	0.011	NO
	PM	**E**	**0.912**	**E**	**0.934**	0.022	**YES**
11. Harbor Dr & Marina Way	AM	A	0.286	A	0.319	0.033	NO
	PM	A	0.471	A	0.561	0.090	NO
12. Catalina Ave & Gertruda Ave	AM	A	0.377	A	0.389	0.012	NO
	PM	A	0.551	A	0.599	0.048	NO
15. Harbor Dr & Portofino Way/Beryl St	AM	A	0.321	A	0.371	0.050	NO
	PM	B	0.602	B	0.661	0.059	NO
16. Catalina Ave & Beryl St	AM	A	0.384	A	0.410	0.026	NO
	PM	A	0.598	B	0.643	0.045	NO
19. Pacific Coast Hwy & Beryl St	AM	C	0.777	C	0.787	0.010	NO
	PM	**E**	**0.932**	**E**	**0.960**	0.028	**YES**
21. Catalina Ave & Carnelian St	AM	A	0.445	A	0.416	-0.029	NO
	PM	A	0.472	A	0.411	-0.061	NO
22. Catalina Ave & Diamond St	AM	A	0.438	A	0.410	-0.028	NO
	PM	A	0.451	A	0.383	-0.068	NO
23. Catalina Ave & Emerald St	AM	A	0.459	A	0.432	-0.027	NO
	PM	A	0.465	A	0.398	-0.067	NO
24. Pacific Coast Hwy & Garnet St	AM	C	0.711	C	0.712	0.001	NO
	PM	B	0.686	B	0.689	0.003	NO
25. Catalina Ave & Torrance Blvd	AM	A	0.431	A	0.458	0.027	NO

Table 3.13-28: Cumulative Plus Project Conditions Level of Service Signalized Intersections

Intersection	Peak Period	Cumulative		Cumulative plus Project		Change in V/C	Significant Impact?
		LOS	V/C	LOS	V/C		
	PM	A	0.483	A	0.525	0.042	NO
26. Pacific Coast Hwy & Torrance Blvd	AM	D	0.848	D	0.860	0.012	NO
	PM	**D**	0.892	**E**	**0.925**	0.033	**YES**
27. Helberta Ave/Camino Real & Torrance Blvd	AM	A	0.487	A	0.493	0.006	NO
	PM	A	0.534	A	0.547	0.013	NO
28. Prospect Ave & Torrance Blvd	AM	D	0.834	D	0.838	0.004	NO
	PM	C	0.755	C	0.764	0.009	NO
29. Catalina Ave & Pearl St	AM	A	0.392	A	0.396	0.004	NO
	PM	A	0.379	A	0.386	0.007	NO
31. Pacific Coast Hwy & Sapphire St/Francisca Ave	AM	B	0.635	B	0.644	0.009	NO
	PM	B	0.678	B	0.692	0.014	NO
34. Pacific Coast Hwy & Knob Hill Ave	AM	B	0.682	B	0.691	0.009	NO
	PM	C	0.736	C	0.750	0.014	NO
35. Harbor Dr & Pacific Ave [a]	AM	A	--	A	0.277	--	--
	PM	A	--	A	0.404	--	--
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	D	0.877	D	0.887	0.010	NO
	PM	**F**	**1.001**	**F**	**1.024**	0.023	**YES**
37. Pacific Coast Hwy & 2nd St	AM	C	0.707	C	0.714	0.007	NO
	PM	C	0.717	C	0.737	0.020	NO
38. Pacific Coast Hwy & 10th/Aviation	AM	C	0.792	C	0.798	0.006	NO
	PM	C	0.757	C	0.776	0.019	NO
39. Pacific Coast Hwy & Pier/14th St	AM	A	0.574	A	0.581	0.007	NO
	PM	C	0.717	C	0.737	0.020	NO
40. Pacific Coast Hwy & 16th St	AM	A	0.536	A	0.543	0.007	NO
	PM	B	0.647	B	0.667	0.020	NO
41. Pacific Coast Hwy & Prospect Ave	AM	C	0.724	C	0.732	0.008	NO
	PM	C	0.803	D	0.820	0.017	NO

Notes: Intersections operating at LOS E or F are noted in **Bold**.
[a] Harbor Dr & Pacific Ave was not analyzed for Cumulative without Project Conditions because it will only function as a full intersection with the proposed project (i.e., was analyzed for Cumulative plus Project Conditions).

