

### **4.13 Transportation and Traffic**

This section analyzes the potential traffic impacts created by the Proposed Project. The Proposed Project has the potential to result in traffic impacts at intersections and along roadway segments in the cities of Hermosa Beach, Redondo Beach and Torrance as a result of constructing and operating Phases 1-4 of the Proposed Oil Project (including gas and oil Pipelines) as well as potential localized impacts in the City of Hermosa Beach as a result of relocating the City Maintenance Yard. In addition, this section analyses the potential for the Proposed Project to conflict with transportation-related regulations and traffic safety risks to the public.

Tables related to Proposed Project impacts are located at the end of this section due to their size and length.

#### **4.13.1 Summary of Project-Specific Traffic Studies**

Two traffic studies have been prepared by the Applicant for the Proposed Oil Project that identify intersections and roadway segments that could be impacted by the Proposed Project, establish baseline traffic conditions, develop projected future baseline conditions without the Proposed Project, estimate the level of traffic that would be generated during construction and operation, and comparison of traffic conditions with and without the Proposed Oil Project. Specifically, a Traffic Impact Analysis was prepared by Arch Beach Consulting in November, 2012 (with an August 2013 Technical Memorandum Addendum and Eratta) that focused on the E&B Oil Development Site (current Public Works Maintenance Yard).

An independent third-party review of the Arch Beach Traffic Impact Analysis was performed by Stantec Consulting Services Inc. retained by the City of Hermosa Beach. Based on this review, it was determined that the Arch Beach traffic studies are adequate for providing baseline and Proposed Project-related traffic data to support analysis of potential transportation and traffic impacts of Phases 1-4 of the Proposed Oil Project.

An additional traffic study was prepared by Stantec Consulting Services Inc. in January 2014, to evaluate baseline traffic conditions and potential traffic impacts as a result of relocating the City of Hermosa Beach's Public Works maintenance yard. The Maintenance Yard Relocation Traffic Study is included within this EIR as Appendix D. The 2014 Stantec Consulting Services Inc. traffic study also evaluated the potential combined traffic impacts of the Proposed Oil Project and the Proposed City Maintenance Yard Project.

#### **4.13.2 Study Area**

The following study intersections were assessed that could be used by the Proposed Project (parenthesis listed at end of intersection denotes the intersection's jurisdiction):

1. Pacific Coast Highway (PCH)/Artesia Boulevard (Caltrans)

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2. PCH/21st Street (Caltrans/Hermosa Beach)
3. PCH/Aviation Boulevard( Caltrans/Hermosa Beach)
4. PCH/8th Street (Caltrans/Hermosa Beach)
5. PCH/5th Street (Caltrans/Hermosa Beach)
6. PCH/2nd Street (Caltrans/Hermosa Beach)
7. PCH/Herondo Avenue – Anita Street (Caltrans/Hermosa Beach)
8. PCH/Pier Avenue – 14th Street (Caltrans/Hermosa Beach)
9. Prospect Avenue/Artesia Boulevard (Hermosa Beach)
10. Prospect Avenue/Aviation Boulevard (Hermosa Beach)
11. Prospect Avenue/Anita Street (Redondo Beach)
12. PCH/16th Street (Caltrans/Hermosa Beach)
13. Ocean Drive/Aviation Boulevard (Hermosa Beach)
14. Valley Drive/Pier Avenue (Hermosa Beach)
15. Ardmore Avenue/Pier Avenue (Hermosa Beach)
16. Valley Drive/11th Street (Hermosa Beach)
17. Valley Drive/11th Place (Hermosa Beach)
18. Valley Drive/8th Street (Hermosa Beach)
19. Valley Drive/2nd Street (Hermosa Beach)
20. Valley Drive/6th Street (Hermosa Beach)
21. Valley Drive/Herondo Street (Hermosa Beach)
22. Flagler Lane/Anita Street – 190th Street (Redondo Beach)
23. Blossom Lane – Beryl Street/190th Street (Redondo Beach)
24. Meyer Lane – Entradero Avenue/190th Street (Redondo Beach/Torrance)
25. Anza Avenue/190th Street (Redondo Beach/Torrance)
26. Inglewood Avenue/190th Street (Redondo Beach/Torrance)
27. Firmona Avenue/190th Street (Redondo Beach/Torrance)
28. Hawthorne Boulevard/190th Street (Redondo Beach/Torrance)
29. Prairie Avenue/190th Street (Torrance)
30. Crenshaw Boulevard/190th Street (Torrance)
31. Western Avenue/190th Street (Caltrans/Torrance)
32. Interstate 405 (I-405) northbound ramps/Artesia Boulevard (Caltrans)
33. I-405 southbound ramps/Artesia Boulevard (Caltrans)
34. Prairie Avenue/Artesia Boulevard (Torrance)
35. I-405 northbound ramps/182nd Street (Caltrans/Torrance)
36. I-405 southbound ramps/Crenshaw Boulevard (Caltrans/Torrance)
37. Crenshaw Boulevard/182nd Street (Torrance)
38. Hermosa Avenue – Harbor Drive/Herondo Street (Redondo Beach)
39. PCH/Catalina Avenue (Caltrans/Redondo Beach)
40. PCH/Irena Avenue (Caltrans/Redondo Beach)
41. PCH/Beryl Street (Caltrans/Redondo Beach)
42. Prospect Avenue/Beryl Street (Redondo Beach)
43. Harkness Lane/Beryl Street (Redondo Beach)
44. Flagler Lane/Beryl Street (Redondo Beach)
45. Ford Avenue/Artesia Boulevard (Redondo Beach)
46. Aviation Boulevard/Artesia Boulevard (Redondo Beach)
47. Inglewood Avenue/Artesia Boulevard (Redondo Beach)

48. Kingsdale Avenue/Artesia Boulevard (Redondo Beach)
49. Hawthorne Boulevard/Artesia Boulevard (Caltrans/Redondo Beach)
50. Ford Avenue/Aviation Boulevard (Redondo Beach)
51. Aviation Boulevard/Grant Avenue (Redondo Beach)
52. Hawthorne Boulevard/I-405 northbound ramps (Caltrans/Redondo Beach)
53. Hawthorne Boulevard/I-405 southbound ramps (Caltrans/Redondo Beach)
54. Hawthorne Boulevard/162nd Street (Caltrans/Redondo Beach)
55. Hawthorne Boulevard/166th Street (Caltrans/Redondo Beach)
56. Hawthorne Boulevard/169th Street (Caltrans/Redondo Beach)
57. Hawthorne Boulevard/Redondo Beach Boulevard (Caltrans/Redondo Beach)

Intersections 14, 16, 17, 18 and 20 also would be used by the Proposed City Maintenance Yard Project. The locations of study intersections (numbers 1-57) are illustrated below in Figure 4.13-1.

In addition to the above intersections, average daily traffic counts were collected at various roadway segments in the study area. Specifically, the following roadway segments (and one freeway segment) with the potential to be impacted by the Proposed Project were studied:

1. Pier Ave. from PCH to Valley Dr
2. Valley Dr from Pier Ave. to 11th St
3. Valley Dr from 11th St to 8th St
4. Valley Dr from 8th St to 2nd St
5. Valley Dr from 2nd St to Herondo St
6. Herondo St from Valley Dr to PCH
7. 6th St from Valley Dr to Hermosa Ave
8. Herondo St/Anita St from Valley Dr to PCH
9. Herondo St/Anita St from PCH to Prospect Ave
10. Valley Dr from Pier Ave. to 6th St
11. Valley Dr from 6th St to Herondo St
12. Prospect Ave. from Artesia Blvd. to Aviation Blvd.
13. Prospect Ave. from Aviation Blvd. to Anita St
14. Aviation Blvd. from PCH to Artesia Blvd.
15. N Lucia Ave. from Agate St to Anita St
16. N Maria Ave. from Beryl St to Anita St
17. N Paulina Ave. from Beryl St to Anita St
18. N Prospect Ave. from Beryl St to Anita St
19. N Prospect Ave. from Anita St to North Redondo Beach City Limits
20. Harkness Lane from Agate St to Anita St
21. Harkness Lane from Anita St to Ripley Ave
22. Flagler Lane from Beryl St to 190th St
23. Beryl St from Flagler Lane to 190th St
24. Blossom Lane from 190th St to Havemeyer Lane
25. Anita St from Prospect Ave. to Flagler Lane
26. 190th St from Flagler Lane to Blossom Lane-N Beryl St
27. 190th St from Blossom Ln-N Beryl St to Meyer Ln-Entradero Ave
28. 190th St from Meyer Ln-Entradero Ave. to Anza Ave

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29. 190th St from Anza Ave. to Inglewood Ave
30. 190th St from Inglewood Ave. to Firmona Ave
31. 190th St from Firmona Ave. to Hawthorne Blvd. (SR 107)
32. 190th St from Hawthorne Blvd. (SR 107) to Prairie Ave
33. 190th St from Prairie Ave. to Crenshaw Blvd.
34. Prairie Ave. from 182nd St to 190th St
35. Crenshaw Blvd. from 1-405 to 190th St
36. 190th St from Crenshaw Ave. to Van Ness Ave
37. 190th St from Van Ness Ave. to Western Ave
38. I-405 from Artesia Blvd. to Crenshaw Blvd.

The locations of study roadway/freeway segments (numbers 1-38) are illustrated in Figure 4.13-2.

#### **4.13.3 Environmental Setting**

A description of the existing transportation conditions near the Project Site is presented below including existing roadway, transit, bicycle and conditions.

##### **4.13.3.1 Roadway Network**

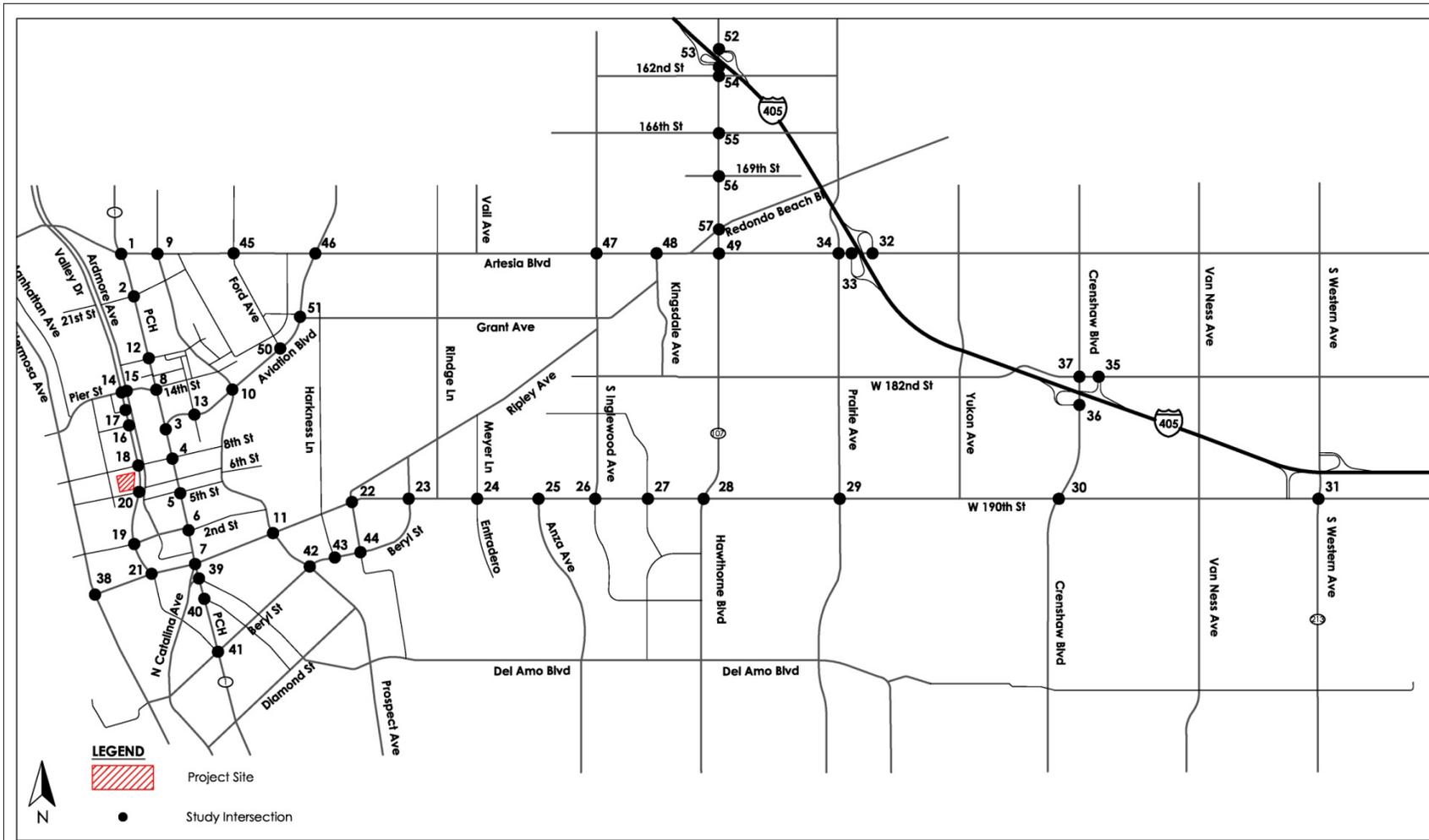
A brief description of the regional and local roadway network serving the Project Site is provided below.

##### **Regional and Local Roadway Networks**

###### *Pacific Coast Highway (State Route 1)*

Pacific Coast Highway (PCH) is a major coastal access route running north-south along the California coast and through the City of Hermosa Beach, where it is designated as an arterial street. Per the General Plan Circulation, Transportation and Parking Element (1990 as amended), PCH is a designated truck route in the City of Hermosa Beach, with four lanes for through traffic plus curbside parking during off-peak hours. During morning peak hours (7:00 a.m.-9:00 a.m.) parking is prohibited on the east side of PCH to allow for a third northbound travel lane. Approximately 74-feet wide from curb to curb, PCH carries approximately 47,000 average daily trips south of Artesia Boulevard.

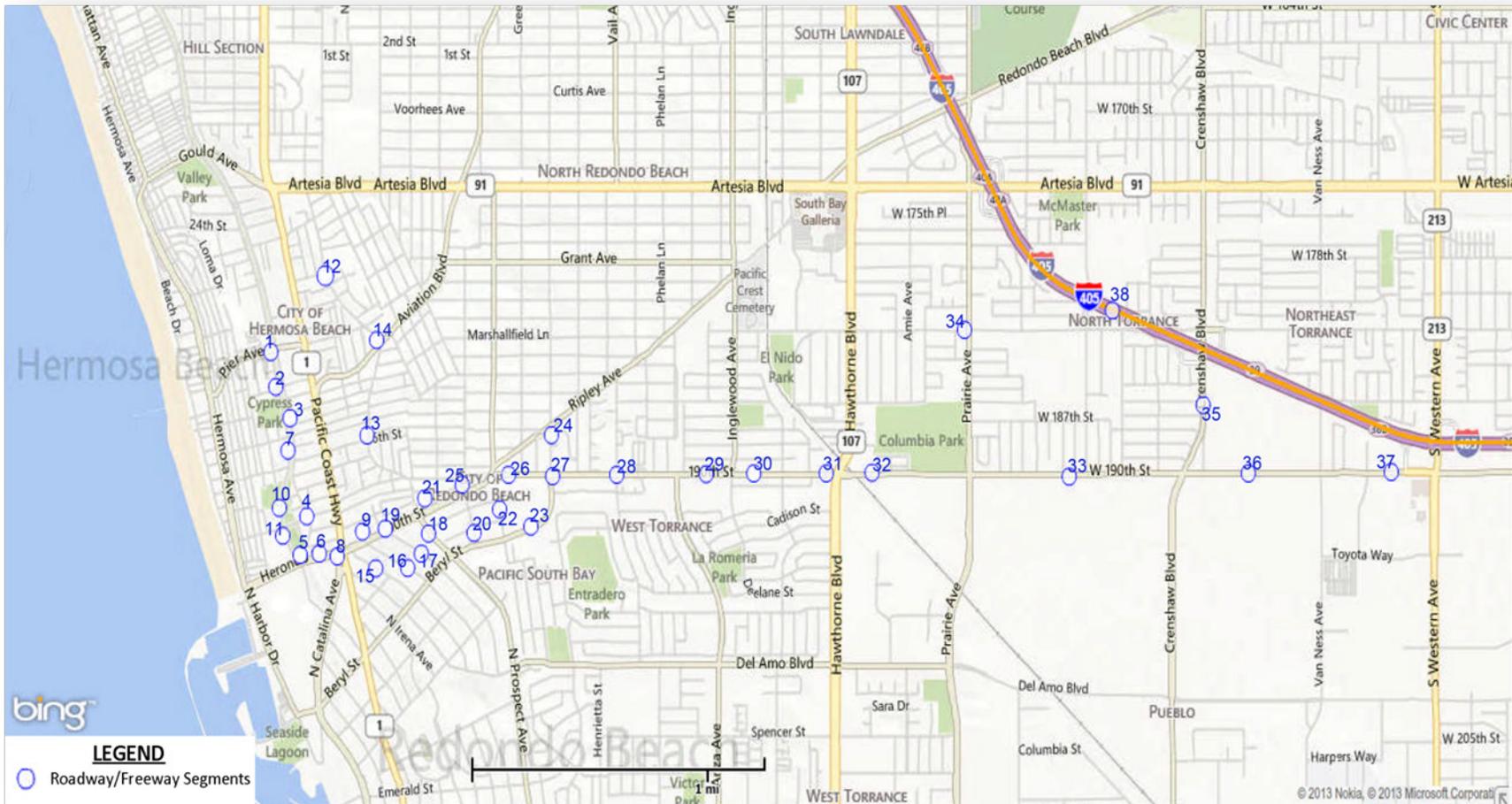
Figure 4.13-1 Traffic Study Intersections Locations



Source: Arch Beach Consulting 2014a

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Figure 4.13-2 Location of Roadway Segments Studied



Source: Los Angeles County Department of Regional Planning, GIS-NET3 Resources 2013

### *Artesia Boulevard*

Artesia Blvd. is a four lane Arterial Boulevard which runs from PCH, eastward through Redondo Beach to the Harbor Freeway (I-110) where it becomes the Redondo Beach Freeway or State Route 91. Artesia Blvd. is approximately 80 feet wide with a raised median. Per the Hermosa Beach Circulation, Transportation and Parking Element, Artesia Blvd. is a designated truck route in the City of Hermosa Beach and the City of Redondo Beach.

### *Pier Avenue*

Pier Ave. runs east/west from Hermosa Avenue to PCH. From PCH to Ardmore Ave, Pier Ave. has 2 lanes in each direction, is 72 feet from curb-to-curb and has on-street parking. The average daily trips (ADT) on this segment is 16,000 ADT. West of Ardmore, Pier Ave. is designated a Collector Street with two lanes of traffic in each direction, diagonal parking on the north side, and parallel on-street parking on the south side. It is also designated as a truck route in the City General Plan Circulation, Transportation and Parking Element between PCH and Hermosa Avenue.

### *Herondo Street – Anita Street – 190th Street*

Herondo Street, a Secondary Arterial in the City of Redondo Beach, runs east-west between Harbor Drive and PCH. Anita Street and 190th Street are Major Arterials in the City of Redondo Beach. The combination of these three streets forms an arterial that runs through the Cities of Redondo Beach, Hermosa Beach, and Torrance. Herondo Street has a raised median, and a continuous left turn lane is present on Anita Street and 190th Street. West of Hawthorne Boulevard, on-street parking is generally permitted along the north side of these streets. On the south side of 190th Street, parking is prohibited east of Meyer Lane and between Flagler Lane and Prospect Avenue on Anita Street. Metered parking is provided on Herondo Street west of N. Francisca Avenue. The Redondo Beach Municipal Code prohibits commercial vehicles weighing 20,000 pounds or more from operating on 190th Street between Anza Avenue and PCH (Redondo Beach Municipal Code Section 3-7.902(b)). The ADT on Herondo Street between Valley Drive and PCH is approximately 10,800 ADT, and approximately 17,000 ADT east of PCH.

### *Valley Drive*

Valley Drive is a two-lane street which runs parallel to Ardmore Avenue on the west side of the Hermosa Beach Greenbelt (Veterans Parkway). Approximately four miles in distance, Valley Drive runs from Herondo Street to PCH in Manhattan Beach. North of the City, it becomes a one-way southbound street segment in Manhattan Beach. In Hermosa Beach, it carries approximately 4,700 ADT between Pier Avenue and 6th Street, and 4,000 ADT between 6th Street and Herondo Street. South of 2nd Street, Valley Drive is restricted to one-way southbound traffic flow to Herondo Street. The curb-to-curb width of Valley Drive is 24 feet throughout the City. It is designated as a collector in the General Plan Circulation, Transportation and Parking Element south of Pier Avenue and as a designated truck route southbound only, from Pier Avenue to Herondo Street.