City of Torrance Analysis

As shown above in Table 3.13-29, Intersection 36 (Pacific Coast Highway & Palos Verdes Boulevard) is expected to operate at LOS D in the AM peak hour and LOS F in the PM peak hour under Cumulative plus Project Conditions using the ICU methodology. The project-related incremental increase in the ICU ratio is 0.023, therefore, as with the impact analysis using the City of Redondo Beach criteria; the intersection is expected to have a significant PM peak hour impact. At Intersection 41 (Prospect Avenue & Pacific Coast Highway), the intersection is expected to operate at LOS D or better during both peak hours, so no significant project impact is expected.

Per City of Torrance required methodologies, HCM signalized analysis was also conducted. Table 3.13-19 presents the results for Cumulative plus Project Conditions. Based on Torrance impact criteria for the HCM signalized methodology, a significant project impact is also expected in the PM peak hour at Intersection 36. Following typical analysis practice, the Cumulative analysis includes the optimization of signal timing splits for the Cumulative without Project scenario.

Table 3.13-29: Cumulative Plus Project Conditions Level of Service Signalized Intersections in City of Torrance (HCM Methodology)

Intersection	Peak Period	Cumulative		Cumulative plus Project		Change in Delay	Significant Impact?
		LOS	Delay	LOS	Delay		
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	D	52.5	D	54.3	1.8	NO
	PM	**E**	**70.3**	**E**	**76.3**	6.0	**YES**
41. Pacific Coast Hwy & Prospect Ave	AM	C	31.1	C	31.5	0.4	NO
	PM	C	35.3	D	37.8	2.4	NO

Note: Intersections operating at LOS E or F are noted in **Bold**.

3.13.4.6 Cumulative Impacts – Unsignalized Intersections

Table 3.13-30 summarizes the results of the AM and PM peak hour unsignalized intersection LOS analysis for Cumulative plus Project Conditions. The following two intersections are projected to operate at LOS E or F during the PM peak hour under this scenario:

- Intersection 6: Valley Drive/Francisca Avenue & Herondo Street
- Intersection 13: Catalina Avenue & Francisca Avenue

Under Cumulative plus Project Conditions, intersection 6 (Valley Dr/Francisca Ave & Herondo Street) is expected to operate at LOS F with the project (degrading from LOS E under Cumulative without Project Conditions). Because it would operate at an LOS F, and the intersection does meet the peak hour signal warrant, the project impact at the intersection is considered to be significant. At Intersection 13 (Catalina Ave & Francisca Ave), the delay increase associated with the addition of project trips is expected to degrade the LOS from LOS

E to LOS F. However, because the intersection does not meet the peak hour signal warrant the project's impact would not be considered significant.

The project is expected to result in significant traffic impacts to the following unsignalized intersection in the PM peak hour under the Cumulative (2013) plus Project Conditions:

6) Valley Dr/Francisca Ave & Herondo St

Table 3.13-30: Cumulative Plus Project Conditions Level of Service Unsignalized Intersections

Intersection	Traffic Control	Peak Period	Cumulative		Cumulative plus Project		Change in Delay (sec)	Significant Impact?
			LOS	Delay (sec)	LOS	Delay (sec)		
1. Hermosa Ave & 2nd St	AWSC	AM	B	11.4	B	11.9	0.5	NO
		PM	B	10.6	B	11.6	1.0	NO
2. Monterey Blvd & 2nd St	AWSC	AM	A	8.3	A	8.4	0.1	NO
		PM	A	9.7	A	9.8	0.1	NO
3. Valley Dr & 2nd St	AWSC	AM	A	9.4	A	9.6	0.2	NO
		PM	C	20.5	C	23.7	3.2	NO
5. Monterey Blvd & Herondo St	TWSC	AM	C	15.6	C	16.7	1.1	NO
		PM	C	20.0	C	24.7	4.7	NO
6. Valley Dr/Francisca Ave & Herondo St	AWSC	AM	C	16.6	C	19.1	2.5	NO
		PM	**E**	**43.3**	**F**	**53.1**	9.8	**YES**
13. Catalina Ave & Francisca Ave	TWSC	AM	C	17.4	C	19.0	1.6	NO
		PM	**E**	**40.3**	**F**	**54.9**	14.6	NO
14. Catalina Ave & Broadway	TWSC	AM	C	18.7	C	20.6	1.9	NO
		PM	D	25.3	D	32.2	6.9	NO
17. Broadway & Beryl St	TWSC	AM	B	11.9	B	12.5	0.6	NO
		PM	B	12.5	B	13.7	1.2	NO
18. Francisca Ave & Beryl St	TWSC	AM	B	12.3	B	12.8	0.5	NO
		PM	C	18.5	C	21.1	2.6	NO
20. Pacific Ave & Harbor Dr	AWSC	AM	A	7.7	A	7.4	-0.3	NO
		PM	A	8.7	A	8.2	-0.5	NO
30. Camino Real & Pearl St	AWSC	AM	A	9.0	A	9.0	0.0	NO
		PM	A	9.1	A	9.1	0.0	NO
32. Esplanade & Knob Hill Ave	AWSC	AM	A	9.2	A	9.2	0.0	NO
		PM	B	10.6	B	10.6	0.0	NO

Table 3.13-30: Cumulative Plus Project Conditions Level of Service Unsignalized Intersections

Intersection	Traffic Control	Peak Period	Cumulative		Cumulative plus Project		Change in Delay (sec)	Significant Impact?
			LOS	Delay (sec)	LOS	Delay (sec)		
33. Catalina Ave & Knob Hill Ave	AWSC	AM	B	11.5	B	11.7	0.2	NO
		PM	B	13.1	B	13.6	0.5	NO

AWSC = All-way stop control TWSC = 2-way stop control

Note: For unsignalized intersections, the worst-case approach delay for two-way stop controlled, and average intersection delay for all-way stop controlled is reported.

Intersections operating at LOS E or F are noted in **Bold**.

Under Cumulative plus Project Conditions, Intersection 6 (Valley Dr/Francisca Ave & Herondo Street) is expected to operate at LOS F with the project (degrading from LOS E under Cumulative without Project Conditions). Because it would operate at an LOS F, and the intersection does meet the peak hour signal warrant, the project impact at the intersection is considered to be significant. At Intersection 13 (Catalina Ave & Francisca Ave), the delay increase associated with the addition of project trips is expected to degrade the LOS from LOS E to LOS F. However, because the intersection does not meet the peak hour signal warrant the project's impact would not be considered significant.

3.13.4.7 Caltrans Analysis

Mainline Freeway Segment Analysis

Based on the Caltrans TIS Guide, Table 3.13-31 is a summary of the volume of proposed project's trips that are anticipated to affect the five mainline freeway segments (i.e., Caltrans facilities).

Table 3.13-31: Summary of Mainline Freeway Segment Analysis for Cumulative plus Project Conditions

Freeway Name	Segment		Direction	Cumulative plus Project		Project Volume (already added to volume)	Change in MOE?
				Volume	LOS		
AM Peak							
I-405	Inglewood	Rosecrans	NB	8,545	F	4	NO
			SB	6,210	C	6	NO
I-405	I-110	Western	NB	5,636	F	4	NO
			SB	7,462	D	3	NO
I-110	Torrance	I-405	NB	7,397	F	1	NO
			SB	5,498	F	1	NO
1-110	220th	Torrance	NB	6,903	F	1	NO
			SB	5,498	F	1	NO
I-110	Anaheim	PCH	NB	4,005	B	1	NO
			SB	5,498	F	1	NO
PM Peak							
I-405	Inglewood	Rosecrans	NB	7,180	D	9	NO
			SB	6,174	F	14	NO
I-405	I-110	Western	NB	6,215	F	9	NO
			SB	5,532	F	6	NO
I-110	Torrance	I-405	NB	5,706	C	2	NO
			SB	5,572	F	2	NO
1-110	220th	Torrance	NB	5,051	C	2	NO
			SB	5,572	F	2	NO
I-110	Anaheim	PCH	NB	2,824	A	2	NO
			SB	5,572	F	2	NO

As with the Existing plus Project scenario, during the AM peak hour, all of the northbound analyzed segments on I-405 and I-110, except for I-110 between Anaheim and PCH, operate at congested LOS F, whereas the only the southbound I-110 segments operate at LOS F. During the PM peak hour, all of the southbound segments on the I-405 and I-110 operate at LOS F, whereas the northbound segment on I-405 from I-110 to Western operates at LOS F.

Ramp Queue Analysis

For the Cumulative and Cumulative plus Project Conditions, Table 3.13-32 and Table 3.13-33 shows the results of the ramp LOS and queuing.