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##### *6th Street*

6th Street is a local street that generally runs in an east-west direction through the City of Hermosa Beach. 6th Street has one lane of traffic in each direction. Between Valley Drive and Monterey Blvd., 6th street is approximately 30 feet wide with street parking available on either the north or south side in some areas. West of Monterey Blvd., 6th Street is approximately 40 feet wide with parallel street parking on both sides.

##### *N. Francisca Avenue*

In Redondo Beach, N. Francisca Avenue continues from Valley Drive at Herondo Street to Beryl Street. Between Valley Drive and N. Catalina Avenue, N. Francisca is 30 feet wide; there is one lane of traffic in each direction and parking alongside the northbound lane. Between N. Catalina Avenue and Beryl Street, N. Francisca Avenue is approximately 45 feet wide with parking along both sides of the street.

#### **Regional and Local Transit**

Hermosa Beach is serviced by Beach Cities Transit, the Metropolitan Transit Authority (Metro) local bus, and WAVE. All scheduled transit systems routes are located along PCH, Pier Avenue or Hermosa Avenue. There are no transit routes located along Valley Drive near the Project Site or the Proposed City Maintenance Yard.

##### *Line 109*

Beach Cities Transit provides local public transit that serves Redondo Beach, Hermosa Beach, Manhattan Beach, and El Segundo as well as east/west connectivity to the City of Torrance. Route 109 serves Hermosa Avenue and 10th, near the intersection of Hermosa and Pier Avenues in Hermosa Beach. Monday through Friday, Route 109 Northbound runs every 30 minutes from 6:17 a.m. to 8:42 p.m. and Southbound from 7 a.m. to 9:35 p.m. On Saturday and Sunday, Route 109 Northbound runs from 6:22 a.m. to 8:47 p.m. and Southbound from 7:50 a.m. to 10 p.m.

##### *Route 232*

Route 232 runs from Los Angeles International Airport (LAX) to Long Beach with one stop in Hermosa Beach at Pacific Coast Highway at 9th Street. Route 232 runs solely along PCH through Hermosa Beach. During weekdays, Route 232 Northbound runs every 30 minutes from 4:44 a.m. to 11:02 p.m. and Southbound from 4:40 a.m. to 12:08 a.m. On Saturday, the Northbound 232 runs every 30 minutes from 4:48 a.m. to 11:02 p.m. and Southbound 232 every 30 minutes from 4:48 a.m. to 11:02 p.m. On Sundays and holidays, the Northbound 232 runs every 30 minutes from 5:39 a.m. to 11:02 p.m. and Southbound from 5:48 a.m. to 12:08 a.m.

##### *Route 130*

Route 130 runs from Cerritos to Redondo Beach with one stop in Hermosa Beach at PCH and Artesia Blvd. To serve the beach communities, Route 232 runs along Pier Avenue from PCH and south to Harbor Drive and into Redondo Beach. During weekdays, Route 130 Eastbound runs every 30 minutes from 5:22 a.m. to 8:46 p.m. and Westbound from 6:15 a.m. to 9:36 p.m. On Saturday, the Eastbound 130 runs hourly from 6:16 a.m. to 8:20 p.m. and Westbound 232 from 8:14 a.m. to 10:12 p.m. On Sundays and holidays, the Eastbound 130 runs hourly from 6:20 a.m. to 8:18 p.m. and Westbound from 8:13 a.m. to 10:09 p.m.

## **WAVE**

WAVE provides senior and disabled citizens with dial-a-ride service and offers curb-to-curb transportation throughout Redondo and Hermosa Beaches.

### **Bicycle Conditions**

Bikeways are classified as Class I, Class II and Class III facilities.

**Class I** bicycle facilities are typically known as bicycle paths. This is a dedicated path for bicyclists and pedestrians that do not permit motorized travel.

**Class II** bicycle facilities are also known as bicycle lanes, a portion of the roadway network that has been striped and signed for bicycle use.

**Class III** bicycle facilities are also known as bicycle routes, bikeways that primarily serve to connect other facilities and destinations in the bikeway network but provide a lower level of service than Class I or Class II bikeway facilities.

In California, bicycle parking is classified as either Class I or Class II facilities. Class I facilities are designed for long-term use and provide security and weather protection. Class II facilities are designed for short-term use and typically consist of bicycle racks.

The Marvin Braude Bike Trail, also known as The Strand is a paved bicycle path that runs mostly along the Pacific Ocean from Will Rodgers State Beach in Pacific Palisades, Los Angeles to the Torrance County Beach in Torrance. The path is 22 miles long and is part of the California Coastal Trail. The Strand is a Class I bicycle path in Hermosa Beach and abuts the City's beach along its length. A Class II bicycle lane also runs parallel to a segment of Hermosa Avenue in the north-south direction before converting to sharrow lanes north of Pier Avenue. A South Bay Bicycle Master Plan has been developed, detailing proposed bike routes (see Figure 4.13-3) and is discussed below under regulatory setting.

### **Pedestrian Safety**

The City of Hermosa Beach contracted with the Institute of Transportation Studies Technology Transfer Program in 2008 to prepare a summary Pedestrian Safety Assessment (ITA 2008). The report presents findings and recommendations derived from: (i) a benchmarking analysis of the City's existing pedestrian programs, policies, and practices; and (ii) field walking audits at several focus areas. Walking audits included the streets Valley Drive from Pier Avenue to 11th Street. The report also presents results of historical pedestrian accidents with Hermosa Beach, including accidents at Valley and 11th (in front of the Proposed City Maintenance Yard). No accidents are listed at the Project Site.

The report recommends that the City develop a Pedestrian Master Plan and designate a pedestrian/bicycle coordinator and advisory committee to implement the Plan. The report also recommends adding a crosswalk at Valley and 11th Street, immediately in front of the Proposed City Maintenance Yard, and widening sidewalk along Valley Drive and provide a landscape buffer.

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Figure 4.13-3 Existing and Proposed Bike Paths in Hermosa Beach



Source: Alta 2011

The report also indicates that the primary pedestrian safety public involvement program in Hermosa Beach is the Safe Routes to Schools Committee that meets for grant proposals and other pedestrian-related initiatives. Safe Routes to School programs encourage children to safely walk and bike to school. The City of Hermosa Beach does publish a map showing the safe routes to school (Valley Elementary School is located north of Pier Avenue on Valley Drive), which includes PCH, Pier Avenue, the length of Valley Drive including in front of the Project Site and the Proposed City Maintenance Yard. See Figure 4.13-4. The City has utilized Safe Routes to School funds to continue to improve the network.

Adjacent to the Project Site, pedestrian access is provided by sidewalks along the west side of Valley Drive and the south side of 6th Street. The adjacent Greenbelt also facilitates walking proximate to Valley Drive, although the unpaved surface is not conducive to biking, walking with strollers, skateboarding, etc. (See section 4.10, Land Use and Policy Consistency).

**4.13.3.2 Existing Levels of Service**

The degree of congestion at an intersection or along a roadway/freeway segment is described by the level of service, which ranges from LOS A to LOS F, with LOS A representing free-flow conditions with little delay and LOS F representing over-saturated traffic flow throughout the peak hour. Brief descriptions of the six levels of service for signalized intersections are shown below in Table 4.14-1. Brief descriptions of the levels of service for roadway/freeway segments are shown below in Table 4.14-2. Table 4.14-3 below provides detailed descriptions of each level of service.

**Table 4.14-1 Level of Service Definitions Signalized and Unsignalized Intersections**

Level of Service	V/C Ratio or ICU (Signalized)	Control Delay in Seconds (Signalized)	Control Delay in Seconds (Unsignalized)
A	0.60	0.0 – 10.0 seconds	0.0 – 10.0 seconds
B	0.61 – 0.70	10.1 – 20.0 seconds	10.1 – 15.0 seconds
C	0.71 – 0.80	20.1 – 35.0 seconds	15.1 – 25.0 seconds
D	0.81 – 0.90	35.1 – 55.0 seconds	25.1 – 35.0 seconds
E	0.91 – 1.00	55.1 – 80.0 seconds	35.1 – 50.0 seconds
F	1.01 or greater	80.1 seconds or greater	50.1 seconds or greater

Source: Arch Beach Consulting, 2012



**Table 4.14-2 Level of Service Definitions for Roadway/Freeway Segments**

Level of Service	Demand to Capacity Ratio	Congestion or Delay
A	<.34	Free Flow
B	0.35 – 0.52	Free to Stable Flow
C	0.53 – 0.69	Stable Flow
D	0.70 – 0.92	Approaches Unstable Flow
E	0.93 – 1.00	Extremely Unstable Flow
F (0)	1.01 – 1.25	Forced Flow
F (1)	1.26 – 1.35	Heavy Congestion
F (2)	1.36 – 1.45	Extremely Heavy Congestion
F (3)	>1.46	Gridlock

Source: Caltrans

**Table 4.14-3 Level of Service Descriptions**

Level of Service	Description
A	No approach phase is fully utilized by traffic, and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turns are made easily, and nearly all drivers find freedom of operation.
B	This service level represents stable operation, where an occasional approach phase is fully utilized and a substantial number are nearing full use. Many drivers begin to feel restricted within platoons of vehicles.
C	This level still represents stable operating conditions. Occasionally drivers may have to wait through more than one red signal indication, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.
D	This level encompasses a zone of increasing restriction approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak period; however, enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive backups.
E	Capacity occurs at the upper end of this service level. It represents the most vehicles that any particular intersection approach can accommodate. Full utilization of every signal cycle is seldom attained no matter how great the demand.
F	This level describes forced flow operations at low speeds, where volumes exceed capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially, and stoppages may occur for short or long periods of time due to the congestion. In the extreme case, both speed and volume can drop to zero.

Source: TRB 2000

Traffic counts were collected by the Applicant (and peer reviewed by the EIR consultant, see Appendix D) at the City of Hermosa Beach study locations in late-August 2012 which corresponds to the peak period of beach- and tourist-related traffic in the City. Additional traffic counts were collected on roadway segments in the City of Hermosa Beach in mid-July 2013 to specifically establish baseline truck traffic in the vicinity of the Project Site. Traffic counts were

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collected at the Cities of Redondo Beach and Torrance (inland) intersections and roadway segments in mid-September 2012 when local schools were in session.

All signalized study area intersections (in all three cities) were analyzed using the Intersection Capacity Utilization (ICU) methodology for weekday peak hour (7-9 a.m. and 4-6 p.m.) levels of service (LOS). The ICU method determines the volume-to-capacity (V/C) ratio on a critical lane basis and determines LOS associated with each critical V/C ratio at the signalized intersection. The unsignalized and Caltrans-controlled intersections (signalized and unsignalized) were also analyzed using the Highway Capacity Manual (HCM) "operations" methodology for weekday peak hour LOS. The HCM method determines the average control delay (in seconds per vehicle) and determines LOS associated with each delay value at the intersection.

Roadway/freeway segment conditions were determined by dividing traffic volumes by roadway/freeway design capacity to determine a volume to capacity ratio and LOS.

The existing ICU and LOS values of potentially impacted signalized and unsignalized intersections from the Applicant (and peer reviewed by the EIR consultant, see Appendix D) are summarized in Table 4.14-4 per the analysis requirements of the City of Hermosa Beach, Redondo Beach and Torrance. The existing HCM and LOS values of potentially impacted unsignalized intersections and CMP facilities are summarized in Table 4.14-5 per the analysis requirements of the Cities of Hermosa Beach, Redondo Beach and Torrance, and Caltrans.

Multiple intersections are currently operating at a low level of service (LOS F), including

1. PCH and Artesia
3. PCH and Aviation
7. PCH and Anita
23. Blossom Lane and Beryl St/190th St
26. Inglewood Ave/190th Street
27. Firmona Avenue/190th St
36. I-405 SB ramps/Crenshaw Blvd.
46. Aviation Blvd. /Artesia Blvd.
51. Aviation Blvd. /Grant Ave

For roadways, only the roadway Herondo/Anita between PCH and Prospect is operating at an LOS of F. As per criteria established by the various jurisdictions, a certain amount of traffic contribution from a project would be allowed, but limited, on these intersections and roadways (see section 4.13.5 below).

The existing traffic levels, design capacity of the roadway, and LOS values of potentially impacted roadway/freeway segments are summarized in Table 4.14-6. LOS is determined by the ratio of the traffic levels on a roadway divided by the design capacity of the roadways. Roadways that are carrying more traffic than they are designed to would have a "demand" to capacity ratio of greater than 1.0 and would therefore have an LOS of F.

Table 4.14-4 Existing Intersection Level of Service Summary (ICU – Signalized Intersections)

Intersection		Jurisdiction	Control	A.M. Peak Hours		P.M. Peak Hours	
				V/C or Delay	LOS	V/C or Delay	LOS
1.	PCH/ Artesia Boulevard	Caltrans/CMP	signal	<b>1.247</b>	<b>F</b>	<b>0.830</b>	<b>D</b>
2.	PCH/21st Street	Caltrans/Hermosa Beach	signal	0.720	C	0.672	B
3.	PCH/Aviation Boulevard	Caltrans/Hermosa Beach	signal	<b>1.124</b>	<b>F</b>	<b>1.104</b>	<b>F</b>
4.	PCH/8th Street	Caltrans/Hermosa Beach	signal	<b>0.846</b>	<b>D</b>	<b>0.819</b>	<b>D</b>
5.	PCH/5th Street	Caltrans/Hermosa Beach	signal	0.799	C	0.739	C
6.	PCH/2nd Street	Caltrans/Hermosa Beach	signal	0.748	C	0.771	C
7.	PCH/Herondo Ave-Anita St	Caltrans/Hermosa Beach	signal	<b>0.847</b>	<b>D</b>	<b>1.084</b>	<b>F</b>
8.	PCH/Pier Avenue-14th Street	Caltrans/Hermosa Beach	signal	0.655	B	0.767	C
9.	Prospect Avenue/Artesia Blvd.	Hermosa Beach	signal	0.571	A	0.677	B
10.	Prospect Ave/Aviation Blvd.	Hermosa Beach	signal	0.639	B	0.723	C
11.	Prospect Ave/Anita Street	Redondo Beach	signal	0.472	A	0.548	A
12.	PCH/16th Street	Caltrans/Hermosa Beach	signal	0.682	B	0.648	B
13.	Ocean Drive/Aviation Blvd.	Hermosa Beach	signal	0.400	A	0.454	A
14.	Valley Drive/Pier Avenue	Hermosa Beach	all-way stop	12.3 sec	B	20.1 sec	C
15.	Ardmore Avenue/Pier Avenue	Hermosa Beach	all-way stop	12.2 sec	B	17.1 sec	C
16.	Valley Drive/11th Street	Hermosa Beach	all-way stop	7.8 sec	A	9.2 sec	A
17.	Valley Drive/11th Place	Hermosa Beach		9.7 sec	A	11.1 sec	B
18.	Valley Drive/8th Street	Hermosa Beach	all-way stop	9.3 sec	A	11.9 sec	B
19.	Valley Drive/2nd Street	Hermosa Beach	all-way stop	8.7 sec	A	11.0 sec	B
20.	Valley Drive/6th Street	Hermosa Beach	all-way stop	7.9 sec	A	9.4 sec	A
21.	Valley Drive/Herondo Street	Hermosa Beach	all-way stop	11.0 sec	B	15.6 sec	C
22.	Flagler Ln/AnitaSt-190th St	Redondo Beach	all-way stop	<b>31.4 sec</b>	<b>D</b>	<b>29.9 sec</b>	<b>D</b>
23.	Blossom Lane-Beryl St/190th St	Redondo Beach	2-way stop	<b>130.0 sec</b>	<b>F</b>	<b>612.5 sec</b>	<b>F</b>
24.	Meyer Ln-Entradero Ave/190th St	Redondo Beach/Torrance	signal	<b>0.834</b>	<b>D</b>	0.679	B
25.	Anza Avenue/190th Street	Redondo Beach/Torrance	signal	<b>0.836</b>	<b>D</b>	0.733	C
26.	Inglewood Ave/190th Street	Redondo Beach/Torrance	signal	<b>1.101</b>	<b>F</b>	<b>1.187</b>	<b>F</b>
27.	Firmona Avenue/190th St	Redondo Beach/Torrance	2-way stop	<b>282.5 sec</b>	<b>F</b>	<b>182.5 sec</b>	<b>F</b>
28.	Hawthorne Blvd. /190th St	Redondo Beach/Torrance	signal	0.912	<b>E</b>	<b>0.912</b>	<b>E</b>

#### 4.13 Transportation and Traffic

**Table 4.14-4 Existing Intersection Level of Service Summary (ICU – Signalized Intersections)**

	Intersection	Jurisdiction	Control	A.M. Peak Hours		P.M. Peak Hours	
				V/C or Delay	LOS	V/C or Delay	LOS
29.	Prairie Avenue/190th St	Torrance	signal	0.871	<b>D</b>	<b>0.973</b>	<b>E</b>
30.	Crenshaw Blvd. /190th St	Torrance	signal	0.898	<b>D</b>	<b>0.871</b>	<b>D</b>
31.	Western Avenue/190th St	Caltrans/Torrance	signal	0.764	C	0.781	C
32.	I-405 NB ramps/Artesia Blvd.	Caltrans/CMP	signal	0.532	A	0.866	D
33.	I-405 SB ramps/Artesia Blvd.	Caltrans/CMP	1-way stop	11.0 sec	B	23.9 sec	C
34.	Prairie Avenue/Artesia Blvd.	Torrance	signal	0.948	<b>E</b>	<b>0.871</b>	<b>D</b>
35.	I-405 NB ramps/182nd St	Caltrans/Torrance	signal	0.688	B	<b>0.884</b>	<b>D</b>
36.	I-405 SB ramps/Crenshaw Blvd.	Caltrans/Torrance	signal	1.018	<b>F</b>	<b>0.812</b>	<b>D</b>
37.	Crenshaw Blvd. /182nd St	Torrance	signal	0.855	<b>D</b>	<b>0.925</b>	<b>E</b>
38.	Hermosa Ave-Harbor Dr/Herondo St	Redondo Beach	signal	0.487	A	0.470	A
39.	PCH/Catalina Ave	Caltrans/Redondo Beach	signal	0.818	<b>D</b>	<b>0.870</b>	<b>D</b>
40.	PCH/Irena Avenue	Caltrans/Redondo Beach	signal	0.672	B	0.785	C
41.	PCH/Beryl Street	Caltrans/Redondo Beach	signal	0.748	C	<b>0.878</b>	<b>D</b>
42.	Prospect Ave/Beryl Street	Redondo Beach	signal	0.512	A	0.588	A
43.	Harkness Lane/Beryl Street	Redondo Beach	all-way stop	9.8 sec	A	12.7 sec	B
44.	Flagler Lane/Beryl Street	Redondo Beach	all-way stop	11.0 sec	B	13.9 sec	B
45.	Ford Avenue/Artesia Boulevard	Redondo Beach	signal	0.648	B	0.63	B
46.	Aviation Blvd. /Artesia Blvd.	Redondo Beach	signal	<b>1.006</b>	<b>F</b>	<b>0.968</b>	<b>E</b>
47.	Inglewood Ave/ Artesia Blvd.	Redondo Beach	signal	<b>0.900</b>	<b>E</b>	<b>0.929</b>	<b>E</b>
48.	Kingsdale Ave/ Artesia Blvd.	Redondo Beach	signal	0.585	A	0.621	B
49.	Hawthorne Blvd. / Artesia Blvd.	Caltrans/Redondo Beach	signal	0.792	C	0.805	D
50.	Ford Ave/ Aviation Blvd.	Redondo Beach	signal	0.616	B	0.687	B
51.	Aviation Blvd. /Grant Ave	Redondo Beach	signal	<b>1.011</b>	<b>F</b>	<b>0.961</b>	<b>E</b>
52.	Hawthorne Blvd. /I-405 NB ramps	Caltrans/Redondo Beach	signal	0.594	A	0.602	B
53.	Hawthorne Blvd. /I-405 SB ramps	Caltrans/Redondo Beach	signal	0.710	C	0.685	B
54.	Hawthorne Blvd. / 162nd Street	Caltrans/Redondo Beach	signal	0.588	A	0.563	A
55.	Hawthorne Blvd. / 166th St	Caltrans/Redondo Beach	signal	0.724	C	0.592	A
56.	Hawthorne Blvd. / 169th St	Caltrans/Redondo Beach	signal	0.564	A	0.491	A

**Table 4.14-4 Existing Intersection Level of Service Summary (ICU – Signalized Intersections)**

Intersection	Jurisdiction	Control	A.M. Peak Hours		P.M. Peak Hours	
			V/C or Delay	LOS	V/C or Delay	LOS
57. Hawthorne Blvd. / Redondo Bch Blvd.	Caltrans/Redondo Beach	signal	0.753	C	0.697	B

Notes: Signalized intersections analyzed with the Intersection Capacity Utilization (ICU) methodology which provides LOS in terms of volume-to-capacity (V/C) ratios.