Table 3.13-32: Ramp Intersection HCM Level of Service for Cumulative and Cumulative plus Project Conditions

Intersection	Peak Period	Cumulative		Cumulative plus Project	
		LOS	Delay (sec)	LOS	Delay (sec)
1. Inglewood Ave & I-405 NB Ramps	AM	B	12.8	B	12.8
	PM	B	15.0	B	15.0
2. Inglewood Ave & I-405 SB Ramps	AM	B	10.3	B	10.3
	PM	C	24.0	C	25.7
3. I-405 SB Ramps & Artesia Blvd [a]	AM	B	11.5	B	11.5
	PM	D	34.6	D	34.6
4. I-405 NB Ramps & Artesia Blvd	AM	B	12.9	B	13.0
	PM	B	13.7	B	13.8
5. Crenshaw Blvd & I-405 SB Ramps	AM	D	44.9	D	45.0
	PM	C	25.9	C	26.0
6. I-405 NB Ramps & 182nd St	AM	B	15.8	B	15.8
	PM	D	50.1	D	51.0

Note: Intersections operating at LOS E or F are noted in **Bold.**
[a] For unsignalized intersections, delay from the worst case approach was reported.

Table 3.13-33: Ramp Queing Summary for Cumulative and Cumulative plus Project Conditions

	Storage Queue Length (feet)	Direction Approach	Peak Hour	Queue Type	Cumulative (feet)	Cumulative plus Project (feet)
1. Inglewood Ave & I-405 NB Ramps	1,345	WB	AM	95th	291	291
			PM	95th	397	397
2. Inglewood Ave & I-405 SB Ramps	1,265	EB	AM	95th	295	299
			PM	95th	370*	385*
3. I-405 SB Ramps & Artesia Blvd	1,135	NB	AM	95th	26	26
			PM	95th	233	233
4. I-405 NB Ramps & Artesia Blvd	1,135	SB	AM	95th	166	165
			PM	95th	355	359
5. Crenshaw Blvd & I-405 SB Ramps	1,275	EB	AM	95th	869	869
			PM	95th	674	691
6. I-405 NB Ramps & 182nd St	1,085	NB	AM	95th	241	241
			PM	95th	421	425

Note: Intersections operating at LOS E or F are noted in **Bold.**
*#95th percentile volume exceeds capacity, queue may be longer.

All ramp intersections would operate at LOS D or better during both peak hours for all cumulative scenarios. In addition, the freeway ramps queues would not extend beyond the storage length for any of the ramps for all cumulative scenarios and therefore impacts would be less than significant. See Appendix L1(X-6) for additional details.

PCH Level of Service

Table 3.13-34 displays the HCM results for the Cumulative and Cumulative plus Project scenarios. While Caltrans' TIS guidelines provide screening criteria to determine whether a Traffic Impact Study is needed, their guidance does not provide criteria to determine whether the project's trip generation should be considered "significant." As such, the City of Redondo Beach, City of Torrance, and CMP significance criteria were utilized for the impact analysis.

Table 3.13-34: HCM Level of Service – Pacific Coast Hwy Signalized Intersections – Cumulative and Cumulative plus Project

Intersection	Peak Period	Cumulative		Cumulative plus Project	
		LOS	Delay	LOS	Delay
7. Pacific Coast Hwy/Catalina Ave & Herondo St/Anita St	AM	D	46.8	D	49.9
	PM	**E**	**59.4**	**E**	**70.4**
10. Pacific Coast Hwy & Catalina Ave	AM	B	18.3	B	19.2
	PM	B	11.5	B	13.7
19. Pacific Coast Hwy & Beryl St	AM	B	10.3	B	11.1
	PM	B	17.0	B	19.9
24. Pacific Coast Hwy & Garnet St	AM	A	5.1	A	5.1
	PM	A	4.9	A	4.9
26. Pacific Coast Hwy & Torrance Blvd	AM	D	40.8	D	42.9
	PM	D	51.7	**E**	**62.3**
31. Pacific Coast Hwy & Sapphire St/Francisca Ave	AM	A	5.0	A	5.0
	PM	A	7.1	A	7.2
34. Pacific Coast Hwy & Knob Hill Ave	AM	A	9.9	A	9.9
	PM	B	12.6	B	12.7
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	D	52.5	D	54.3
	PM	**E**	**70.3**	**E**	**76.3**
37. Pacific Coast Hwy & 2nd St	AM	B	18.9	B	19.2
	PM	C	26.2	C	28.1
38. Pacific Coast Hwy & 10th/Aviation	AM	C	28.0	C	28.0
	PM	C	33.2	C	33.5
39. Pacific Coast Hwy & Pier/14th St	AM	B	16.2	B	16.1
	PM	C	21.0	C	21.0
40. Pacific Coast Hwy & 16th St	AM	B	13.2	B	13.2
	PM	B	17.6	B	17.5
41. Pacific Coast Hwy & Prospect Ave	AM	C	31.1	C	31.5
	PM	D	35.3	D	37.8

Note: Intersections operating at LOS E or F are noted in **Bold.** This information should not, however, be confused with the project's significance conclusions, which are dependent upon the project's contribution in the ICU analysis.