Un-signalized intersections analyzed with Highway Capacity Manual (HCM) methodology which provides LOS in terms of average control delay for entire intersection (for all-way stop control), or for critical movement (for 1- or 2-way stop control).

**BOLD** Indicates intersection is currently operating with unsatisfactory LOS (LOS D, E, or F in Hermosa Beach, Redondo Beach, Torrance and Caltrans/CMP intersections).

Updated information, Errata to Traffic Impact Analysis (TIA) and Addendum TIA for E&B Oil Development Project in the City of Hermosa Beach (2014b).

Source: Arch Beach Consulting, 2012, 2013b, 2014a, 2014b

#### 4.13 Transportation and Traffic

**Table 4.14-5 Existing Intersection Level of Service Summary (HCM – Caltrans and Torrance Intersection)**

	Intersection	Jurisdiction	Control	A.M. Peak Hours		P.M. Peak Hours	
				V/C or Delay	LOS	V/C or Delay	LOS
1.	PCH/ Artesia Boulevard	Caltrans/CMP	signal	<b>79.5 sec</b>	<b>E</b>	26.8 sec	C
2.	PCH/21 <sup>st</sup> Street	Caltrans/Hermosa Beach	signal	6.1 sec	A	4.2 sec	A
3.	PCH/Aviation Boulevard	Caltrans/Hermosa Beach	signal	<b>90.2 sec</b>	<b>F</b>	<b>91.2 sec</b>	<b>F</b>
4.	PCH/8 <sup>th</sup> Street	Caltrans/Hermosa Beach	signal	13.5 sec	B	12.4 sec	B
5.	PCH/5 <sup>th</sup> Street	Caltrans/Hermosa Beach	signal	11.3 sec	B	8.8 sec	A
6.	PCH/2 <sup>nd</sup> Street	Caltrans/Hermosa Beach	signal	7.9 sec	A	9.2 sec	A
7.	PCH/Herondo Ave-Anita St	Caltrans/Hermosa Beach	signal	23.5 sec	C	35.7 sec	D
8.	PCH/Pier Avenue-14 <sup>th</sup> Street	Caltrans/Hermosa Beach	signal	12.1 sec	B	16.8 sec	B
12.	PCH/16 <sup>th</sup> Street	Caltrans/Hermosa Beach	signal	7.2 sec	A	9.3 sec	A
24.	Meyer Ln-Entradero Ave/190 <sup>th</sup> St	Redondo Beach/Torrance	signal	18.1 sec	B	12.5 sec	B
25.	Anza Avenue/190 <sup>th</sup> Street	Redondo Beach/Torrance	signal	25.5 sec	C	21.5 sec	C
26.	Inglewood Ave/190 <sup>th</sup> Street	Redondo Beach/Torrance	signal	<b>58.2 sec</b>	<b>E</b>	<b>81.5 sec</b>	<b>F</b>
28.	Hawthorne Blvd. /190 <sup>th</sup> St	Redondo Beach/Torrance	signal	31.3 sec	C	32.1 sec	C
29.	Prairie Avenue/190 <sup>th</sup> St	Torrance	signal	34.0 sec	C	37.1 sec	D
30.	Crenshaw Blvd. /190 <sup>th</sup> St	Torrance	signal	33.5 sec	C	33.4 sec	C
31.	Western Avenue/190 <sup>th</sup> St	Caltrans/Torrance	signal	29.9 sec	C	29.8 sec	C
32.	I-405 NB ramps/Artesia Blvd.	Caltrans/CMP	signal	13.8 sec	B	23.9 sec	C
34.	Prairie Avenue/Artesia Blvd.	Torrance	signal	36.9 sec	D	32.7 sec	C
35.	I-405 NB ramps/182 <sup>nd</sup> St	Caltrans/Torrance	signal	17.8 sec	B	24.3 sec	C
36.	I-405 SB ramps/Crenshaw Blvd.	Caltrans/Torrance	signal	33.6 sec	C	20.8 sec	C
37.	Crenshaw Blvd. /182 <sup>nd</sup> St	Torrance	signal	29.5 sec	C	29.7 sec	C
38.	Hermosa Ave-Harbor Dr/Herondo St	Redondo Beach	signal	16.5	B	15.4 sec	B
39.	PCH/Catalina Ave	Caltrans/Redondo Beach	signal	13.6 sec	B	11.1 sec	B
40.	PCH/Irena Avenue	Caltrans/Redondo Beach	signal	4.3 sec	A	5.9 sec	A
41.	PCH/Beryl Street	Caltrans/Redondo Beach	signal	8.0 sec	A	12.5 sec	B
49.	Hawthorne Blvd. / Artesia Blvd.	Caltrans/Redondo Beach	signal	26.0 sec	C	28.6 sec	C
52.	Hawthorne Blvd. /I-405 NB ramps	Caltrans/Redondo Beach	signal	7.0 sec	A	16.7 sec	B

Table 4.14-5 Existing Intersection Level of Service Summary (HCM – Caltrans and Torrance Intersection)

	Intersection	Jurisdiction	Control	A.M. Peak Hours		P.M. Peak Hours	
				V/C or Delay	LOS	V/C or Delay	LOS
53.	Hawthorne Blvd. /I-405 SB ramps	Caltrans/Redondo Beach	signal	19.6 sec	B	17.6 sec	B
54.	Hawthorne Blvd. / 162nd Street	Caltrans/Redondo Beach	signal	19.1 sec	B	12.7 sec	B
55.	Hawthorne Blvd. / 166th St	Caltrans/Redondo Beach	signal	20.4 sec	C	14.1 sec	B
56.	Hawthorne Blvd. / 169th St	Caltrans/Redondo Beach	signal	6.8 sec	A	6.7 sec	A
57.	Hawthorne Blvd. / Redondo Bch Blvd.	Caltrans/Redondo Beach	signal	22.4 sec	C	24.6 sec	C

Notes: Caltrans and/or Torrance signalized intersections analyzed with the Highway Capacity Manual (HCM) methodology which provides LOS in terms of average control delay for entire intersection.

**BOLD** Indicates intersection is currently operating with unsatisfactory LOS (LOS E or LOS F).

Updated information, Errata to Traffic Impact Analysis (TIA) and Addendum TIA for E&B Oil Development Project in the City of Hermosa Beach (2014b).

Source: Arch Beach Consulting, 2012, 2013b, 2014a & 2014b

**4.13 Transportation and Traffic**

**Table 4.14-6 Existing Roadway/Freeway Segment Level of Service Summary**

	Roadway Segment	Time	Capacity	Existing Demand	Demand/Capacity Ratio	LOS
1	Pier Ave. from PCH to Valley Dr	a.m.	2,800	959	0.34	A
		p.m.	2,800	1,103	0.39	B
		daily	29,000	15,529	0.54	C
2	Valley Dr from Pier Ave. to 11 <sup>th</sup> St	a.m.	2,000	417	0.21	A
		p.m.	2,000	558	0.28	A
		daily	15,000	5,789	0.39	B
3	Valley from 11 <sup>th</sup> St to 8 <sup>th</sup> St	a.m.	2,000	388	0.19	A
		p.m.	2,000	523	0.26	A
		daily	15,000	5,346	0.36	B
4	Valley Dr from 8 <sup>th</sup> St to 2 <sup>nd</sup> St	a.m.	2,000	289	0.14	A
		p.m.	2,000	471	0.24	A
		daily	15,000	4,724	0.31	A
5	Valley Dr from 2 <sup>nd</sup> St to Herondo St	a.m.	2,000	252	0.13	A
		p.m.	2,000	408	0.20	A
		daily	15,000	3,631	0.24	A
6	Herondo St from Valley Dr to PCH	a.m.	1,680	918	0.55	C
		p.m.	1,680	988	0.59	C
		daily	13,000	12,544	0.96	E
7	6 <sup>th</sup> St from Valley Dr to Hermosa Ave	a.m.	200	72	0.36	B
		p.m.	200	73	0.37	B
		daily	2,500	806	0.32	A
8	Herondo St/Anita St from Valley Dr to PCH	a.m.	1,680	637	0.38	B
		p.m.	1,680	913	0.54	C
		daily	13,000	10,764	0.83	D
9	Herondo St/Anita St from PCH to Prospect Ave	a.m.	1,680	990	0.59	C
		p.m.	1,680	1,455	0.87	D
		daily	13,000	17,012	1.31	F(1)
10	Valley Dr from Pier Ave. to	a.m.	2,000	324	0.16	A
		p.m.	2,000	487	0.24	A

Table 4.14-6 Existing Roadway/Freeway Segment Level of Service Summary

	Roadway Segment	Time	Capacity	Existing Demand	Demand/Capacity Ratio	LOS
	6 <sup>th</sup> St	daily	15,000	4,709	0.31	A
11	Valley Dr from 6 <sup>th</sup> St to Herondo St	a.m.	2,000	265	0.13	A
		p.m.	2,000	448	0.22	A
		daily	15,000	4,021	0.27	A
12	Prospect Ave. from Artesia Blvd. to Aviation Blvd.	a.m.	2,000	334	0.17	A
		p.m.	2,000	555	0.28	A
		daily	15,000	4,788	0.32	A
13	Prospect Ave. from Aviation Blvd. to Anita St	a.m.	2,000	750	0.38	B
		p.m.	2,000	859	0.43	B
		daily	15,000	9,165	0.61	C
14	Aviation Blvd. from PCH to Artesia Blvd.	a.m.	2,800	1,815	0.65	C
		p.m.	2,800	2,022	0.72	D
		daily	29,000	28,049	0.97	E
15	N Lucia Ave. from Agate St to Anita St	a.m.	1,000	44	0.04	A
		p.m.	1,000	56	0.06	A
		daily	5,000	451	0.09	A
16	N Maria Ave. from Beryl St to Anita St	a.m.	1,000	53	0.05	A
		p.m.	1,000	48	0.05	A
		daily	5,000	606	0.12	A
17	N Paulina Ave. from Beryl St to Anita St	a.m.	1,000	63	0.06	A
		p.m.	1,000	58	0.06	A
		daily	5,000	629	0.13	A
18	N Prospect Ave. from Beryl St to Anita St	a.m.	3,600	908	0.25	A
		p.m.	3,600	1,032	0.29	A
		daily	30,000	10,763	0.36	B
19	N Prospect Ave. from Anita St to North RB City Limits	a.m.	3,600	652	0.18	A
		p.m.	3,600	949	0.26	A
		daily	30,000	9,519	0.32	A
20	Harkness Lane from	a.m.	1,000	166	0.17	A

**4.13 Transportation and Traffic**

**Table 4.14-6 Existing Roadway/Freeway Segment Level of Service Summary**

	Roadway Segment	Time	Capacity	Existing Demand	Demand/Capacity Ratio	LOS
	Agate St to Anita St	p.m.	1,000	240	0.24	A
		daily	5,000	2,562	0.51	B
21	Harkness Lane from Anita St to Ripley Ave	a.m.	1,000	176	0.18	A
		p.m.	1,000	261	0.26	A
		daily	5,000	2,467	0.49	B
22	Flagler Lane from Beryl St to 190 <sup>th</sup> St	a.m.	1,000	259	0.26	A
		p.m.	1,000	339	0.34	A
		daily	5,000	3,391	0.68	C
23	Beryl St from Flagler Lane to 190 <sup>th</sup> St	a.m.	3,600	676	0.19	A
		p.m.	3,600	699	0.19	A
		daily	30,000	8,889	0.30	A
24	Blossom Lane from 190 <sup>th</sup> St to Havemeyer Lane	a.m.	1,000	55	0.06	A
		p.m.	1,000	63	0.06	A
		daily	5,000	736	0.15	A
25	Anita St from Prospect Ave. to Flagler Lane	a.m.	4,800	1,466	0.31	A
		p.m.	4,800	1,508	0.31	A
		daily	50,000	18,417	0.37	B
26	190 <sup>th</sup> St from Flagler Lane to Blossom Lane-N Beryl St	a.m.	4,800	1,594	0.33	A
		p.m.	4,800	1,549	0.32	A
		daily	50,000	20,051	0.40	B
27	190 <sup>th</sup> St from Meyer Lane-Entradero Ave. to Anza Ave	a.m.	4,800	2,479	0.52	B
		p.m.	4,800	2,543	0.53	C
		daily	50,000	31,561	0.63	C
28	190 <sup>th</sup> St from Blossom Land-N Beryl St to Meyer Lane-Entradero Ave	a.m.	4,800	2,759	0.57	C
		p.m.	4,800	2,562	0.53	C
		daily	50,000	33,598	0.67	C
29	190 <sup>th</sup> St from Anza Ave. to Inglewood Ave	a.m.	4,800	3,008	0.63	C
		p.m.	4,800	2,930	0.61	C
		daily	50,000	38,946	0.78	D

Table 4.14-6 Existing Roadway/Freeway Segment Level of Service Summary

	Roadway Segment	Time	Capacity	Existing Demand	Demand/Capacity Ratio	LOS
30	190 <sup>th</sup> St from Inglewood Ave. to Firmona Ave	a.m.	4,800	2,302	0.48	B
		p.m.	4,800	2,226	0.46	B
		daily	50,000	29,756	0.60	C
31	190 <sup>th</sup> St from Firmona Ave. to Hawthorne Blvd. (SR 107)	a.m.	4,800	2,433	0.51	B
		p.m.	4,800	2,375	0.49	B
		daily	50,000	30,551	0.61	C
32	190 <sup>th</sup> St from Hawthorne Blvd. (SR 107) to Prairie Ave	a.m.	4,800	2,300	0.48	B
		p.m.	4,800	2,386	0.50	B
		daily	50,000	30,460	0.61	C
33	190 <sup>th</sup> St from Prairie Ave. to Crenshaw Blvd.	a.m.	4,800	3,215	0.67	C
		p.m.	4,800	3,280	0.68	C
		daily	50,000	41,171	0.82	D
34	Prairie Ave. from 182 <sup>nd</sup> St to 190 <sup>th</sup> St	a.m.	4,800	2,663	0.55	C
		p.m.	4,800	2,929	0.61	C
		daily	50,000	36,382	0.73	D
35	Crenshaw Blvd. from I-405 to 190 <sup>th</sup> St	a.m.	4,800	3,647	0.76	D
		p.m.	4,800	3,929	0.82	D
		daily	50,000	52,317	1.05	F(0)
36	190 <sup>th</sup> St from Crenshaw Ave. to Van Ness Ave	a.m.	4,800	2,910	0.61	C
		p.m.	4,800	2,996	0.62	C
		daily	50,000	33,226	0.66	C
37	190 <sup>th</sup> St from Van Ness Ave. to Western Ave	a.m.	4,800	2,859	0.60	C
		p.m.	4,800	3,007	0.63	C
		daily	50,000	36,474	0.73	D
38	I 405 to Crenshaw Blvd. I-405 to Artesia Blvd.	Pk Hr	19,200	16,900	0.88	D
		Pk Hr	19,200	16,400	0.85	D

Source: Existing demand from Arch Beach Consulting (2012) and Arch Beach Consulting (2013a). Capacities from City of Hermosa Beach Circulation Element, HCM, American Association of State Highway and Transportation Guidelines, and approximate design volumes.

### 4.13.4 Regulatory Setting

#### 4.13.4.1 State

##### California Department of Transportation

The California Department of Transportation (Caltrans) manages interregional transportation, including the management and construction of the California highway system. In addition, Caltrans is responsible for the permitting and relocation of state roadways. The Proposed Project study area includes four roadways/highways that fall under Caltrans' jurisdiction within a portion of all of the Project study area (Interstate 405, Pacific Coast Highway, Hawthorne Boulevard, and Artesia Boulevard). Caltrans establishes performance standards that apply to specific routes and publishes those standards in transportation concept reports. Performance standards in transportation concept reports are often expressed as level of service (LOS) standards. LOS standards are established based on current operating conditions, surrounding land uses, local policies, and current plans for improvement on the facility. LOS takes into account speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort, convenience, and operation costs. LOS is typically described from Levels A through F (see Table 4.14-3).

Caltrans also regulates vehicles under the California Vehicle Code, including limits on vehicle width (108 inches for standard trucks/vehicles or 120 inches for special construction equipment, not including lights or mirrors, as per CVC 35000-35111) and vehicle length (65-75 feet, CVC 35400).

#### 4.13.4.2 Regional/Local

##### City of Hermosa Beach General Plan

The City of Hermosa Beach General Plan Circulation, Transportation and Parking Element (March 1990) has the following circulation goals and policies.

###### *Objective 1.0*

Maximize the use of alternative transportation modes and multi-passenger vehicles for transportation within and through the City and decrease reliance on single passenger automobiles.

###### *Implementation Policy 1.2*

Maximize the use and availability of public transit service within the City by residents and visitors.

###### *Objective 2.0*

Protect the environment on local residential streets by minimizing the intrusion of vehicular traffic and parking into residential neighborhoods.

*Implementation Policy 2.0*

Make reasonable efforts to maintain volumes below 2,500 vehicles per day on local residential streets, wherever possible.

*Implementation Policy 2.3*

Locate new developments and their access points in such a way that traffic is not encouraged to utilize local residential streets and alleys for access to the development and its parking.

*Objective 3.0*

Ensure an adequate supply of parking, both on-street and off-street, to meet the needs of both residents and commercial businesses.

*Implementation Policy 3.2*

Continue implementation of preferential parking districts in residential neighborhoods when requested by residents and shown to be warranted by existing conditions.

*Implementation Policy 3.3*

Encourage the most efficient use of parking facilities. Where applicable, existing development should consider provisions for compact spaces, tandem parking valet service, shared parking and other innovative means to resolve parking deficiency.

*Implementation Policy 3.4*

Remodel existing public parking lots and street spaces as necessary to improve efficiency, safety and urban design.

*Implementation Policy 3.6*

Require all new development to accommodate project-generated parking consistent with encouraging alternative transportation demand management programs.

The General Plan includes a minimum level of service policy of LOS C at signalized intersections. The City requires the use of the ICU method to analyze signalized intersections, and the HCM method for unsignalized intersections.

The General Plan Circulation, Transportation, and Parking Element contain a map outlining the existing bicycle facilities, as well as key bicycle traffic generating locations, such as the Pier. This map was superseded by the South Bay Bicycle Master Plan (Alta 2011) adopted by the City.

To implement the overall goal of providing a safe, efficient, and balanced transportation system, the Element outlines the following objectives and policies:

- Maximize the use of alternative transportation modes
- Encourage bicycle travel city-wide
- Provide for the transport of bicycles on public transit vehicles wherever possible

#### **4.13 Transportation and Traffic**

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- Maintain the surfaces of bike paths to maximize safety and ease of travel
- Require new developments to accommodate parking consistent with TDM programs

The General Plan Safety Element also states that it is an implementation policy to "maintain adequate emergency access in new subdivisions, cul-de-sacs, and street closures."

#### **Coastal Land Use Plan**

The City of Hermosa Beach Local Coastal Plan (1981), a part of the Coastal Land Use Plan, addresses parking (with the LUP Amendment 6 and 03-02) with the goals of 1) To provide adequate residential parking; 2) To maintain adequate parking space for both visitor and shoppers; 3) To provide easy access to work-related parking for merchants; 4) To maximize the safety and accessibility of parking while minimizing noise, traffic congestion and negative visual impacts; 5) To provide an equitable distribution and allocation of parking resources; and 6) To recognize the unique parking needs of the pedestrian oriented downtown business area.

Specific policies include, amongst others, the following:

- The City should not allow the elimination of existing on-street parking or off-street parking spaces within the coastal zone;
- The City should control congestion through the granting of parking permits;
- The City has enacted a permit plan to control parking congestion; and
- A separation of long-term (beach user) and short-term (shoppers) parking be created in the downtown area to provide adequate and flexible number of parking spaces for commercial demand.

A number of programs have been implemented by the City of Hermosa Beach to address these policies.