[a] Harbor Dr & Pacific Ave was not analyzed for Existing Conditions because it will only function as a full intersection with the project.

Based on the HCM analysis, the following two signalized intersections are projected to operate at LOS E or F during one or both peak hours under all scenarios, including Cumulative and Cumulative plus Project:

7) PCH/Catalina Avenue & Herondo Street/Anita Street (PM peak hour)

36) PCH & Palos Verdes Boulevard (PM peak hour)

The PCH & Torrance (Intersection 26) is projected to operate at LOS E during the PM peak hour under Cumulative plus Project Conditions.

3.13.4.8 Cumulative Impacts – CMP Facilities

3.13.4.8.1 CMP Arterial Intersection Analysis

As noted above in Section 3.13.4.3, two study area intersections are CMP arterial monitoring stations:

- Intersection 26: Pacific Coast Highway & Torrance Boulevard
- Intersection 36: Pacific Coast Highway & Palos Verdes Boulevard

Table 3.13-35 details the LOS analysis and CMP impact analysis for these two intersections. Under Cumulative plus Project Conditions, Intersection 26 (Pacific Coast Highway & Torrance Boulevard) is expected to operate at LOS E during the PM peak hour, and increase the V/C ratio by 0.031 (3.1 percent). However, because the intersection is expected to operate at LOS E there would be no significant impact at this intersection using CMP impact criteria. Intersection 36 (Pacific Coast Highway & Palos Verdes Boulevard) is expected to operate at LOS F in the PM peak hour, and the proposed project is expected to increase the V/C ratio by 0.022 (2.2 percent), therefore the project would result in a significant CMP impact at this location.

Table 3.13-35: Cumulative Plus Project Conditions Level of Service CMP Intersections Impact Analysis

Intersection	Peak Period	Cumulative		Cumulative plus Project		Change in V/C	Significant CMP Impact?
		LOS	V/C	LOS	V/C		
26. Pacific Coast Hwy & Torrance Blvd	AM	D	0.848	D	0. 860	0.011	NO
	PM	D	0.892	E	0. 925	0. 033	NO
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	D	0.877	D	0. 887	0. 010	NO
	PM	F	1.001	F	1. 024	0. 023	**YES**

3.13.4.9 Cumulative Impacts – Parking

Cumulative impacts related to parking would be the same as described above in Section 3.13.4.2 for the project-specific impacts.

3.13.4.10 Cumulative Impacts –Pedestrian and Bicycle Facilities

Cumulative impacts related to pedestrian and bicycle facilities would be the same as described above in Section 3.13.4.3 for the project-specific impacts.

3.13.4.11 Cumulative Impacts – Small Craft Boat Traffic

Cumulative impacts related to small craft boat traffic would be the same as described above in Section 3.13.4.3 for the project-specific impacts.

Cumulative Mitigation Measures

Operational Traffic

Implementation of mitigation measures MM TRA-1 through MM TRA-6 presented in Section 3.13.4.2 for Existing plus Project Conditions would serve to address significant impact occurring under Cumulative plus Project Conditions, including at Intersection 6 (MM TRA-1), Intersection 7 (MM TRA-2), Intersection 10 (MM TRA-3), Intersection 19 (MM TRA-4), Intersection 26 (MM TRA-5), and Intersection 36 (MM TRA-6).

Table 3.13-36 presents the signalized intersection LOS results for the Mitigated Cumulative plus Project scenario using the ICU methodology. Implementation of the proposed mitigation measures would reduce Cumulative plus Project impacts at signalized intersections to less than significant.

Table 3.13-36: Cumulative Plus Project Plus Mitigation Level of Service & Impact Analysis (ICU Methodology)

Intersection	Peak Period	Cumulative		Cumulative plus Project plus Mitigation		Change in V/C	Significant Impact?
		LOS	V/C	LOS	V/C		
6. Valley Dr/Francisca Ave & Herondo St	AM	C	16.6	A	0.496	N/A	NO
	PM	**E**	**43.3**	C	0.743	N/A	NO
7. Pacific Coast Hwy/Catalina Ave & Herondo St/Anita St	AM	E	0.918	E	0.919	0.001	NO
	PM	F	1.022	E	0.978	-0.044	NO
10. Pacific Coast Hwy & Catalina Ave	AM	D	0.878	D	0.820	-0.058	NO
	PM	E	0.912	D	0.883	-0.029	NO
19. Pacific Coast Hwy & Beryl St	AM	C	0.777	C	0.787	0.010	NO
	PM	E	0.932	E	0.983	0.006	NO

Table 3.13-36: Cumulative Plus Project Plus Mitigation Level of Service & Impact Analysis (ICU Methodology)

Intersection	Peak Period	Cumulative		Cumulative plus Project plus Mitigation		Change in V/C	Significant Impact?
		LOS	V/C	LOS	V/C		
26. Pacific Coast Hwy & Torrance Blvd	AM	D	0.848	D	0.818	-0.030	NO
	PM	D	0.892	D	0.891	-0.001	NO
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	D	0.878	D	0.849	-0.029	NO
	PM	E	0.997	E	0.905	-0.092	NO

Note: Intersections operating at LOS E or F are noted in Bold.

Table 3.13-23 presents the signalized intersection LOS results for the Mitigated Cumulative plus Project scenario using the HCM methodology. Similar to above for the ICU methodology, implementation of the proposed mitigation measures would reduce Cumulative plus Project impacts at signalized intersections to less than significant.

Table 3.13-37: Cumulative Plus Project Mitigation Analysis (HCM Methodology)

Intersection	Peak Period	Cumulative		Cumulative plus Project plus Mitigation		Change Delay	Significant Impact
		LOS	Delay (sec)	LOS	Delay (sec)		
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	--	--	--	--	--	--
	PM	**E**	**70.3**	E	57.1	-13.2	NO

Notes: Intersections operating at LOS E or F are noted in **Bold.**

Implementation of the proposed mitigation measures would reduce Cumulative plus Project impacts at signalized intersections to less than significant.

Caltrans Analysis

PCH Level of Service

Table 3.13-38: HCM Level of Service – Pacific Coast Hwy Signalized Intersections Plus Mitigation – Cumulative plus Project

Intersection	Peak Period	Cumulative		Cumulative plus Project plus Mitigation	
		LOS	Delay	LOS	Delay
7. Pacific Coast Hwy/Catalina Ave & Herondo St/Anita St	AM	D	46.8	D	44.1
	PM	**E**	**59.4**	**E**	**55.4**
10. Pacific Coast Hwy & Catalina Ave	AM	B	18.3	B	15.8
	PM	B	11.5	B	11.9
19. Pacific Coast Hwy & Beryl St	AM	B	10.3	B	11.5
	PM	B	17.0	B	19.1
26. Pacific Coast Hwy & Torrance Blvd	AM	D	40.8	D	40.1
	PM	D	51.7	D	53.5
36. Pacific Coast Hwy & Palos Verdes Blvd	AM	D	52.5	D	50.4
	PM	**E**	**70.3**	**E**	**57.1**

Note: Intersections operating at LOS E or F are noted in **Bold.** . This information should not, however, be confused with the project's significance conclusions, which are dependent upon the project's contribution in the ICU analysis.

Similar to under Existing plus Project, after mitigation (implementation of mitigation measures MM TRA-2 and MM TRA-6 presented in Section 3.13-4.2), Intersections 7 and 36 would continue to operate at LOS E for Cumulative plus Project Conditions, and with mitigation (MM TRA-5 presented in Section 3.13.4.2) Intersection 26 would operate at LOS D.

Parking

Implementation of mitigation measure MM TRA-7 presented in Section 3.13.4.2 for Existing plus Project Conditions would serve to address significant impacts occurring under Cumulative plus Project Conditions.

Small Craft Boat Traffic

Implementation of mitigation measure MM TRA-8 presented in Section 3.13.4.2 for Existing plus Project Conditions would serve to address significant impacts occurring under Cumulative plus Project Conditions.

Cumulative Residual Impacts

With implementation of the proposed mitigation measures, as described above, impacts would be less than significant.

It should be noted that the decision to require implementation of the above mitigation measures occurs at the time of project approval, pursuant to CEQA Guidelines Section 15091 and 15097; in the event these mitigation measures are not adopted, impacts identified in the analysis above would remain significant and unavoidable.

3.13.4.12 Summary of Impact Determinations

The following Table 3.13-39 summarizes the impact determinations of the proposed project in addition to adopted growth projections (i.e., potential cumulative impacts) related to traffic and transportation, as described in the detailed discussion above.