A future policy defined in the Plan is that "the City should investigate the possibility of lease or purchase of parking lots dispersed throughout the city so as to minimize the impact on the parking demand to the City and its residents".

#### **City of Hermosa Beach Preferential Parking Program**

The City's Preferential Parking Program allows residents who live or work within an impacted area due to coastal parking demands to obtain parking permits to park at any Yellow Posted Meter without paying the meter or in One-Hour Zones without regard to one-hour limit. In exchange, Coastal Development Permit 5-84-236, as amended, requires the City to maintain 1,100 metered spaces within two blocks of the beach (Yellow Meters) short-term (6 hour) public parking, 440 public 2-3 hour metered commercial spaces on streets and in public parking lots, and 396 free remote long-term (6 to 12 hour) public parking spaces within 8 blocks walking distance of the beach on city streets and city owned parking lots during the hours of enforcement of the preferential residential parking (10 a.m. to 10 p.m.). Of these, 396 spaces must be available on weekends and holidays at specified locations (Clark Building parking lots-51 spaces, Greenbelt-78 located across from Clark Building and Fields, City Hall front lot-29 spaces, City Hall self-storage lot-32 spaces, Community Center-107 spaces, Ardmore & Pier Ave.-34 spaces, Valley Park-35 spaces, Valley Drive-west side-15 spaces, City Maintenance

Yard-15 spaces); and 320 spaces must be available during weekdays (Clark Building parking lots-51 spaces, Greenbelt-78 located across from Clark Building and Fields, Community Center-107 spaces, Ardmore & Pier Ave.-34 spaces, Valley Park-35 spaces, Valley Drive-west side-15 spaces). The CDP has been amended from time to time in connection with various city improvement projects.

### **South Bay Bicycle Master Plan**

The South Bay Bicycle Master Plan (Alta 2011) was developed to guide the development and maintenance of a comprehensive bicycle network throughout the Cities of El Segundo, Gardena, Hermosa Beach, Lawndale, Manhattan Beach, Redondo Beach, and Torrance for the next 20 years and has been adopted by the city councils of these cities. The plan provides a set of areawide and city-specific programs and policies and complies with Caltrans Bicycle Transportation Account requirements to facilitate funding opportunities. The existing and planned bicycle network for Hermosa Beach is shown in Figure 4.13-3. This includes the existing bicycle paths along the beach and along Hermosa Avenue, as well as planned bicycle paths along Valley Drive, which would pass by the Project Site and the Proposed City Maintenance Yard. According to the South Bay Bicycle Master Plan, the City of Hermosa Beach has 1.8 miles of Class I bike path (being the Strand along the beach only), 0.5 miles of Class II bike paths and 2.8 miles of Class III bike paths for a total of 5.1 miles within the City.

The South Bay Bicycle Master Plan provides a map that displays existing and proposed bicycle facilities. Existing facilities include two bicycle routes in the City of Hermosa Beach. Those routes are along the Strand from the southerly City boundary to 24th Street connecting to the route on Hermosa Avenue from 24th Street to the north City boundary. The Strand is largely recreational as it is shared with pedestrians and roller-skaters. At various times due to high traffic volumes and the wide variety of users this is not a truly viable connector. The Strand bike route connects to a bike path to the north in Manhattan Beach. The Strand path is a designated bike route in Manhattan Beach which continues north along the beach into the cities of El Segundo, Los Angeles, and Santa Monica. To the south the Strand continues into Redondo Beach and connects to a designated bike route in Redondo Beach along Harbor Drive. Proposed Class II bike lanes are on Artesia Boulevard from Ardmore Avenue to Prospect Avenue and Herondo Street from Hermosa Avenue to the southern City limits. Proposed shared roadways (sharrows) are on Hermosa Avenue, 22nd Street, Monterey Boulevard, Valley Drive, Ardmore Avenue, Pier Avenue, and Prospect Avenue. To date, sharrows on Hermosa Avenue have been implemented.

### **City of Hermosa Beach Municipal Code**

The Municipal Code provides regulations and standards governing traffic, parking and loading, encroachments on the public right-of-way, and development generally. Minimum parking requirements are generally based on the gross square footage of the buildings, buildings, or other factors as specified as defined in the Zoning Code (Chapter 17.44) development. Parking requirements for the Proposed Project set forth in Section 17.44.030(I)(1) requires off-street comprised of one space for each vehicle used in conjunction with the use; plus one space for each three hundred (300) square feet of gross floor area.

#### **4.13 Transportation and Traffic**

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The code lacks universal bicycle parking requirements for new and existing development. The Specific Plan Area No. 11 zone (Pier Avenue from between Palm Drive and Palm Drive to Valley Drive) has a separate bicycle parking requirement in which minimum requirements can be based on either square footage or number of employees and shall be in the form of bike rack, fully enclosed spaces or lockers or other secure parking. The Specific Plan Area No. 11 Zone also provides for an in lieu fee when it is not practical to place bike racks on the property. The Municipal Code provides that vehicle parking for any development may be reduced with a Parking Plan approved by the planning commission based on various factors including bicycle and foot traffic. Bicycle parking is reviewed during the planning process by the planner. The code does not provide any other form of guidance.

Trip Reduction and Transportation Management in Chapter 17.48 of the City of Hermosa Beach Municipal Code implements the Los Angeles Congestion Management Program and requires that, prior to approval of any development project, the applicant shall make provision for, as a minimum, a number of applicable transportation demand management and trip reduction measures related to ridesharing information, public transit options, bicycle route information, the installation of preferential carpool/vanpool parking, sidewalk requirements, and bus stop requirements.

#### **City of Hermosa Beach Sustainability Plan**

Section 3 of the City of Hermosa Beach Sustainability Plan addresses transportation through policies and infrastructure improvements that encouraging bicycling and walking, including traffic calming, enhancing bicycle route connectors, making 4-lane roads into 2-lane roads with bike routes, expanding sharrows facilities, and securing bicycle storage facilities.

#### **Beach Cities Livability Plan**

The Beach Cities Livability Plan (WLCI 2011), fostered by the Healthways Blue Zones (Vitality City) Initiative focuses on how to improve livability and well-being in Hermosa Beach, Manhattan Beach and Redondo Beach through land-use and transportation systems that better support active living and was adopted by each City. This report developed recommendations, including (1) to develop a regional pedestrian master plan, (2) to adopt and implement the South Bay Bicycle Master Plan, (3) to improve and enhance Safe Routes to School programs and (4) to restripe Valley and Ardmore including converting each street to one-way (as exists in Manhattan Beach) with Class III bike route on the street. The report found that:

... along each side of the Greenbelt through Hermosa Beach and Manhattan Beach, these two streets would be ideal for both walking and bicycling if vehicle speeds were kept reasonable and if many of the stop controls were removed. Constant starting and stopping along this corridor makes drivers want to speed between stops. It also makes bicycling inefficient and uncomfortable. In fact, during the [reports] site visits, a radar gun found cars traveling at 35 mph, which is unacceptable on these narrow residential streets.

The report also stated that "These changes would help to calm traffic and make it easier and safer to park and un-park, to get in and out of driveways, and to make entries from side roads."

**City of Hermosa Beach Living Streets Policy**

One of the measures on the Beach Cities Livability Plan (through the Blue Zones Community Policy Pledge scorecard program) is to adopt Complete Streets principles. The Council adopted in 2013 a 'living streets' policy that incorporates complete streets plus sustainability principles, and promotes the health and mobility of all Hermosa Beach citizens and visitors by providing high quality pedestrian, bicycling, and transit access to destinations throughout the City. The policy provides a checklist of issues to consider and procedures to evaluate street projects through a comprehensive 'sustainability' lens. It ensures that the various segments of the community are considered when determining how to use and improve the public right-of-way.

**City of Redondo Beach General Plan**

The City of Redondo Beach General Plan Circulation Element (November 2009) has a minimum level of service policy of LOS D for intersections in the City. The City requires the use of the ICU method to analyze signalized intersections, and the HCM method for unsignalized intersections. The Redondo Beach Municipal Code prohibits commercial vehicles weighing 20,000 pounds or more from operating on 190th Street between Anza Avenue and PCH (Redondo Beach Municipal Code Section 3-7.902(b)) due to the presence of a steep grade.

**City of Torrance General Plan**

The City of Torrance General Plan Circulation Element (April 2010) also has a minimum level of service policy of LOS D for intersections in the City. The City requires the use of both the ICU and HCM methods to analyze signalized intersections, and the HCM method for unsignalized intersections.

**City of Manhattan Beach General Plan**

The City of Manhattan Beach General Plan Infrastructure Element provides information on the LOS at various intersections in the City. The City requires the use of the ICU method to analyze signalized intersections.

**Los Angeles County Congestion Management Program**

The nearest Los Angeles County Congestion Management Program (CMP 2010) and Caltrans facilities in the vicinity of the Project Site are:

- Artesia Boulevard at 1.1 miles to the north.
- Pacific Coast Highway (PCH) – State Route 1 (SR 1) at 0.2 miles to the east.
- Hawthorne Boulevard – State Route 107 (SR 107) at 2.7 miles to the east.
- Interstate 405 (I-405) at 4.6 miles to the east.

Per the Guidelines for CMP Transportation Impact Analysis, which is Appendix B of the CMP, “a CMP-level traffic analysis shall address all CMP arterial monitoring intersections where the Proposed Project would add 50 or more trips during the weekday peak hour and any mainline freeway monitoring locations where the project would add 150 or more trips in either direction during the peak hour”. Based on the trip generation, distribution, and assignment of construction and operational project trips (see below), the Proposed Project would generate less than 50 peak

## **4.13 Transportation and Traffic**

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hour trips on a CMP roadway facility; and, less than 150 trips to a CMP freeway facility. Therefore, a CMP level traffic analysis is not required.

### **4.13.5 Significance Criteria**

Criteria used to determine significance are listed below for each of the jurisdictions that the Proposed Project routes pass through.

#### **4.13.5.1 City of Hermosa Beach**

The City of Hermosa Beach General Plan Circulation, Transportation and Parking Element (March 1990) has a minimum level of service policy of LOS C at signalized intersections. The City requires the use of the ICU method to analyze signalized intersections, and the HCM method for unsignalized intersections. An LOS C has been assumed as the minimum LOS for intersections (signalized and unsignalized). The Proposed Project would create a significant impact at an intersection under the sole jurisdiction of the City of Hermosa Beach if it causes the intersection to degrade to LOS D, E, or F from LOS C or better, or would increase the volume-to-capacity ratio by 0.010 to an intersection that is already operating at LOS D, E or F.

#### **4.13.5.2 City of Redondo Beach**

The City of Redondo Beach General Plan Circulation Element (November 2009) has a minimum level of service policy of LOS D for intersections in the City. The City requires the use of the ICU method to analyze signalized intersections, and the HCM method for unsignalized intersections. The Proposed Project would create a significant impact at an intersection under the sole jurisdiction of the City of Redondo Beach if it causes the intersection to degrade to LOS E or F from LOS D or better, or would increase the volume to capacity by 0.040 to an intersection that is already operating at LOS C, 0.020 to an intersection that is already operating at LOS D or 0.010 to an intersection that is already operating at LOS E or F.

#### **4.13.5.3 City of Torrance**

The City of Torrance General Plan Circulation Element (April 2010) also has a minimum level of service policy of LOS D for intersections in the City. The City requires the use of both the ICU and HCM methods to analyze signalized intersections, and the HCM method for unsignalized intersections. The Proposed Project would create a significant impact at an intersection if it causes the intersection to degrade to LOS E or F from LOS D or better, or would increase the volume to capacity by 0.010 to an intersection that is already operating at LOS E or F.

#### **4.13.5.4 Caltrans and Los Angeles County Congestion Management Program**

For intersections under the primary planning jurisdiction of Caltrans (CMP intersections), a significant impact occurs when the Proposed Project increases traffic demand on a CMP facility

by two percent of capacity ( $V/C \geq 0.02$ ), 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 ( $V/C \geq 0.02$ ).

#### **4.13.5.5 Roadway/Freeway Segments**

The Cities of Hermosa Beach, Redondo Beach, and Torrance have not identified significant impact criteria for roadway segments. As such, the significance criteria identified in the Los Angeles County CMP for CMP intersections and freeway segments have been adopted for use in this analysis to determine potential impacts to roadway and freeway segments. The CMP identifies a significant impact as an increase by two percent of capacity ( $V/C \geq 0.02$ ), causing LOS F ( $V/C > 1.00$ ). If the segment is already at LOS F, a significant impact occurs when the Proposed Project increases traffic demand on a roadway/freeway segment by two percent of capacity ( $V/C \geq 0.02$ ).

The Proposed Project would create a significant impact if it would:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit (listed above for area jurisdictions);
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access;
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

CEQA Guidelines Appendix G items related to a change in air traffic patterns would not be applicable.

#### **4.13.6 Proposed Oil Project Impacts and Mitigation Measures**

##### **4.13.6.1 Transportation/Traffic Design Features, Operational Practices, and 1993 Conditions of Approval**

The following summarizes the Proposed Oil Project's design features, operational practices, and 1993 Conditional use Permit conditions that relate to transportation and traffic.

##### **Phase 1 and Subsequent Phases as Applicable**

###### *Design Features and Operational Practices*

During Phase 1 of the Proposed Oil Project, there would be demolition and construction activities resulting in various vehicles traveling to and from the Project Site. Phase 1 demolition and construction activities at the Project Site would include the following design features and operational practices to address transportation and traffic:

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- The Proposed Oil Project would include the construction of improvements to the intersection of 6th Street/Valley Drive to provide the necessary turning radius for the Project-related trucks turning southbound on Valley Drive from 6th Street. These improvements would result in: the removal of a portion of the landscaped area and entry driveway to the Beach City Self-Storage Facility; redesign of the sidewalk on the southwest corner of the intersection; relocation of the stop sign and striping for the northbound lanes on Valley Drive to address the redesign of the southwest corner; removal of a utility pole and underground the utilities on the southwest corner of the intersection; removal of a utility pole and underground the utilities on 6th Street; and the removal of two on-street parking spaces on 6th Street which are part of the City's coastal Preferential Parking Program. As a part of the intersection improvements, the stop sign and striping for the southbound lanes on Valley Drive would be relocated to allow for adequate line of sight with the addition of the perimeter fencing on the Project Site. In addition, the curb on the northwest corner along 6th Street adjacent to the Project Site would be temporarily provided as a rolled asphalt curb for Phases 1 and 2.
  
- The Proposed Oil Project would include implementation of a City-approved Phase 1 Pedestrian Protection Plan that provides specific pedestrian protection measures during the following demolition and construction activities:
  - During the first five weeks, when the undergrounding of the existing overhead utilities along Valley Drive and at the intersection of 6th Street and Valley Drive would result in the closure of the sidewalks along Valley Drive and at the intersection of 6th Street and Valley Drive.
  - Between weeks 5 and 8, when the construction of the redesigned intersection at the intersection of 6th Street and Valley Drive would result in the closure of the sidewalks on 6th Street and Valley Drive immediately adjacent to the southwest corner of the intersection.
  - Between weeks 9 and 11, when the installation of electrical service from 8th Street and the Project entrance would result in the closure of the sidewalk along Valley Drive.
  - Between weeks 26 and 27, when the installation of the temporary landscaping would result in some closures of the sidewalk along Valley Drive.

#### *1993 Conditional Use Permit Conditions (CUP) of Approval*

The 1993 CUP includes the following conditions of approval:

- Parking shall be provided on the site consistent with the submitted parking plan to provide adequate parking facilities for all workers involved in oil recovery operations, including exploratory and production phases. (Section 2. Land Use Development, Condition 9).
- All truck deliveries shall be limited to daylight hours (9 a.m. – 3 p.m.), Monday through Friday, except for an emergency situation, as defined by this CUP and reported to the City in accordance with the notification requirement, which have been reported to the Director of Public Works in advance of the delivery (Section 6. Vehicle Traffic and Circulation On and Off Site, Condition 1).

- Equipment deliveries shall be made only during daytime hours between 9 a.m. and 3 p.m. (Section 6. Vehicle Traffic and Circulation On and Off Site, Condition 3).
- Project related truck travel shall be restricted to specific truck routes and access points as approved by the Public Works Department (Section 6. Vehicle Traffic and Circulation On and Off Site, Condition 4).
- Signs shall be installed to direct detour traffic as approved by the Public Works Director. (Section 6. Vehicle Traffic and Circulation On and Off Site, Condition 5).
- The number of truck trips shall be limited to a maximum of 18 rounds trips per day, except in an emergency, as defined by this CUP and reported to the City in accordance with the notification requirement (Section 6. Vehicle Traffic and Circulation On and Off Site, Condition 6).
- Maintenance Yard site (Project Site) access shall be designed to enable trucks to turn into the site without inhibiting traffic movement on Valley Drive or 6th Street (Section 6. Vehicle Traffic and Circulation On and Off Site, Condition 7).
- Minor curb radii reconstruction shall be done by the operator as determined by the City Public Works depending on the length and necessary turning radii for project related trucks (Section 6. Vehicle Traffic and Circulation On and Off Site, Condition 8).
- An evaluation of the structural condition of the existing pavement shall be performed by a soils engineer on all access streets and the proposed truck routes prior to commencing any site preparation or construction and prior to the issuance of any necessary permits. The evaluation shall include as a minimum:
  - The number, type, size, and weight of trucks for export of materials or product;
  - The number, type, size and weight of truck deliveries of building supplies, drilling supplies, etc.;
  - The number, type, size and weight of equipment transported to the site;
  - Other associated transportation items; and
  - Other anticipated loading.
- The evaluation shall contain recommendations as to actions required to maintain said streets and routes in their current condition throughout the planned development phase, planned production phase, and in the close out phase. (Section 6. Vehicle Traffic and Circulation On and Off Site, Condition 11).
- The operator shall perform the actions on the existing pavement as recommended by the soils or highway engineer, the operator will hire a licensed contractor and provide street profiles, drawings, and engineering to the satisfaction of the Public Works Department prior to work commencing (Section 6. Vehicle Traffic and Circulation On and Off Site, Condition 12).
- The City Council may restrict the use of certain streets, alleys, or roadways in connection with the permittee's operations. In the event any street, alley, or roadway is damaged by the permittee's operations, such damages shall be paid for by the permittee upon demand by the City, and the failure to pay such damages, being the reasonable cost of the repair of any such damaged portions, shall be grounds for the revocation of the permit and the collection of such damages (Section 6. Vehicle Traffic and Circulation On and Off Site, Condition 13).

### Phase 2 and Phase 4

#### *Design Features and Operational Practices*

During Phase 2 of the Proposed Oil Project, four wells would be drilled utilizing an electric drill rig and temporary production equipment would be used to process the extracted oil, gas, and water. The processed oil would be removed from the Project Site by truck and delivered to an offsite location for sale. Phase 2 of the Proposed Oil Project has been designed to incorporate the following design features and operational practices to address transportation and traffic during drilling activities and temporary production:

- The electric automated drill rig, with an approximately 87-foot high rig mast, and its associated equipment would be brought to the Project Site on large trucks with trailers permitted by the City and the California Highway Patrol. The permitted loads would be assisted by signage, flagmen, and other traffic control measures as required by the City.
- The temporary and permanent production equipment would be brought to the Project Site by large trucks with trailers. If determined by the Applicant to be needed, signage, flagmen, and other traffic control measures would be provided to assist vehicles entering the Project Site.
- A trucking safety program would be implemented to address potential trucking risks associated with the transport of the processed oil to an offsite location for sale. The trucking safety program measures would include the following:
  - Pre-employment driver screening program;
  - Random drug and alcohol testing of drivers;
  - Use of fully certified drivers;
  - Notification of traffic violations;
  - Regular and event-related vehicle inspections and maintenance; and
  - Onboard safety systems consisting of:
    - Onboard brake stroke monitoring systems;
    - Collision mitigation and threat warning systems;
    - Lane departure warning systems;
    - Rear and side collision detection and warning systems;
    - Vehicle stability systems;
    - Tire pressure monitoring systems;
    - Wireless mobile communications;
    - GPS tracking and data monitoring; and
    - Auditing.