Table 3.13-39: Summary Matrix of Potential Impacts and Mitigation Measures for Traffic Associated with the Proposed Project and Cumulative Growth

Environmental Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
TRA-1: The proposed project could exceed the applicable significance thresholds	Proposed Project: Significant - operation	Proposed Project: Mitigation measures MM TRA-1 through MM TRA-6 for intersections and MM-TRA-7 for parking	Proposed Project: Less than significant
	Cumulative: Significant (cumulatively considerable contribution) - operation	Cumulative: Mitigation measures MM TRA-1 through MM TRA-6 for intersections and MM-TRA-7 for parking	Cumulative: Less than significant (not cumulatively considerable)
TRA-2: The project would not conflict with an applicable congestion management program.	Proposed Project: Less than significant	Proposed Project: No mitigation is required	Proposed Project: Less than significant
	Cumulative: Less than significant (no cumulatively considerable contribution)	Cumulative: No mitigation is required	Cumulative: Less than significant (not cumulatively considerable)
TRA-3: The proposed project could substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses	Proposed Project: Significant - operation	Proposed Project: Mitigation measure MM TRA-8	Proposed Project: Less than significant
	Cumulative: Significant (cumulatively considerable contribution) - operation	Cumulative: Mitigation measure MM TRA-8	Cumulative: Less than significant (not cumulatively considerable)

3.13.4.13 Summary of Mitigation Measures

Implementation of the following mitigation measures would be required to reduce significant impacts related to transportation:

MM TRA-1: Valley Drive/Francisca Avenue & Herondo Street (Intersection 6) – City of Hermosa Beach

A traffic signal would be installed at this intersection, for which the project Applicant would provide fair share funding.

MM TRA-2: Pacific Coast Highway & Herondo/Anita Street (Intersection 7) – Existing Plus Project Conditions

An additional westbound and eastbound through lane would be added. For the westbound approach, the center-raised median would be narrowed or eliminated. The two westbound left turn lanes would be shifted to the south to accommodate the additional westbound through lane. An additional westbound receiving lane would be added extending for a minimum of half a block length to the west of Intersection 7. The additional eastbound through lane would need to extend for a minimum of half the block length to the west of Intersection 7. The on-street angled parking on Herondo Street conflicts with the additional eastbound and westbound lane, and will require their removal. Parking will be replaced at 1:1 ratio to the satisfaction of the City Engineer. In addition, the on-street bike lanes would be shifted from their current location, but can be accommodated with the addition of the two through lanes.

MM TRA-3: Pacific Coast Highway & Catalina Avenue (Intersection 10)

One additional eastbound left turn lane would be added to provide two left turn lanes onto Pacific Coast Highway northbound. The intersection would also be restriped to provide one shared left-right lane, for a total of three lanes on the eastbound approach.

MM TRA-4: Pacific Coast Highway & Beryl Street (Intersection 19)

Add a southbound dedicated right-turn lane. This additional lane would encroach into the existing sidewalk right-of-way of the Gertruda Avenue cul-de-sac, and require the removal of mature trees that line the western side of the street. The sidewalk would need to be reconstructed to the west of its current location, which would narrow the end of the cul-de-sac.

MM TRA-5: Pacific Coast Highway & Torrance Boulevard Avenue (Intersection 26)

A northbound, and an eastbound right-turn lane would be added at this intersection to mitigate the project's impact. The northbound right-turn lane is an approved project identified as mitigation from a prior project in the City, and therefore, the Applicant would provide a fair share contribution for these improvements. The eastbound right-turn lane would be fully-funded by the proposed project. The eastbound right-turn lane can be accommodated through restriping the outer eastbound lane on Torrance Boulevard, which measures 24 feet.

MM TRA-6: Pacific Coast Highway & Palos Verdes Drive (Intersection 36)

Add a southbound right-turn lane. The project Applicant shall provide a fair share percentage of contribution to this mitigation measure along with other development projects that would impact this intersection.

MM TRA-7: Parking Management Plan

A Parking Management Plan (PMP) shall be prepared to ensure the project site provides parking to meet demand using Urban Land Institutes (ULI) methodology. The minimum number of parking spaces for a mixed-use development or where shared parking strategies are proposed shall be determined by a study prepared by the applicant following the procedures of the ULI Shared Parking Report, Institute of Transportation Engineers (ITE) Shared Parking Guidelines, or other approved procedures. As part of the PMP, the following additional measures shall be considered as part of an overall program to meet two primary objectives that have been established with regard to the management of parking facilities at the project site, which are:

1. Provide sufficient parking on-site to meet the parking demands generated by the proposed project.

2. Support trip and emission reduction goals and encourage and support alternative transportation by implementing a Transportation Demand Management (TDM) program.

Parking measures may include, but are not limited to controls to reduce parking demand, such as a shared parking plan, alternative parking methods, satellite parking for employees during peak periods, and support of TDM measures (such as promoting alternative transportation modes). Specific potential mitigations are described as follows:

a. Shared Parking Plan: A Shared Parking Plan shall be prepared by a qualified transportation/parking engineer to the satisfaction of the City, and shall demonstrate justification for the parking plan to meet the parking requirements of the project as approved. The Shared Parking Plan would propose parking to be shared between two or more uses within the project site, as allowed under Section 10-5.1706(d) of the RBMC. The Shared Parking Plan shall detail how a lower total number of parking spaces would provide adequate parking for these uses.

b. Alternative Parking Methods: An alternative parking method includes but is not limited to tandem and valet parking of vehicles to be parked in tandem provided that attendants to move vehicles are available at all times that the parking area using tandem parking is open for use. If the attendant requirement is met, each tandem stall shall constitute the number of parking spaces equivalent to the number of cars it can accommodate.

c. Provide Satellite Parking. Parking shortfalls during peak periods would be reduced if employees parked elsewhere and walked or were shuttled to the project site. Satellite parking would be initiated during peak periods, the parking location would have to be readily identifiable to employees, and shuttle service would have to be timely and convenient. Implementation of this mitigation is complicated by the need to locate a source of available parking during the critical periods. This parking would have to be located outside the study area and would have to be designated for employee use during the peak periods.

d. Promote Alternative Transportation Modes for Employees and Patrons: Encourage employees and patrons to use existing bus service, pedestrian and bicycle connectivity to and through the site, which would decrease the number of vehicle trips. In addition, TDM measures that could further reduce trips could include:

- Shuttles to/from the Metro Green Line Station
- Shuttles to/from LAX for hotel guests
- Transit pass subsidies, vanpool services, and other incentives to employees to reduce vehicle trips.

MM TRA-8: Boat Launch Ramp/Personal Recreational Watercraft Interface Management

In conjunction with the design and construction of the proposed boat launch ramp and associated breakwater, buoys with signage shall be placed to delineate, and segregate, waterside boat lanes and paddle craft lanes. Patrol and monitoring of King Harbor's water use and traffic activity will include the boat launch area, especially during peak use periods, consistent with the Harbor Patrol's mission to support public use and sharing of the harbor resource as safely as possible. Additionally, leases with tenants within the project site associated with the rental of paddle boards, kayaks, and peddle boats will be required to maintain records that the renters of this equipment have been instructed on safety and waterside signage.

3.13.5 Significant Unavoidable Impacts

By applying significance thresholds described above in Section 3.13.4.2, the project is expected to result in significant traffic impacts to five signalized intersections under the PM peak hour of Existing plus Project Conditions and Cumulative plus Project Conditions.[16] Implementation of mitigation measures MM TRA-1 to MM TRA-6 would reduce operation

[16] As noted above, the decision to require implementation of the above mitigation measures occurs at the time of project approval, pursuant to CEQA Guidelines Section 15091 and 15097; in the event these mitigation measures are not adopted, impacts identified in the analysis above would remain significant and unavoidable.

impacts associated with the proposed project at all five impacted intersections to a level that is less than significant under Existing plus Project and Cumulative plus Project scenarios.

Under ICU methodology, the proposed project would impact five intersections under Existing plus Project and six intersections under Cumulative plus Project. These impacts would be mitigated for all intersections, except for the PCH/Catalina Avenue & Herondo Street/Anita Street under Existing plus Project Conditions during the PM peak hour. Under HCM methodology, two signalized intersections (Intersections 7 and 36) are projected to operate at LOS E or F during one or both peak hours under all scenarios. In addition, the PCH & Torrance intersection (Intersection 26) is projected to operate at LOS E during the PM peak hour under Cumulative plus Project Conditions. After mitigations, Intersections 7 and 36 would continue to operate at LOS E for Existing plus Project and Cumulative plus Project scenarios. Intersection 26 would operate at LOS D after mitigation under HCM methodology for Existing plus Project and Cumulative plus Project scenarios.

With implementation of mitigation measures MM TRA-7 for parking, and MM TRA-8 for small craft boat traffic safety, the proposed project would not cause a significant parking impact or substantially increase a boating hazard.

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