### Additional Features for Phase 3 and Phase 4

#### *Design Features and Operational Practices*

During Phase 3 of the Proposed Oil Project, there would be construction activities resulting in various vehicles traveling to and from the Project Site, including trucks used in the export of soil during the implementation of the remedial action plan for the Proposed Oil Project. In addition, there would be construction activities associated with the installation of offsite Pipelines resulting in short-term road closures in the Cities of Hermosa Beach, Redondo Beach, and

Torrance. Phase 3 construction activities would include the following design features and operational practices to address transportation and traffic:

- The Proposed Oil Project would construct street improvements along the frontage of the Project Site on Valley Drive and 6th Street. The improvements would include the installation of new curbs, gutters, and sidewalks.
- The Proposed Oil Project would include implementation of a City-approved Phase 3 Pedestrian Protection Plan that provides specific pedestrian protection measures during the following construction activities:
  - During the first days during week 5, when the removal of three mature trees would result in the periodic closure of the sidewalk along Valley Drive.
  - Between weeks 6 and 13, during the implementation of the Remedial Action Plan, when there would be periodic disruption of the sidewalk along Valley Drive.
  - Between weeks 58 and 59, when the construction of street improvements (new curb, gutter, and sidewalk along 6th Street and Valley Drive would result in the closure of the sidewalk along Valley Drive.
  - Between weeks 60 and 61, when the installation of the permanent landscaping would result in the closure of the sidewalk along Valley Drive.

*1993 Conditional Use Permit Conditions (CUP) of Approval*

The construction activities associated with the Project Site that would occur in Phase 3 of the Proposed Oil Project would comply with the following conditions of approval:

- Area residents shall be notified of Pipeline construction prior to commencement. Signs shall be installed to direct detour traffic (Section 6. Vehicle Traffic and Circulation On and Off Site, Condition 9)
- Areas of construction and maintenance activities [for the Pipeline construction] shall be delineated by signs, flagmen, pavement markings, barricades, and lights, as determined by permit requirements of all local agencies (Section 13. Pipeline Construction, Condition 4).
- Where pedestrian activities are affected during [Pipeline] construction, appropriate warning signs shall be installed and pedestrians will be diverted. Pedestrian access to business and residences will be maintained during construction. Special facilities, such as handrails, fences, and walkways shall be provided, if necessary, for the safety of pedestrians (Section 13. Pipeline Construction, Condition 5).
- Obstruction of emergency vehicle operations will be partially mitigated by ensuring that providers of emergency services are kept informed of the location, nature, and duration of [Pipeline] construction activities so alternate routes can be chosen. It is essential that fire department access is maintained to all buildings adjacent to construction activities. For this reason, a minimum of at least one lane for streets undergoing construction will be kept open at all times, and fire hydrants in construction areas will remain accessible (Section 13. Pipeline Construction, Condition 6).
- If public transit stops along Pipeline routes need to be temporarily relocated during construction, the applicant shall coordinate with the appropriate local operators to provide signs directing riders to the temporary stop locations (Section 13. Pipeline Construction, Condition 7).

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- When hauling excavated and waste materials from construction sites, substandard roadways will be avoided and local jurisdiction regulations governing hauling vehicles will be adhered to (Section 13. Pipeline Construction, Condition 8).
- Pipeline construction and operation of earth moving equipment shall be limited to daylight hours between 8 a.m. and 3 p.m. and shall not be permitted during weekend periods. Additionally, construction-related trucks should not be operated during peak traffic hours of 7-9 a.m. and 3-7 p.m. Pipeline construction at major intersections shall be limited to daylight hours between 9 a.m. and 3 p.m. to avoid peak traffic periods (Section 13. Pipeline Construction, Condition 9).
- Equipment deliveries shall be made only during daytime hours between 8 a.m. and 3 p.m. (Section 13. Pipeline Construction, Condition 10).
- In order to reduce visual impacts and possible safety hazards, storage of pipes and other materials, as well as construction equipment, shall not be permitted on any street during non-construction hours (Section 13. Pipeline Construction, Condition 11).
- Area residents within 300' shall be notified about the Pipeline construction operation prior to commencement of construction (Section 13. Pipeline Construction, Condition 12).
- Detour signs on Pipeline construction routes shall be placed at appropriate locations (Section 13. Pipeline Construction, Condition 13).
- Steel plates covering Pipeline excavation trenches shall be placed to permit traffic movement during non-construction hours (Section 13. Pipeline Construction, Condition 14).
- Pipeline construction along Valley Drive shall be approved by the Director of Public Works prior to issuance of a permit (Section 13. Pipeline Construction, Condition 18).
- Trenches shall be covered during non-working hours to minimize traffic circulation problems (Section 13. Pipeline Construction, Condition 21).

### 4.13.6.2 Project Trip Generation

Trip generation estimates for each construction phase of the Proposed Oil Project and the permanent operations of the Proposed Oil Project were developed based on detailed construction and long-term permanent operations information provided by the Project Applicant. Data used in the trip generation analysis included detailed construction activities that would occur during each phase of the Proposed Oil Project, the specific types of vehicles used for each activity (classified as passenger car, 2 axle medium trucks, and 3+ axle heavy trucks), and a detailed schedule, by week, of each activity.

To properly assess the truck traffic generated by the proposed construction and operational phases of the Proposed Oil Project against intersection capacity during the A.M. and P.M. peak commute hours, which contain primarily passenger cars, a Passenger Car Equivalence (PCE) factor was applied to all trucks generated by the Proposed Oil Project. The PCE factors used in this traffic impact analysis were based on PCE factors contained in the Caltrans Highway Design Manual. A PCE factor of 2.0 was applied to 2 axle medium trucks (i.e., one medium truck is equivalent to two passenger cars); and a PCE factor of 3.0 was applied to 3+ axle heavy trucks (i.e., one heavy truck is equivalent to three passenger cars).

Per the 1993 CUP, a maximum of 18 (3+ axle heavy) trucks per day would be allowed to travel to/from the site, except during emergencies. This would equate to a maximum of 36 truck trips per day with 18 trucks entering the site, and the same 18 trucks leaving the site during the same day.

Additionally, per the CUP truck traffic (3+ axle heavy trucks) generated by the Proposed Oil Project is limited between the hours of 9 a.m. to 3 p.m. on weekdays. During the hours of 9 a.m. to 3 p.m., it was assumed that daily truck traffic (2 axle medium trucks and 3+ axle heavy trucks) would be evenly spread throughout this six hour period. Construction worker trips would occur as all inbound traffic during the a.m. peak hour as workers arrive to the site, and all outbound traffic during the p.m. peak hour as workers leave the site.

No (3+ axle) truck traffic is permitted outside of those hours (9 A.M. to 3 P.M.), and at any time during the weekends and holidays. Therefore, during the A.M. peak hours between 7 A.M. and 9 A.M., no heavy trucks would be leaving the Project Site. However, since truck traffic can enter the site at 9 A.M., there would be some (heavy) truck traffic on the study area roadways during the A.M. peak hour as some trucks would be planning to be at the site at 9 A.M. Similarly, during the P.M. peak hours of 4 P.M. to 6 P.M., no heavy trucks would be entering the Project Site. However, since truck traffic can enter the site up to 3 P.M., there would be some (heavy) truck traffic on the study area roadways during the P.M. peak hour as some trucks would be leaving the site after 3 P.M. and would be traveling on the study area street network.

Table 4.14-7 provides trip generation rates for each Proposed Oil Project phase.

#### **Distribution and Assignment of Project Traffic**

Trip distribution patterns for Proposed Oil Project traffic were based on two distinct vehicle trip distributions: 1) trips from medium (2-axle) and heavy (3+ axle) trucks primarily originating from the freeways (I-405, SR 91, I-710, etc.); and, 2) trips from employees and construction workers (passenger cars and pickup trucks) originating from both local and regional areas surrounding the Project Site.

Figures located in Appendix D illustrates the trip distribution and peak hour trip assignment for the trucks (heavy 3+ axle and medium 2 axle) generated by Phase 1 of the Proposed Oil Project (Tables are located at the end of this section due to their size and length). Truck traffic would be limited to the City-designated truck routes (per Hermosa Beach, Redondo Beach, and Torrance General Plan Circulation Elements) on Artesia Boulevard, PCH, and the Herondo-Anita-190th Street corridor. Local access to the Project Site would occur on Pier Avenue and Valley Drive. It should be noted that there are turn movement restrictions (for all vehicles) at the I-405/Artesia Boulevard interchange where traffic originating from, or destined to, I-405 north of Artesia Boulevard, would not be able to get on Artesia Boulevard, west of I-405. Therefore, those vehicles coming to/from I-405 north of Artesia Boulevard were distributed to the I-405/Crenshaw Boulevard interchange to get to/from the Project Site. Traffic coming to/from the south on I-405 were distributed evenly between the I-405/Crenshaw Boulevard and Artesia Boulevard interchanges as there are no turn restrictions for traffic coming from that direction.

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Table 4.14-7 Proposed Oil Project Trip Generation Estimates

Construction Activity	Vehicle Type	Daily			A.M. Peak Hour			P.M. Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
<b>PHASE 1 – SITE PREPARATION PEAK ACTIVITY</b>										
Rough grading, excavate well cellar, and place crushed aggregate base material	3+ axle truck	15	15	30	2	0	2	0	2	2
	2 axle trucks	0	0	0	0	0	0	0	0	0
	Cars-pickups	10	10	20	10	0	10	0	10	10
<b>Total</b>		<b>25</b>	<b>25</b>	<b>50</b>	<b>12</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>12</b>	<b>12</b>
<b>Passenger Car Equivalence (PCE)</b>	3+ axle truck (3.0)	45	45	90	6	0	6	0	6	6
	2 axle trucks (2.0)	0	0	0	0	0	0	0	0	0
	Cars-pickups (1.0)	10	10	20	10	0	10	0	10	10
<b>Total with PCE</b>		<b>55</b>	<b>55</b>	<b>110</b>	<b>16</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>16</b>	<b>16</b>
<b>PHASE 2 – EXPLORATORY DRILLING AND TESTING PEAK ACTIVITY</b>										
Drill three test wells and one water injection well PLUS testing of wells	3+ axle truck	18	18	36	3	0	3	0	3	3
	2 axle trucks	3	3	6	1	0	1	0	1	1
	Cars-pickups	25	25	50	25	0	25	0	25	25
<b>Total</b>		<b>46</b>	<b>46</b>	<b>92</b>	<b>29</b>	<b>0</b>	<b>29</b>	<b>0</b>	<b>29</b>	<b>29</b>
<b>Passenger Car Equivalence (PCE)</b>	3+ axle truck (3.0)	54	54	108	9	0	9	0	9	9
	2 axle trucks (2.0)	3	3	6	1	0	1	0	1	1
	Cars-pickups (1.0)	25	25	50	25	0	25	0	25	25
<b>Total with PCE</b>		<b>85</b>	<b>85</b>	<b>170</b>	<b>36</b>	<b>0</b>	<b>36</b>	<b>0</b>	<b>36</b>	<b>36</b>
<b>PHASE 3 – FINAL DESIGN AND CONSTRUCTION PEAK ACTIVITY</b>										
Construct 16-foot split-faced block perimeter wall PLUS Construct or install onsite facility	3+ axle truck	18	18	36	4	0	4	0	4	4
	2 axle trucks	0	0	0	0	0	0	0	0	0
	Cars-pickups	55	55	110	55	0	55	0	55	55
<b>Total</b>		<b>73</b>	<b>73</b>	<b>146</b>	<b>59</b>	<b>0</b>	<b>59</b>	<b>0</b>	<b>59</b>	<b>59</b>
<b>Passenger Car Equivalence (PCE)</b>	3+ axle truck (3.0)	54	54	108	12	0	12	0	12	12
	2 axle trucks (2.0)	0	0	0	0	0	0	0	0	0
	Cars-pickups (1.0)	55	55	110	55	0	55	0	55	55
<b>Total with PCE</b>		<b>109</b>	<b>109</b>	<b>218</b>	<b>67</b>	<b>0</b>	<b>67</b>	<b>0</b>	<b>67</b>	<b>67</b>
<b>PHASE 4 – DEVELOPMENT AND OPERATION PEAK ACTIVITY</b>										
Drill remaining 27 oil wells and three water	3+ axle truck	12	12	24	2	0	2	0	2	2

Table 4.14-7 Proposed Oil Project Trip Generation Estimates

Construction Activity	Vehicle Type	Daily			A.M. Peak Hour			P.M. Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
injection wells PLUS conduct routine maintenance and operations	2 axle trucks	4	4	8	1	0	1	0	1	1
	Cars-pickups	32	32	64	25	1	26	1	25	26
<b>Total</b>		<b>48</b>	<b>48</b>	<b>96</b>	<b>28</b>	<b>1</b>	<b>29</b>	<b>1</b>	<b>28</b>	<b>29</b>
<b>Passenger Car Equivalence (PCE)</b>	3+ axle truck (3.0)	36	36	72	6	0	6	0	6	6
	2 axle trucks (2.0)	8	8	16	2	0	2	0	2	2
	Cars-pickups (1.0)	32	32	64	25	1	26	1	25	26
<b>Total with PCE</b>		<b>76</b>	<b>76</b>	<b>152</b>	<b>33</b>	<b>1</b>	<b>34</b>	<b>1</b>	<b>33</b>	<b>34</b>
<b>OPERATIONAL PHASE – LIFE OF PROJECT PEAK ACTIVITY</b>										
	3+ axle truck	4	4	8	1	0	1	0	1	1
	2 axle trucks	1	1	2	0	0	0	0	0	0
	Cars-pickups	8	8	16	8	0	8	0	8	8
<b>Total</b>		<b>13</b>	<b>13</b>	<b>26</b>	<b>9</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>9</b>	<b>9</b>
<b>Passenger Car Equivalence (PCE)</b>	3+ axle truck (3.0)	12	12	24	3	0	3	0	3	3
	2 axle trucks (2.0)	2	2	4	0	0	0	0	0	0
	Cars-pickups (1.0)	8	8	16	8	0	8	0	8	8
<b>Total with PCE</b>		<b>22</b>	<b>22</b>	<b>44</b>	<b>11</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>11</b>	<b>11</b>

Source: Arch Beach Consulting, 2013

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Figures located in Appendix D illustrates the trip distribution and peak hour trip assignment for the employees and construction workers (passenger cars and pickup trucks) generated by Phase 1 of the Proposed Oil Project. Local trip distribution percentages for the employees and construction workers were based on logical travel corridors that commuters would use. . The Applicant proposes that during the various phases equipment would travel to the Project Site, some equipment and supplies would be stored within the building at 601 Cypress Avenue for use at the Project Site as needed.

Similarly, Appendix D Figures illustrate the trip distribution and peak hour trip assignment for the trucks generated by Phase 2 of the Proposed Oil Project, the trip distribution and peak hour trip assignment for the employees generated by Phase 2, and the trip distribution and peak hour trip assignment for the trucks generated by Phase 3 of the Proposed Oil Project.

Appendix D Figures illustrate the trip distribution and peak hour trip assignment for the employees and construction workers generated by Phase 3, distribution and peak hour trip assignment for the trucks generated by Phase 4 of the Proposed Oil Project, the trip distribution and peak hour trip assignment for the employees generated by Phase 4, the trip distribution and peak hour trip assignment for the trucks generated by the Operational Phase of the Proposed Oil Project and the trip distribution and peak hour trip assignment for the employees and construction workers generated by the Operational Phase

### **4.13.6.3 Project Parking**

During Phase 1-4, some employees/contractors would park at the Project Site and some employees would park at the proposed parking lot at 636 Cypress Avenue providing 20 spaces. During Phase 3, the Applicant proposes to provide parking for an additional 20 employees at an offsite location as described in the Application, but which has not yet been identified; depending on the location of the parking site, workers would walk or be shuttled by the Operator to the Project Site.

### **4.13.6.4 Project Traffic Conditions Roadways**

To evaluate the Proposed Oil Project's potential impact on roadway/freeway segments, the total peak A.M. and P.M. PCE trips and total daily PCE trips associated with each phase of the Proposed Oil Project was added to each roadway/freeway segment to determine if there was a potential to exceed the aforementioned roadway/freeway segment significance criteria applied for this analysis. The results of the roadway/freeway segment impact analyses are shown below in Tables 4.13-19 through 4.13-23. As all of the A.M. and P.M. peak and daily vehicle trips will not all occur on the same roadway/freeway segments, this provides a conservative approach.

### **4.13.6.5 Project Traffic Conditions Intersections**

Tables 4.13-9 through 4.4-18 summarize projected baseline traffic conditions and traffic conditions expected to occur with the addition of Proposed Oil Project vehicle trips for each phase of the Proposed Oil Project for each of the study intersections. Each table also includes a

determination whether an intersection delay or LOS significance threshold is exceeded resulting in a potentially significant impact.

#### **4.13.6.6 Proposed Oil Project Impacts**

Construction and operation of the Proposed Oil Project would increase traffic on area roadways and intersections. The increased traffic is compared to the significance criteria below.

##### **Conflict with Local Agency Measures of Effectiveness Criteria**

As shown in Tables 4.13-9 through 4.13-23, traffic associated with the all phases of the Proposed Oil Project would not exceed any applicable thresholds of significance for potentially impacted intersection and roadway segments. Impacts would therefore be less than significant.

The loss of parking and coastal Preferential Parking Program spaces would be inconsistent with the City's Coastal Land Use Plan and/or Coastal Development Permit 5-84-236, as amended. Realignment of the Valley Drive/6th Street intersection would eliminate two spaces and development of the Project Site at 555 6th Street would eliminate 15 free remote long-term (6 to 12 hour) public parking spaces on weekends during the hours of enforcement of the preferential residential parking (10 a.m. to 10 p.m.). The Applicant states that these 17 spaces could be replaced within the parking lot proposed to be constructed at 636 Cypress Avenue to City standards. The Applicant notes that there may be a conflict in use of some spaces for one hour on Fridays. The replacement program requires an equivalent number of free parking spaces an equivalent distance to the beach as the existing spaces. Onsite and offsite signage would need to be provided and the exact design and signage requirements would be completed during the final permitting stage with the City, as per the City requirements. The parking modifications would require amendment to the City's Coastal Development Permit 5-84-236. But, as an equivalent number of free parking spaces an equivalent distance to the beach as the existing spaces, is being proposed by the Applicant, impacts would be less than significant.

##### **Increased Hazards due to Design Features or Use**

An increase in truck traffic on City roadways could represent a safety hazard to the public, particularly when located in close proximity to sensitive receptors such as cross walks, parks, and areas frequented by pedestrians. The Proposed Oil Project would introduce truck traffic on Valley Drive in close proximity to City Hall, the public library, Community Center, Clark Building/Stadium, Bicentennial Park, Ardmore Park, South Park and Hermosa Valley School. Valley Drive is also a Safe Route to School associated with Hermosa Valley School.

Under the City's coastal Preferential Parking Program, Clark Building/Stadium parking is provided by a row of 51 perpendicular spaces on the west side along Valley Drive, and 78 perpendicular spaces are provided along the east side of Valley Drive adjacent to the Greenbelt. In both cases vehicles head in and back out onto the street. In the case of the 78 spaces, there is adequate paved street width and turning radius so that vehicles backing out can avoid encroaching into the travel lane. Sometimes vehicles park in a tandem manner (one behind the other) during peak times, and the City typically does not ticket this unauthorized parking. In addition to the 78 spaces along the Greenbelt, there are an additional 8 perpendicular parking

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spaces reserved for City parking enforcement vehicles along the Greenbelt (across from the City building at 861 Valley Drive).

Operation of the Proposed Oil Project would result in a CUP-mandated maximum of 18 truck trips per day. Traffic counts conducted along Valley Drive by Arch Beach Consulting in July 2013 reveal that there were no 3+ axle truck trips on Valley Drive during the three day count period. The introduction of truck trips uncommon under existing conditions in close proximity to sensitive receptors is a potentially significant impact.

Although no 3+ axle trucks were counted on Valley Drive during the 2013 traffic counts, Valley Drive south of Pier Avenue is a designated truck route. The City Maintenance Yard houses the City's public works vehicles and equipment and is used as well by some City contractors performing maintenance functions. Occasionally City staff and City contractors use a limited number of parking spaces along Valley Drive across from the Clark facilities for materials or equipment staging. While the City Maintenance Yard has a propane tank, there are no other fueling facilities at the site, and travel along Valley Drive by fuel trucks/tankers would be highly unusual.

The CUP requires that truck traffic accessing the Project Site be limited to between 9 a.m. and 3 p.m. Monday through Friday. As it is assumed that truck traffic will be spread throughout the day, a total of 18 one-way truck trips can be expected along each segment of Valley Drive (entering the site coming south from Pier Avenue to the Project Site, then exiting the site and heading south) during the six hour truck operation period, or about once every 20 minutes.

Impact #	Impact Description	Phase	Residual Impact
TR.1	Trucks activity along Valley Drive would cause impacts to pedestrians or other vehicles	Phases 1-4	Class II Less Than Significant with Mitigation

Students walking to Hermosa Valley School are expected to be in school in the morning (starts as early as 8:15 a.m.) prior to trucks being on Valley Drive. Because the regular school day ends as early as 2:48 p.m. for some students, trucks would still be utilizing Valley Drive while students are walking on adjacent sidewalks. In addition, Hermosa Valley School has 10 minimum days per year, when students are dismissed as early at 12:15 p.m. Also, on Wednesdays, school is dismissed earlier (at 1:45) for some students (HBCSD 2014).

As required by the City's Circulation Element, there are three crossing guards located along Valley Drive near the school (at Pier Avenue and Valley), but none along Valley Drive to the south of Pier Avenue).

Although there would only be a limited number of truck trips that would occur while students are commuting (depending on the day), there exists the potential for student safety to be compromised while students are walking to school or for pedestrians during the entire period when trucks are traveling on Valley Drive. The area immediately around the Project Site would

present the greatest risk to pedestrians, due to the requirement for trucks to enter and exit the site, and therefore cross over the sidewalk.

Trucks are wider than cars and substantially less maneuverable. Pursuant to Caltrans regulations, trucks are required to be less than 108 inches (9 feet) wide, but could be up to 10 feet wide for specialized construction equipment or almost 11 feet wide if mirrors and/or lights are included. The lane width along Valley Drive is 11-12 feet, with pedestrian sidewalks located immediately adjacent in most areas (no landscape buffers). Trucks turning into or out of the Project Site, or driving down Valley Drive, could cause a safety hazard for pedestrians or vehicles driving north on Valley Drive as Valley Drive is only a collector street with limited width.

The Proposed Oil Project would include a number of transportation/traffic design features and 1993 Conditions of Approval summarized above (including, but not limited to implementation of a Pedestrian Protection Plan, trucking safety program, limiting truck deliveries between the hours of 9 a.m. and 3 p.m., and limiting roundtrip truck trips to no more than 18 per day) to enhance safety. However, the use of large trucks in close proximity to pedestrians, children commuting from school, particularly entering and exiting the Project Site when trucks would be crossing over the sidewalk, would be a potentially significant impact.

The current configuration of the intersection of Valley Drive and 6th Street is not designed to safely accommodate the turning radius necessary for trucks departing the Project Site. However, the Proposed Oil Project design includes constructing modifications to the intersection of 6th Street and Valley Drive as described in the Project Description to provide the necessary truck turning radius and improve the line of sight on Valley Drive to and from 6th Street to maintain public safety. Even so, with the slow moving trucks entering Valley Drive from 6th Street, potential traffic conflicts could arise and this would be a significant impact.

The trucks approaching the Project Site would have to enter Pier Avenue from PCH and then turn left from Pier Avenue onto Valley Drive. There are two 4-way stop-sign controlled short intersections between Pier Avenue/Ardmore Avenue and Pier Avenue/Valley Drive, and a short intervening street segment. The Pier Avenue/Valley Drive intersection is also proximate to the City's Fire Station which fronts Pier Avenue, as well as City Hall, the public library and other public facilities, and serves general vehicular, pedestrian and bicycle traffic. The City, and the downtown in particular, which is served by Pier Avenue as a major gateway, also provides a venue for many special events and beachgoers from local and regional areas which add to traffic congestion and hazards. This creates congested conditions on Pier Avenue at various times during the day. The short street segment between the Ardmore Avenue and Valley Drive and number of turning movements that must be negotiated within a short distance could present a traffic hazard if trucks are too long to fit into this intersection before turning left and this would be a significant impact.

Mitigation measures would include increased crossing guard presence at the Project Site, the installation of warning signs/yellow lights that warn drivers of the approaching area where trucks may be entering the roadway and converting Valley Drive to one-way (as recommended in the Beach Cities Livability Plan (WLCI 2011)) which would increase lane width.

### Mitigation Measures

- TR-1a For Phases 1-3, the Applicant shall fund, through and in consultation with the School District and Safe Routes to School, an afternoon crossing guard to be stationed at the Project Site area to ensure pedestrians passing nearby the Project Site have assistance in crossing the streets and the entrances/exit of the Project Site. Alternately, the Applicant shall ensure that trucks do not travel to and from the Project Site unless school is in session (i.e. truck travel prohibited on Valley Drive after 2:48 p.m., on Wednesdays after 1:45 p.m. or on school minimum days after 12:45 p.m.). The Applicant shall consult with the School District to ensure timing is current.
- TR-1b For Phases 1-3, the Applicant shall install, subject to the approval of the City Public Works Department, warning signs and blinking yellow lights one block north and south (if applicable with possible one-way on Valley Drive) of the Project Site warning vehicle traffic that trucks may be entering and exiting the roadway. Blinking lights shall only operate when trucks are utilizing the roadway (not 24 hours per day).
- TR-1c The Applicant shall ensure that all trucks accessing the Project Site and utilizing the Pier Avenue/Valley Drive intersection are less than 65 feet long to prevent safety hazards at the double intersection on Pier Avenue between Valley Drive and Ardmore Avenue.
- TR-1d For Phases 1-3, the Applicant shall, with the approval and coordination of the City Public Works Department, restripe Valley Drive south of Pier Avenue to be a southerly directed one-way street. No on-street parking shall be allowed on Valley Drive between 6th Street and 8th Street to allow for sufficient line of sight for trucks entering and exiting the Project Site.

### Residual Impacts

The addition of a crossing guard, or the elimination of trucks except during school hours, would reduce the likelihood of increased safety risks related to children traveling from school at the same times that trucks are entering and leaving the Project Site. There are currently crossing guards at Pier Avenue and Valley Drive, but the addition of a crossing guard at the Project Site would help to ensure that the area is safe for pedestrians. Warning signs would help to alert drivers that trucks would be using the roadways and entering and exiting the Project Site, thereby helping to reduce the possibility of traffic accidents. Ensuring that trucks do not extend into Ardmore Avenue when utilizing the Pier Avenue and Valley Drive intersection would reduce the potential impacts on traffic safety and congestion at that intersection.

The re-striping of Valley drive would allow cars and trucks more room and eliminate potential conflicts between trucks and vehicles traveling north on Valley Drive. It would also reduce the potential for truck safety impacts on pedestrians as it would increase the separation distance between pedestrians and trucks traveling on Valley Drive. Valley Drive is currently one way in Manhattan Beach north of First St. Converting to one-way would also have the benefit of fulfilling the recommendations by the Bicycle Master Plan (implicit in the proposed Class II bike route along Valley Drive) and the Cities Livability Plan.

While the one-way conversion of Valley Drive would provide benefits in safety and community livability, it would cause a number of trips from/to local businesses and residences and City services to be longer. For example, to travel north from some locations, travelers would have to travel south on Valley Drive to 8th Street or 2nd Street where they could cross over to Ardmore Avenue to travel north. In addition, during Phases 1-3 of the Proposed Project, Bard Street would be closed off by the temporary City Maintenance Yard, thereby requiring City Hall employees to travel south on Valley in order to go north (the Fire Department and Police Department would still have access to Bard Street). Discussions with the Fire Department and the City Public Works Department indicate that converting Valley Drive to one-way would be feasible and would not introduce emergency access issues. The coordination with the Public Works Department, as required under mitigation measure TR-1d, would also require that traffic circulation be studied in order to minimize disruptions. For example, converting Ardmore Avenue to one-way may also be needed in order to ensure that Ardmore Avenue does not have increases in traffic flow.

The use of shorter trucks was considered as a mitigation measure. Any truck used to carry crude oil or large construction equipment would still have the same width as a large truck, but would just be shorter. It would also require that more trucks trips be made, there increasing the frequency of truck trips, which would increase safety impacts. Therefore, the use of smaller trucks was not considered mitigation for impacts.

With the implementation of these additional measures, safety concerns would be reduced to **less than significant with mitigation(Class II)**.

Impact #	Impact Description	Phase	Residual Impact
TR.2	Construction of the Pipelines along area streets could cause significant traffic circulation/hazard impacts.	Phases 3	Class II Less Than Significant with Mitigation

Construction of the natural gas and crude oil Pipeline and valve along Valley Drive, Herondo Street, Anita Street, 190th Street, and possible Hawthorne Street could potentially create traffic impacts that temporarily reduce the capacity of the street system, resulting in substantial increase in the V/C ratio on roads and LOS, or congestion at intersections; inhibit emergency response by paramedic, fire, ambulance, and police vehicles; affect existing roadside parking; and inhibit access to driveways for other land uses. This would be a significant impact.

**Mitigation Measures**

TR-2a Pipeline construction activities within the Pipeline right-of-way shall be limited to weekday between the hours of 9:00 a.m. and 3:00 p.m., unless the applicable municipality approves a specific exception to the time limit for periods of limited duration, subject to measures required by the municipality to protect the public health and safety.

TR-2b The applicant shall implement a Construction Traffic Management Plan (CTMP) during Pipeline construction that includes the following pursuant to the

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procedures and subject to approval of the applicable municipality: 1) Require the Pipeline contractor(s) to obtain and follow street construction permits in the affected areas (Cities of Hermosa Beach, Redondo Beach, and Torrance, and Caltrans facilities - PCH and Hawthorne Boulevard); 2) Develop detour and traffic management plans consistent with the affected City's standard roadway plans (e.g., Torrance Street Standard T603), the California Manual of Uniform Traffic Control Devices (MUTCD), or the Work Area Traffic Control Handbook (WATCH); 3) Revise Pipeline construction schedules to minimize access impacts to adjacent residents and businesses; and 4) Ensure that all affected residences and business have adequate emergency access during all times and phases of construction.

#### Residual Impacts

Construction Traffic Management Plans (CTMP) are regularly required by jurisdictions for construction that occurs within area streets, and these plans have been long demonstrated to be effective in reducing traffic impacts due to construction activities, even though street construction can be temporarily inconvenient to area drivers. With the implementation of the CTMP, the significant but temporary impacts (occurring for a period of 16 weeks, or only 1-2 weeks in any one location) due to the Pipeline construction along the street segments on Valley Drive and the Herondo-Anita-190th Street corridor would be **less than significant with mitigation(Class II)**.

#### Inadequate Emergency Access

The circulation within the vicinity of the Project Site would not change with the implementation of the Proposed Project; no intersections would be modified (beyond a change in the curbing and turning radius) and access to the surrounding land uses would not be modified by the implementation of the Proposed Oil Project. The Fire and Police Departments are located at the corner of Pier Avenue and Valley Drive and utilize Bard Avenue. While there would be an increase in vehicle traffic through these intersections, the level of traffic would not produce additional congestion (see above) and there would not be impacts on Fire and Police response. Pipeline construction activities would ensure, as per the CTMP, that emergency access would remain in place. Therefore, there would not be significant impacts to emergency access, and impacts would be less than significant.

#### Conflict with Adopted Policies

Impact #	Impact Description	Phase	Residual Impact
TR.3	Routing of Proposed Oil Project truck traffic could violate local prohibitions.	Phases 1-4	Class II Less Than Significant with Mitigation

The applicant proposes to route truck traffic along 190<sup>th</sup> Street. As discussed above, use of 190th Street by Proposed Project truck traffic is not expected to significantly increase area traffic.

However, as noted in Section 4.13.1, the Redondo Beach Municipal Code prohibits commercial vehicles weighing 20,000 pounds or more from operating on 190th Street between Anza Avenue

and PCH (Redondo Beach Municipal Code Section 3-7.902(b) due to the presence of a steep grade and the potential for safety issues. As a result, the Proposed Project's use of 190th Street for heavy truck traffic represents a substantial safety hazard, is inconsistent with local prohibitions and is a significant impact.

### **Mitigation Measures**

TR-3a            The applicant shall be prohibited from routing Proposed Oil Project-related heavy truck exceeding 20,000 pounds on 190<sup>th</sup> Street between Anza Avenue and PCH, except during Pipeline construction. The Applicant shall comply with all requirements of the applicable city.

TR-3b            The applicant shall route inbound and outbound heavy (>20,000 pounds) truck traffic along PCH and Artesia Boulevard, which are designated truck routes.

### **Residual Impacts**

Routing inbound and outbound heavy truck traffic to different roadway segments has the potential to increase traffic in areas not evaluated in original analysis. The alternative heavy truck routing is illustrated below in Figure 4.4-5. The detailed traffic analysis for each intersection under this mitigation are shown in Appendix D.

Under mitigation measure TR-3b, all inbound project-related trucks would travel to the Proposed Project Site from I-405 via interchanges at Hawthorne Boulevard, Artesia Boulevard, Crenshaw Boulevard, and Western Avenue. Then, take Artesia Boulevard westbound to Pacific Coast Highway (PCH) southbound, to Pier Avenue westbound, then to Valley Drive southbound.

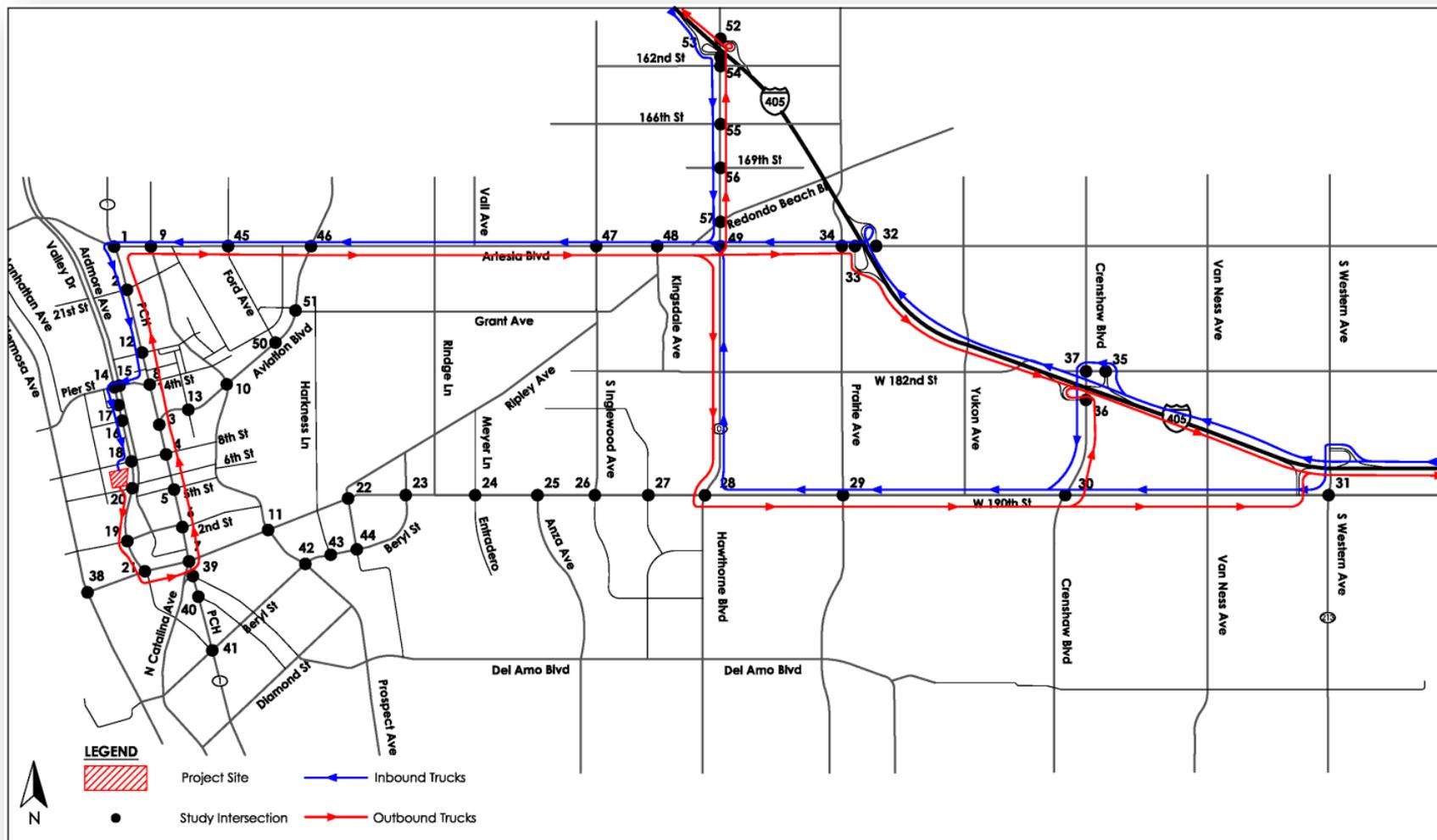
All Proposed Oil Project project-related outbound truck traffic leaving the project site would travel south on Valley Drive, east on Herondo, north on PCH then east on Artesia Boulevard to I-405 via interchanges at Hawthorne Boulevard, Artesia Boulevard, Crenshaw Boulevard (via Hawthorne Boulevard to 190th Street), or Western Avenue (via Hawthorne Boulevard to 190th Street).

To analyze the additional truck routes, 13 intersections were added to the analysis study area (intersections 45 – 57). A Traffic Impact Analysis Addendum prepared by Arch Beach Consulting evaluates the potential traffic-related impacts that could result from implementation of Mitigation Measure TR-3b in Appendix D (Arch Beach, 2014).

As shown in Appendix D, implementation of the mitigation measures would not exceed any applicable thresholds of significance for potentially impacted intersections. Residual impacts would be **less than significant with mitigation (Class II)**.

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Figure 4.13-5 Alternative Heavy Truck Traffic Routes



Source: Arch Beach Consulting 2014

#### 4.13.7 Proposed City Maintenance Yard Project

The Proposed City Maintenance Yard Project is assessed below relative to each of the significance criteria.

##### Conflict with Local Agency Measures of Effectiveness Criteria

To evaluate the traffic and transportation system impacts of relocating the City Maintenance Yard to the Civic Center properties, the existing City Maintenance Yard was inventoried to count the number of trips produced by the City Maintenance Yard. Existing 24 hour vehicle counts were taken at the existing Maintenance Yard's two driveways from November 5 to November 7, 2013. Based on the collected data, the proposed Project Site produces 31 A.M. peak hour trips (15 inbound and 16 outbound), 14 P.M. peak hour trips (7 inbound and 7 outbound), and 233 ADT. The trip distribution was applied to the intersections potentially impacted by relocation of the City Maintenance Yard to determine the significance of traffic impacts. Table 4.13-8 shows the intersection LOS comparison under existing conditions (with the City Maintenance Yard at its current location) and then the projected LOS values for the Proposed Oil Project Phase 3 (as a worst case) as well as operations of the City Maintenance Yard. See Appendix D for the Stantec Traffic Analysis report.

**Table 4.13-8 City Maintenance Yard Relocation with Proposed Oil Project – Intersection LOS Comparison**

Intersection	Existing Conditions (delay in seconds/LOS)		With Proposed Project + Oil Project Phase 3 Conditions (delay in seconds/LOS)	
	A.M. Peak Hour	P.M. Peak Hour	A.M. Peak Hour	P.M. Peak Hour
Valley Drive/Pier Avenue	12.1/B	27.2/D	13.5/B	28.8/D
Valley Drive/11 <sup>th</sup> Place	9.8/A	11.5/B	10.3/B	11.8/B
Valley Drive/11th Street	8.0/A	9.7/A	8.3/A	9.8/A
Valley Drive/8th Street	9.8/A	13.9/B	10.5/B	14.4/B
Valley Drive/6th Street	7.9/A	9.8/A	8.1/A	10.2/B

Note: For the Phase 3 Oil Project traffic levels  
Source: Stantec, 2014

As shown in Table 4.13-8, relocation of the City Maintenance Yard would not increase traffic in the area such that LOS or intersection delays would substantially degraded. In addition to a direct replacement option, the City is considering a City Maintenance Yard with added parking option. The added parking option would include a maximum of 129 parking spaces, including replacement of the 32 parking spaces reserved for City employees and the public during offset hours under the City's coastal Preferential Parking Program that would be eliminated (next to City Hall in front of the Hermosa Self-Storage site). Therefore, while a portion of the 129 parking spaces under the relocation of the City Maintenance Yard with added parking option would replace existing parking spaces, the remainder would be available to serve parking needs as determined by the City Council. For example, if the Civic Center were rebuilt these spaces could replace spaces currently onsite, or offset demand created by new development, or supply public or employee needs, or a combination.

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Parking stalls themselves do not generate traffic. Parking stalls are tied to uses, which generate the trips, and an increase in parking supply does not necessarily correlate to additional trips generated. However, the attractiveness of the beach community produces a “demand for beach parking [that] could be expected to be almost limitless; the more parking provided, the greater the number of visitors who would drive to Hermosa Beach on peak summer weekends” (General Plan Circulation, Transportation and Parking a Element page 59). The additional parking spaces under the Added Parking option would at least cause a change in the traffic distribution in the area and an increase in traffic volumes at Pier Avenue and Valley Drive (the most heavily impacted nearby intersection) as traffic would utilize that intersection to access the new parking structure. In order to estimate this potential impact, an additional 500 daily trips were added to the Pier Avenue/Valley Drive intersection (about 5 trips per parking space per day, or an average of 2.88 hours per vehicle, as per summer demand from the General Plan pg. 58), originating equally from the west and east. The traffic model indicates that the delay at this intersection would increase by 1.1 seconds and would remain at an LOS of C (see Appendix D). Therefore, the addition of 129 parking stalls on the Proposed City Maintenance Yard site is not expected to generate additional congestion at intersections.

The temporary City Maintenance Yard would affect circulation in the area around City Hall by closing off Bard Street to through traffic through Phase 3 of the Proposed Project. The Fire and Police Departments would still have access to Bard Street through Pier Avenue. As Bard Street is currently used lightly (as is encouraged by the Police Department), the closing off of Bard Street would not affect traffic circulation. Current Bard Street traffic would be routed through Pier Avenue/Valley intersection, which has additional capacity as discussed above.

#### Increased Hazards due to Design Features or Use

Impact #	Impact Description	Phase	Residual Impact
TR.4	The City Maintenance Yard could introduce an impact to safety or Bicycle/pedestrian safety	Phases 4	Class II Less Than Significant with Mitigation

The temporary Proposed City Maintenance Yard would eliminate the through access along Bard Street, which would reduce access for bicycles or pedestrians along Bard Street and 11th Place. However, as Bard Street is lightly used and minimal bicycle traffic currently uses Bard Street, this would not generate safety impacts to pedestrians or bicycles. There is no bicycle route along Bard Street or 11th Place. Some bicycle and pedestrian traffic would be re-directed through Pier Avenue/Valley Street intersection, which is heavily used by pedestrians already and the increase would be minimal. The temporary Proposed City Maintenance Yard would allow for pedestrian access through Bard Street and out along 11th Place, but this may not be apparent to most users. Safety impacts related to Fire Department emergency response are addressed under section 4.6, Fire Protection and Emergency Response.

The permanent Proposed City Maintenance Yard would be accessed by a new driveway onto Valley Drive. The driveway for the existing Hermosa Beach Self-Storage facility is accessed from 11th Place and does not exit directly onto Valley Drive. Under the Parking Option, a

driveway would also enter/exit the parking area onto 11th Place. Although a driveway onto Valley Drive does not necessarily introduce significant risk, the Proposed City Maintenance Yard would have trucks entering and exiting the facility, with potentially limited line of sight from the Proposed City Maintenance Yard walls, which increases in safety concerns. The current City Maintenance Yard also enters and exits directly to/from Valley Drive, but also utilizes the 6th Street entrance/exit. However, the location of the Proposed City Maintenance Yard is also recommended for a pedestrian crosswalk and has been the location of multiple pedestrian/vehicle accidents nearby at 11th Street (both as per the Pedestrian Safety Assessment). The lack of separation between pedestrians and traffic all along Valley Drive is also a potential safety issue (discussed in the Pedestrian Safety Report) that could be remedied in this portion of Valley Drive if the sidewalks are reconstructed as part of this project. Therefore, the addition of a driveway onto Valley Drive with truck traffic would produce a potentially significant impact.

#### **Mitigation Measures**

- TR-4a The City shall design the permanent Proposed City Maintenance Yard so that it does not enter/exit directly onto Valley Drive.
- TR-4b If the permanent Proposed City Maintenance Yard Project affects the sidewalk, then the design shall incorporate a sidewalk design along Valley Drive which utilizes a landscape buffer to separate the pedestrians from the street.

#### **Residual Impact**

Cars and trucks using 11th Place instead of entering from and exiting directly onto Valley Drive would create less safety risk than a direct driveway onto Valley Drive, because the traffic speed on Valley Drive is much faster than on 11th Place. If sidewalks are going to be replaced as part of the Proposed Project, then the Pedestrian Safety Assessment recommendations for using a landscape buffer to enhance pedestrian safety should be a part of the design. With the elimination of the Proposed City Maintenance Yard driveway onto Valley Drive, impacts would be **less than significant with mitigation (Class II)**.

#### **Inadequate Emergency Access**

The circulation of the area would not change with the implementation of the permanent Proposed City Maintenance Yard Project. Bard Street would be closed during the temporary Proposed City Maintenance Yard Project, but because traffic is currently minimal along Bard Street and there is capacity at nearby intersections, this would not impact area circulation and therefore emergency access. The Fire and Police Departments are located at the corner of Pier Avenue and Valley Drive and utilize Bard Avenue and they would continue to have access through Bard Street during the temporary project activities. While there would be an increase in vehicle traffic through the nearby intersections (primarily Pier Avenue and Valley Drive), the level of traffic would not produce additional congestion (see above) and therefore would not impact Fire and Police response. Therefore, there would not be significant impacts to emergency access and impacts would be less than significant

#### **Conflict with Adopted Policies**

The Proposed City Maintenance Yard Project without added parking would relocate and replace the functions of the existing City Maintenance Yard along with the coastal parking stated above

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(32 spaces) and would not introduce new uses or parking, thereby only resulting in the redistribution of existing traffic. It would not conflict with an applicable plan, ordinance or policy. In fact, the Pedestrian Safety Assessment recommends the development of additional parking structures in the City Hall/Civic Center area.

### **4.13.8 Impacts of Other Issue Area Mitigation Measures**

Some mitigation measures could increase construction requirements associated with the Project, such as additional sound walls, which could increase construction-related traffic. Mitigation measure AE-1b, the construction of a permanent wall, could increase the required truck trips for the hauling of materials to the Project Site. However, none of these mitigation measures would increase the peak day traffic levels as these are limited for heavy trucks by the 18 trucks per day limit in the CUP. None of the mitigation measures would increase safety concerns, affect emergency access or conflict with adopted policies. Therefore, the other issue area mitigation measures would not result in additional impacts.

### **4.13.9 Cumulative Impacts and Mitigation Measures**

The potential traffic impacts from the Proposed Project, evaluated above, were evaluated in the context of future traffic conditions projected to occur during each of the four Proposed Project phases to account for forecasted regional growth and development, that would increase the volumes of traffic on roadway networks. Hence, projected regional traffic volume increase estimates have been used for the purpose of evaluating cumulative traffic impacts, and they are assessed in the tables within this section. Therefore, impacts of the Proposed Project in combination with expected traffic increases from regional growth and development have already been assessed and would be less than significant.

One project, the Anita Lane Reconfiguration Project, would cause a reconfiguration of Anita/Herondo thereby potentially affecting traffic flow along Anita/Herondo between Valley Drive and PCH. The reduction from two lanes each way to one lane each way could reduce traffic LOS. The PCH/Anita/Herondo intersection currently operates at an LOS of F during the peak P.M hours. However, the Proposed Project would not be contributing trucks to this intersection during the peak P.M. hours. In addition, as the PCH traffic is primarily responsible for the low LOS rating, and traffic on Anita/Herondo is light, this modification would not have an impact on circulation in the area with the Proposed Project traffic. Therefore, the Proposed Project would have a less than significant cumulative traffic impact.

Table 4.13-9 Year 2015 plus Phase 1 Intersection Level of Service Summary (ICU - Signalized Intersections)

Intersection	Control	Year 2015 Baseline				Year 2015 plus Construction Phase 1						Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour			P.M. Peak Hour			
		V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS	Change	V/C or Delay	LOS	Change	
PCH/Artesia Boulevard	signal	1.256	F	0.823	D	1.256	F	0.000	0.824	D	0.001	no
PCH/21st Street	signal	0.725	C	0.677	B	0.725	C	0.000	0.677	B	0.000	no
PCH/Aviation Boulevard	signal	1.132	F	1.112	F	1.134	F	0.002	1.113	F	0.001	no
PCH/8th Street	signal	0.852	D	0.825	D	0.854	D	0.002	0.825	D	0.000	no
PCH/5th Street	signal	0.804	D	0.744	C	0.806	D	0.002	0.744	C	0.000	no
PCH/2nd Street	signal	0.753	C	0.776	C	0.755	C	0.002	0.777	C	0.001	no
PCH/Herondo Ave-Anita St	signal	0.852	D	1.092	F	0.859	D	0.007	1.093	F	0.001	no
PCH/Pier Avenue-14th Street	signal	0.659	B	0.772	C	0.659	B	0.000	0.774	C	0.002	no
Prospect Avenue/Artesia Blvd.	signal	0.575	A	0.681	B	0.576	A	0.001	0.683	B	0.002	no
Prospect Ave/Aviation Blvd.	signal	0.643	B	0.728	C	0.643	B	0.000	0.728	C	0.000	no
Prospect Ave/Anita Street	signal	0.475	A	0.552	A	0.475	A	0.000	0.554	A	0.002	no
PCH/16th Street	signal	0.686	B	0.652	B	0.686	B	0.000	0.652	B	0.000	no
Ocean Drive/Aviation Blvd.	signal	0.403	A	0.457	A	0.403	A	0.000	0.457	A	0.000	no
Valley Drive/Pier Avenue	all-way stop	12.4 sec	B	20.4 sec	C	12.5 sec	B	--	20.6 sec	C	--	no
Ardmore Avenue/Pier Avenue	all-way stop	12.3 sec	B	17.3 sec	C	12.3 sec	B	--	17.4 sec	C	--	no
Valley Drive/11th Street	all-way stop	7.8 sec	A	9.2 sec	A	7.9 sec	A	--	9.2 sec	A	--	no
Valley Drive/11th Place	1-way stop	9.7 sec	A	11.1 sec	B	9.8 sec	A	--	11.1 sec	B	--	no

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Table 4.13-9 Year 2015 plus Phase 1 Intersection Level of Service Summary (ICU - Signalized Intersections)

Intersection	Control	Year 2015 Baseline				Year 2015 plus Construction Phase 1						Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour			P.M. Peak Hour			
		V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS	Change	V/C or Delay	LOS	Change	
Valley Drive/8th Street	all-way stop	9.3 sec	A	12.0 sec	B	9.4 sec	A	--	12 sec	B	--	no
Valley Drive/2nd Street	all-way stop	8.7 sec	A	11.1 sec	B	8.7 sec	A	--	11.2 sec	B	--	no
Valley Drive/6th Street	all-way stop	8.0 sec	A	9.4 sec	A	8.0 sec	A	--	9.5 sec	A	--	no
Valley Drive/Herondo Street	all-way stop	11.0 sec	B	15.8 sec	C	11.0 sec	B	--	15.9 sec	C	--	no
Flagler Ln/Anita St-190th St	all-way stop	32.2 sec	D	30.8 sec	D	32.9 sec	D	--	31.2 sec	D	--	no
Blossom Lane-Beryl St/190th St	2-way stop	141.8 sec	F	669.9 sec	F	145.5 sec	F	--	691.9 sec	F	--	no
Meyer Ln-Entradero Ave/190th St	signal	0.839	D	0.684	B	0.839	D	0.000	0.686	B	0.002	no
Anza Avenue/190th Street	signal	0.842	D	0.738	C	0.842	D	0.000	0.74	C	0.002	no
Inglewood Ave/190th St	signal	1.109	F	1.195	F	1.112	F	0.003	1.195	F	0.000	no
Firmona Avenue/190th St	2-way stop	300.7 sec	F	194.2 sec	F	309.9 sec	F	--	196.9 sec	F	--	no
Hawthorne Blvd. /190th St	signal	0.908	E	0.918	E	0.908	E	0.000	0.918	E	0.000	no
Prairie Avenue/190th St	signal	0.877	D	0.980	E	0.877	D	0.000	0.98	E	0.000	no
Crenshaw Blvd. /190th St	signal	0.904	E	0.877	D	0.904	E	0.000	0.879	D	0.002	no
Western Avenue/190th St	signal	0.769	C	0.787	C	0.769	C	0.000	0.787	C	0.000	no
I-405 NB ramps/Artesia Blvd.	signal	0.539	A	0.872	D	0.540	A	0.001	0.872	D	0.000	no

Table 4.13-9 Year 2015 plus Phase 1 Intersection Level of Service Summary (ICU - Signalized Intersections)

Intersection	Control	Year 2015 Baseline				Year 2015 plus Construction Phase 1						Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour			P.M. Peak Hour			
		V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS	Change	V/C or Delay	LOS	Change	
I-405 SB ramps/Artesia Blvd.	1-way stop	11.0 sec	B	24.5 sec	C	11.0 sec	B	--	24.5 sec	C	--	no
Prairie Avenue/Artesia Blvd.	signal	0.955	E	0.877	D	0.955	E	0.000	0.879	D	0.002	no
I-405 NB ramps/182nd St	signal	0.693	B	0.890	D	0.695	B	0.002	0.891	D	0.001	no
I-405 SB ramps/Crenshaw Blvd.	signal	1.025	F	0.818	D	1.027	F	0.002	0.82	D	0.002	no
Crenshaw Blvd. /182nd St	signal	0.861	D	0.931	E	0.862	D	0.001	0.931	E	0.000	no
Hermosa Ave-Harbor Dr/Herondo St	signal	0.490	A	0.473	A	0.490	A	0.000	0.473	A	0.000	no
PCH/Catalina Ave	signal	0.823	D	0.876	D	0.824	D	0.001	0.877	D	0.001	no
PCH/Irena Avenue	signal	0.676	B	0.790	C	0.676	B	0.000	0.791	C	0.001	no
PCH/Beryl Street	signal	0.753	C	0.884	D	0.753	C	0.000	0.885	D	0.001	no
Prospect Ave/Beryl Street	signal	0.515	A	0.592	A	0.516	A	0.001	0.593	A	0.001	no
Harkness Lane/Beryl Street	all-way stop	9.9 sec	A	12.9 sec	B	9.9 sec	A	--	12.9 sec	B	--	no
Flagler Lane/Beryl Street	all-way stop	11.1 sec	B	14.0 sec	B	11.1 sec	B	--	14 sec	B	--	no

Notes: Signalized intersections analyzed with the Intersection Capacity Utilization (ICU) methodology which provides LOS in terms of volume-to-capacity (V/C) ratios.

Unsignalized intersections analyzed with Highway Capacity Manual (HCM) methodology which provided LOS in terms of average control delay for entire intersection (for all-way stop control), or for critical movement (for 1- or 2-way stop control).

**BOLD** Indicates intersection is currently operating with unsatisfactory LOS (LOS E or LOS F in Redondo Beach, Torrance, and Caltrans/CMP intersections).

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**BOLD** Indicates intersection would be significantly impacted by the Proposed Project (Hermosa Beach: LOS C or better to LOS D, E, or F, or, additional  $\geq 0.010$  V/C to intersections operating at LOS D, E, or F in the baseline condition; Redondo Beach and Torrance: LOS D or better to LOS E or F, or, addition of  $\geq 0.010$  V/C to intersections operating at LOS E or F in baseline condition; CMP /Caltrans: project creates LOS F condition and adds  $\geq 0.020$  V/C to intersections operating at LOS F in baseline condition; all unsignalized intersections: project creates LOS E or F condition from LOS D or better, or, addition of 10% of traffic to intersection at LOS E or F).

Updated information, Errata to Traffic Impact Analysis (TIA) and Addendum TIA for E&B Oil Development Project in the City of Hermosa Beach (2014b).

Source: Arch Beach Consulting, 2012, 2014a & 2014b

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Table 4.13-10 Year 2015 plus Phase 1 Intersection Level of Service Summary (HCM – Caltrans and Torrance Intersections)

Intersection	Control	Year 2015 Baseline				Year 2015 plus Construction Phase 1				Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
PCH/Artesia Boulevard	signal	<b>81.9 sec</b>	<b>F</b>	26.9 sec	C	<b>81.8 sec</b>	<b>F</b>	27.0 sec	C	no
PCH/21st Street	signal	6.1 sec	A	4.3sec	A	6.1 sec	A	4.3sec	A	no
PCH/Aviation Boulevard	signal	<b>93.2 sec</b>	<b>F</b>	<b>93.8 sec</b>	<b>F</b>	<b>93.9 sec</b>	<b>F</b>	<b>93.9 sec</b>	<b>F</b>	no
PCH/8th Street	signal	13.6sec	B	12.5sec	B	13.6sec	B	12.5sec	B	no
PCH/5th Street	signal	11.4sec	B	8.9sec	A	11.4sec	B	8.9 sec	A	no
PCH/2nd Street	signal	8.0sec	A	9.3sec	A	8.0sec	A	9.4sec	A	no
PCH/Herondo Ave-Anita St	signal	23.7 sec	C	36.6 sec	D	24.1 sec	C	36.9 sec	D	no
PCH/Pier Avenue-14th Street	signal	12.1 sec	B	16.9 sec	B	12.2 sec	B	16.9 sec	B	no
PCH/16th Street	signal	7.3 sec	A	9.4sec	A	7.3 sec	A	9.4sec	A	no
Meyer Ln-Entradero Ave/190th St	signal	18.2 sec	B	12.6 sec	B	18.2 sec	B	12.6 sec	B	no
Anza Avenue/190th Street	signal	25.7 sec	C	21.4 sec	C	25.6 sec	C	21.5 sec	C	no
Inglewood Ave/190th St	signal	<b>59.7 sec</b>	<b>E</b>	<b>83.7 sec</b>	<b>F</b>	<b>60.1 sec</b>	<b>E</b>	<b>83.6 sec</b>	<b>F</b>	no
Hawthorne Blvd. /190th St	signal	31.5 sec	C	32.4 sec	C	31.5 sec	C	32.4 sec	C	no
Prairie Avenue/190th St	signal	34.2 sec	C	37.5 sec	D	34.2 sec	C	37.5 sec	D	no
Crenshaw Blvd. /190th St	signal	33.7 sec	C	33.6 sec	C	33.7 sec	C	33.7 sec	C	no
Western Avenue/190th St	signal	30.0 sec	C	29.9 sec	C	30.0 sec	C	29.9 sec	C	no
I-405 NB ramps/Artesia Blvd.	signal	13.8 sec	B	24.1 sec	C	13.9 sec	B	24.2 sec	C	no

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**Table 4.13-10 Year 2015 plus Phase 1 Intersection Level of Service Summary (HCM – Caltrans and Torrance Intersections)**

Intersection	Control	Year 2015 Baseline				Year 2015 plus Construction Phase 1				Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
Prairie Avenue/Artesia Blvd.	signal	37.4 sec	D	32.9 sec	C	37.3 sec	D	33.0 sec	C	no
I-405 NB ramps/182nd St	signal	17.8 sec	B	24.9 sec	C	17.9 sec	B	24.9 sec	C	no
I-405 SB ramps/Crenshaw Blvd.	signal	34.6 sec	C	21.0 sec	C	34.8 sec	C	21.0 sec	C	no
Crenshaw Blvd. /182nd St	signal	29.6 sec	C	30.0 sec	C	29.7 sec	C	30.0 sec	C	no
Hermosa Ave-Harbor Dr/Herondo St	signal	16.5 sec	B	15.4 sec	B	16.5 sec	B	15.4 sec	B	no
PCH/Catalina Ave	signal	13.7 sec	B	11.2 sec	B	13.7 sec	B	11.2 sec	B	no
PCH/Irena Avenue	signal	4.4 sec	A	5.9 sec	A	4.4 sec	A	5.9 sec	A	no
PCH/Beryl Street	signal	8.0 sec	A	12.6 sec	B	8.0 sec	A	12.6 sec	B	no

Notes: Caltrans and/or Torrance signalized intersections analyzed with the Highway Capacity Manual (HCM) methodology which provides LOS in terms of average control delay for entire intersection.

**BOLD** Indicates intersection would operate with unsatisfactory LOS (LOS E or LOS F).

**BOLD** Indicates intersection would be significantly impacted by the Proposed Project (Caltrans/CMP: project creates LOS F condition and add  $\geq 0.020$  V/C, or, addition of  $\geq 0.020$  V/C to intersections operating at LOS F in baseline condition per ICU analysis; Torrance: project creates LOS E or F condition from LOS D or better, or, addition of  $\geq 0.010$  V/C to intersections operating at LOS E or F in baseline condition per ICU analysis).

Updated information, Errata to Traffic Impact Analysis (TIA) and Addendum TIA for E&B Oil Development Project in the City of Hermosa Beach (2014b).

Source: Arch Beach Consultants, 2012, 2014a & 2014b

Table 4.13-11 Year 2015 plus Phase 2 Intersection Level of Service Summary (ICU – Signalized Intersections)

Intersection	Control	Year 2015 Baseline				Year 2015 plus Construction Phase 2						Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour			P.M. Peak Hour			
		V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS	Change	V/C or Delay	LOS	Change	
PCH/Artesia Boulevard	signal	<b>1.256</b>	<b>F</b>	0.823	D	<b>1.256</b>	<b>F</b>	0.000	0.826	D	0.003	no
PCH/21st Street	signal	0.725	C	0.677	B	0.725	C	0.000	0.677	B	0.000	no
PCH/Aviation Boulevard	signal	<b>1.132</b>	<b>F</b>	<b>1.112</b>	<b>F</b>	<b>1.135</b>	<b>F</b>	0.003	<b>1.113</b>	<b>F</b>	0.001	no
PCH/8th Street	signal	0.852	D	0.825	D	0.855	D	0.003	0.825	D	0.000	no
PCH/5th Street	signal	0.804	D	0.744	C	0.807	D	0.003	0.744	C	0.000	no
PCH/2nd Street	signal	0.753	C	0.776	C	0.756	C	0.003	0.778	C	0.002	no
PCH/Herondo Ave-Anita St	signal	0.852	D	<b>1.092</b>	<b>F</b>	0.865	D	0.013	<b>1.094</b>	<b>F</b>	0.002	no
PCH/Pier Avenue-14th Street	signal	0.659	B	0.772	C	0.659	B	0.000	0.775	C	0.003	no
Prospect Avenue/Artesia Blvd.	signal	0.575	A	0.681	B	0.578	A	0.003	0.685	B	0.004	no
Prospect Ave/Aviation Blvd.	signal	0.643	B	0.728	C	0.643	B	0.000	0.728	C	0.000	no
Prospect Ave/Anita Street	signal	0.475	A	0.552	A	0.480	A	0.005	0.557	A	0.005	no
PCH/16th Street	signal	0.686	B	0.652	B	0.686	B	0.000	0.652	B	0.000	no
Ocean Drive/Aviation Blvd.	signal	0.403	A	0.457	A	0.403	A	0.000	0.457	A	0.000	no
Valley Drive/Pier Avenue	all-way stop	12.4 sec	B	20.4 sec	C	12.7 sec	B	--	20.8 sec	C	--	no
Ardmore Avenue/Pier Avenue	all-way stop	12.3 sec	B	17.3 sec	C	12.4 sec	B	--	17.5 sec	C	--	no
Valley Drive/11th	all-way	7.8	A	9.2 sec	A	7.9 sec	A	--	9.2 sec	A	--	no

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Table 4.13-11 Year 2015 plus Phase 2 Intersection Level of Service Summary (ICU – Signalized Intersections)

Intersection	Control	Year 2015 Baseline				Year 2015 plus Construction Phase 2						Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour			P.M. Peak Hour			
		V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS	Change	V/C or Delay	LOS	Change	
Street	stop	sec										
Valley Drive/11th Place	1-way stop	9.7 sec	A	11.1 sec	B	9.8 sec	A	--	11.2 sec	B	--	no
Valley Drive/8th Street	all-way stop	9.3 sec	A	12.0 sec	B	9.5 sec	A	--	12.1 sec	B	--	no
Valley Drive/2nd Street	all-way stop	8.7 sec	A	11.1 sec	B	8.7 sec	A	--	11.5 sec	B	--	no
Valley Drive/6th Street	all-way stop	8.0 sec	A	9.4 sec	A	8.0 sec	A	--	9.6 sec	A	--	no
Valley Drive/Herondo Street	all-way stop	11.0 sec	B	15.8 sec	C	11.0 sec	B	--	16 sec	C	--	no
Flagler Ln/Anita St-190th St	all-way stop	32.2 sec	D	30.8 sec	D	33.6 sec	D	--	31.7 sec	D	--	no
Blossom Lane-Beryl St/190th St	2-way stop	<b>141.8 sec</b>	<b>F</b>	<b>669.9 sec</b>	<b>F</b>	<b>149.7 sec</b>	<b>F</b>	--	<b>714.7 sec</b>	<b>F</b>	--	no
Meyer Ln-Entradero Ave/190th St	signal	0.839	D	0.684	B	0.839	D	0.000	0.689	B	0.005	no
Anza Avenue/190th Street	signal	0.842	D	0.738	C	0.842	D	0.000	0.743	C	0.005	no
Inglewood Ave/190th St	signal	<b>1.109</b>	<b>F</b>	<b>1.195</b>	<b>F</b>	<b>1.114</b>	<b>F</b>	0.005	<b>1.195</b>	<b>F</b>	<b>0.000</b>	no
Firmona Avenue/190th St	2-way stop	<b>300.7 sec</b>	<b>F</b>	<b>194.2 sec</b>	<b>F</b>	<b>318.3 sec</b>	<b>F</b>	--	<b>200.1 sec</b>	<b>F</b>	--	no
Hawthorne Blvd./190th St	signal	<b>0.908</b>	<b>E</b>	<b>0.918</b>	<b>E</b>	<b>0.909</b>	<b>E</b>	0.001	<b>0.919</b>	<b>E</b>	0.001	no
Prairie Avenue/190th St	signal	0.877	D	<b>0.980</b>	<b>E</b>	0.878	D	0.001	<b>0.980</b>	<b>E</b>	0.000	no

Table 4.13-11 Year 2015 plus Phase 2 Intersection Level of Service Summary (ICU – Signalized Intersections)

Intersection	Control	Year 2015 Baseline				Year 2015 plus Construction Phase 2						Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour			P.M. Peak Hour			
		V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS	Change	V/C or Delay	LOS	Change	
Crenshaw Blvd. /190th St	signal	<b>0.904</b>	<b>E</b>	0.877	D	<b>0.904</b>	<b>E</b>	0.000	0.881	D	0.004	no
Western Avenue/190th St	signal	0.769	C	0.787	C	0.769	C	0.000	0.787	C	0.000	no
I-405 NB ramps/Artesia Blvd.	signal	0.539	A	0.872	D	0.540	A	0.001	0.872	D	0.000	no
I-405 SB ramps/Artesia Blvd.	1-way stop	11.0 sec	B	24.5 sec	C	11.0 sec	B	--	24.5 sec	C	--	no
Prairie Avenue/Artesia Blvd.	signal	<b>0.955</b>	<b>E</b>	0.877	D	<b>0.955</b>	<b>E</b>	0.000	0.88	D	0.004	no
I-405 NB ramps/182nd St	signal	0.693	B	0.890	D	0.696	B	0.003	0.89	D	0.002	no
I-405 SB ramps/Crenshaw Blvd.	signal	<b>1.025</b>	<b>F</b>	0.818	D	<b>1.029</b>	<b>F</b>	0.004	0.82	D	0.004	no
Crenshaw Blvd. /182nd St	signal	0.861	D	<b>0.931</b>	<b>E</b>	0.863	D	0.002	<b>0.93</b>	<b>E</b>	0.000	no
Hermosa Ave-Harbor Dr/Herondo St	signal	0.490	A	0.473	A	0.490	A	0.000	0.47	A	0.000	no
PCH/Catalina Ave	signal	0.823	D	0.876	D	0.824	D	0.001	0.88	D	0.001	no
PCH/Irena Avenue	signal	0.676	B	0.790	C	0.676	B	0.000	0.79	C	0.001	no
PCH/Beryl Street	signal	0.753	C	0.884	D	0.753	C	0.000	0.89	D	0.001	no
Prospect Ave/Beryl Street	signal	0.515	A	0.592	A	0.516	A	0.001	0.59	A	0.001	no
Harkness Lane/Beryl Street	all-way stop	9.9 sec	A	12.9 sec	B	9.9 sec	A	--	12.9 sec B	B	--	no

**4.13 Transportation and Traffic**

**Table 4.13-11 Year 2015 plus Phase 2 Intersection Level of Service Summary (ICU – Signalized Intersections)**

Intersection	Control	Year 2015 Baseline				Year 2015 plus Construction Phase 2						Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour			P.M. Peak Hour			
		V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS	Change	V/C or Delay	LOS	Change	
Flagler Lane/Beryl Street	all-way stop	11.1 sec	B	14 sec	B	11.1 sec	B	--	14 sec	B	--	no

Notes: Signalized intersections analyzed with the Intersection Capacity Utilization (ICU) methodology which provides LOS in terms of volume-to-capacity (V/C) ratios.  
 Unsignalized intersections analyzed with Highway Capacity Manual (HCM) methodology which provided LOS in terms of average control delay for entire intersection (for all-way stop control), or for critical movement (for 1- or 2-waystop control).  
**BOLD** Indicates intersection is currently operating with unsatisfactory LOS (LOS D, E F in Hermosa Beach, and LOS F in Redondo Beach, Torrance, and Caltrans/CMP intersections).  
**BOLD** Indicates intersection would be significantly impacted by the Proposed Project (Hermosa Beach: LOS C or better to LOS D, E, or F, or, additional  $\geq 0.010$  V/C to intersections operating at LOS D, E, or F in the baseline condition; Redondo Beach and Torrance: LOS D or better to LOS E or F, or, addition of  $\geq 0.010$  V/C to intersections operating at LOS E or F in baseline condition; CMP /Caltrans: project creates LOS F condition and adds  $\geq 0.020$  V/C to intersections operating at LOS F in baseline condition; all unsignalized intersections: project creates LOS E or F condition from LOS D or better, or, addition of 10% of traffic to intersection at LOS E or F).  
 Updated information, Errata to Traffic Impact Analysis (TIA) and Addendum TIA for E&B Oil Development Project in the City of Hermosa Beach (2014b).  
 Source: Arch Beach Consultants, 2012, 2014a & 2014b

**Table 4.13-12 Year 2015 plus Phase 2 Intersection Level of Service Summary (HCM – Caltrans and Torrance Intersections)**

Intersection	Control	Year 2015 Baseline				Year 2015 plus Construction Phase 2				Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
PCH/Artesia Boulevard	signal	<b>81.9 sec</b>	<b>F</b>	26.9 sec	C	<b>81.7 sec</b>	<b>F</b>	27.0 sec	C	no
PCH/21st Street	signal	6.1 sec	A	4.3sec	A	6.1 sec	A	4.3 sec	A	no
PCH/Aviation Boulevard	signal	<b>93.2 sec</b>	<b>F</b>	<b>93.8 sec</b>	<b>F</b>	<b>94.3 sec</b>	<b>F</b>	<b>93.9 sec</b>	<b>F</b>	no
PCH/8th Street	signal	13.6 sec	B	12.5sec	B	13.6sec	B	12.5sec	B	no
PCH/5th Street	signal	11.4sec	B	8.9sec	A	11.4sec	B	8.9sec	A	no
PCH/2nd Street	signal	8.0sec	A	9.3sec	A	8.0sec	A	9.4sec	A	no
PCH/Herondo Ave-Anita St	signal	23.7 sec	C	36.6 sec	D	24.5 sec	C	37.1 sec	D	no
PCH/Pier Avenue-14th Street	signal	12.1 sec	B	16.9 sec	B	12.2 sec	B	16.9 sec	B	no
PCH/16th Street	signal	7.3 sec	A	9.4sec	A	7.3 sec	A	9.4sec	A	no
Meyer Ln-Entradero Ave/190th St	signal	18.2 sec	B	12.6 sec	B	18.3 sec	B	12.6 sec	B	no
Anza Avenue/190th Street	signal	25.7 sec	C	21.4 sec	C	25.6 sec	C	21.5 sec	C	no
Inglewood Ave/190th St	signal	<b>59.7 sec</b>	<b>E</b>	<b>83.7 sec</b>	<b>F</b>	<b>60.6 sec</b>	<b>E</b>	<b>83.5 sec</b>	<b>F</b>	no
Hawthorne Blvd. /190th St	signal	31.5 sec	C	32.4 sec	C	31.6 sec	C	32.4 sec	C	no
Prairie Avenue/190th St	signal	34.2 sec	C	37.5 sec	D	34.3 sec	C	37.5 sec	D	no
Crenshaw Blvd. /190th St	signal	33.7 sec	C	33.6 sec	C	33.7 sec	C	33.7 sec	C	no

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**Table 4.13-12 Year 2015 plus Phase 2 Intersection Level of Service Summary (HCM – Caltrans and Torrance Intersections)**

Intersection	Control	Year 2015 Baseline				Year 2015 plus Construction Phase 2				Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
Western Avenue/190th St	signal	30.0 sec	C	29.9 sec	C	30.0 sec	C	29.9 sec	C	no
I-405 NB ramps/Artesia Blvd.	signal	13.8 sec	B	24.1 sec	C	13.9 sec	B	24.2 sec	C	no
Prairie Avenue/Artesia Blvd.	signal	37.4 sec	D	32.9 sec	C	37.3 sec	D	33.1 sec	C	no
I-405 NB ramps/182nd St	signal	17.8 sec	B	24.9 sec	C	17.9 sec	B	25.0 sec	C	no
I-405 SB ramps/Crenshaw Blvd.	signal	34.6 sec	C	21.0 sec	C	35.0 sec	D	21.0 sec	C	no
Crenshaw Blvd. /182nd St	signal	29.6 sec	C	30.0 sec	C	29.7 sec	C	30.0 sec	C	no
Hermosa Ave-Harbor Dr/Herondo St	signal	16.5 sec	B	15.4 sec	B	16.5 sec	B	15.4 sec	B	no
PCH/Catalina Ave	signal	13.7 sec	B	11.2 sec	B	13.7 sec	B	11.2 sec	B	no
PCH/Irena Avenue	signal	4.4 sec	A	5.9 sec	A	4.4 sec	A	5.9 sec	A	no
PCH/Beryl Street	signal	8.0 sec	A	12.6 sec	B	8.0 sec	A	12.6 sec	B	no

Notes: Caltrans and/or Torrance signalized intersections analyzed with the Highway Capacity Manual (HCM) methodology which provides LOS in terms of average control delay for entire intersection.

**BOLD** Indicates intersection would operate with unsatisfactory LOS (LOS E or LOS F).

**BOLD** Indicates intersection would be significantly impacted by the Proposed Project (Caltrans/CMP: project creates LOS F condition and add  $\geq 0.020$  V/C, or, addition of  $\geq 0.020$  V/C to intersections operating at LOS F in baseline condition per ICU analysis; Torrance: project creates LOS E or F condition from LOS D or better, or, addition of  $\geq 0.010$  V/C to intersections operating at LOS E or F in baseline condition per ICU analysis). Updated information, Errata to Traffic Impact Analysis (TIA) and Addendum TIA for E&B Oil Development Project in the City of Hermosa Beach (2014b).

Source: Arch Beach Consultants, 2012, 2014a & 2014b

Table 4.13-13 Year 2016 plus Phase 3 Intersection Level of Service Summary (ICU – Signalized Intersections)

Intersection	Control	Year 2016 Baseline				Year 2016 plus Construction Phase 3						Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour			P.M. Peak Hour			
		V/C or Delay LOS	LOS	V/C or Delay LOS	LOS	V/C or Delay	LOS	Change	V/C or Delay	LOS	Change	
PCH/Artesia Boulevard	signal	<b>1.259</b>	<b>F</b>	0.829	D	<b>1.259</b>	<b>F</b>	0.000	0.833	D	0.004	no
PCH/21st Street	signal	0.726	C	0.678	B	0.726	C	0.000	0.678	B	0.000	no
PCH/Aviation Boulevard	signal	<b>1.135</b>	<b>F</b>	<b>1.119</b>	<b>F</b>	<b>1.139</b>	<b>F</b>	0.004	<b>1.121</b>	<b>F</b>	0.002	no
PCH/8th Street	signal	0.854	D	0.827	D	0.857	D	0.003	0.829	D	0.002	no
PCH/5th Street	signal	0.806	D	0.745	C	0.809	D	0.003	0.745	C	0.000	no
PCH/2nd Street	signal	0.755	C	0.778	C	0.758	C	0.003	0.782	C	0.004	no
PCH/Herondo Ave-Anita St	signal	0.854	D	<b>1.095</b>	<b>F</b>	0.874	D	0.020	<b>1.096</b>	<b>F</b>	0.001	no
PCH/Pier Avenue-14th Street	signal	0.661	B	0.774	C	0.661	B	0.000	0.780	C	0.006	no
Prospect Avenue/Artesia Blvd.	signal	0.576	A	0.683	B	0.584	A	0.008	0.691	B	0.008	no
Prospect Ave/Aviation Blvd.	signal	0.645	B	0.729	C	0.645	B	0.000	0.73	C	0.001	no
Prospect Ave/Anita Street	signal	0.476	A	0.553	A	0.484	A	0.008	0.562	A	0.009	no
PCH/16th Street	signal	0.688	B	0.653	B	0.688	B	0.000	0.653	B	0.000	no
Ocean Drive/Aviation Blvd.	signal	0.403	A	0.458	A	0.403	A	0.000	0.458	A	0.000	no
Valley Drive/Pier Avenue	all-way stop	12.4 sec	B	20.5 sec	C	12.9 sec	B	--	21.4 sec	C	--	no
Ardmore Avenue/Pier Avenue	all-way stop	12.3 sec	B	17.4 sec	C	12.5 sec	B	--	17.8 sec	C	--	no
Valley Drive/11th Street	all-way stop	7.8 sec	A	9.2 sec	A	8.0 sec	A	--	9.3 sec	A	--	no

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Table 4.13-13 Year 2016 plus Phase 3 Intersection Level of Service Summary (ICU – Signalized Intersections)

Intersection	Control	Year 2016 Baseline				Year 2016 plus Construction Phase 3						Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour			P.M. Peak Hour			
		V/C or Delay LOS	LOS	V/C or Delay LOS	LOS	V/C or Delay	LOS	Change	V/C or Delay	LOS	Change	
Valley Drive/11th Place	1-way stop	9.7 sec	A	11.1 sec	B	9.9 sec	A	--	11.2 sec	B	--	no
Valley Drive/8th Street	all-way stop	9.3 sec	A	12.0 sec	B	9.7 sec	A	--	12.3 sec	B	--	no
Valley Drive/2nd Street	all-way stop	8.7 sec	A	11.1 sec	B	8.7 sec	A	--	11.7 sec	B	--	no
Valley Drive/6th Street	all-way stop	8.0 sec	A	9.4 sec	A	8.1 sec	A	--	9.7 sec	A	--	no
Valley Drive/Herondo Street	all-way stop	11.0 sec	B	15.8 sec	C	11.0 sec	B	--	16.1 sec	C	--	no
Flagler Ln/Anita St-190th St	all-way stop	32.6 sec	D	31.1 sec	D	34.8 sec	D	--	32.6 sec	D	--	no
Blossom Lane-Beryl St/190th St	2-way stop	<b>146.1 sec</b>	<b>F</b>	<b>690.3 sec</b>	<b>F</b>	<b>158.9 sec</b>	<b>F</b>	--	<b>767.8 sec</b>	<b>F</b>	--	no
Meyer Ln-Entradero Ave/190th St	signal	0.841	D	0.685	B	0.841	D	0.000	0.694	B	0.009	no
Anza Avenue/190th Street	signal	0.844	D	0.740	C	0.844	D	0.000	0.747	C	0.007	no
Inglewood Ave/190th St	signal	<b>1.111</b>	<b>F</b>	<b>1.198</b>	<b>F</b>	<b>1.120</b>	<b>F</b>	0.009	<b>1.20</b>	<b>F</b>	<b>0.000</b>	no
Firmona Avenue/190th St	2-way stop	<b>307.0 sec</b>	<b>F</b>	<b>198.3 sec</b>	<b>F</b>	<b>334.7 sec</b>	<b>F</b>	--	<b>207.60</b>	<b>F</b>	--	no
Hawthorne Blvd. /190th St	signal	<b>0.910</b>	<b>E</b>	<b>0.920</b>	<b>E</b>	<b>0.911</b>	<b>E</b>	0.001	<b>0.922</b>	<b>E</b>	0.002	no
Prairie Avenue/190th St	signal	0.859	D	<b>0.982</b>	<b>E</b>	0.860	D	0.001	<b>0.982</b>	<b>E</b>	0.000	no
Crenshaw Blvd. /190th St	signal	<b>0.906</b>	<b>E</b>	0.879	D	<b>0.906</b>	<b>E</b>	0.000	0.885	D	0.006	no

Table 4.13-13 Year 2016 plus Phase 3 Intersection Level of Service Summary (ICU – Signalized Intersections)

Intersection	Control	Year 2016 Baseline				Year 2016 plus Construction Phase 3						Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour			P.M. Peak Hour			
		V/C or Delay LOS	LOS	V/C or Delay LOS	LOS	V/C or Delay	LOS	Change	V/C or Delay	LOS	Change	
Western Avenue/190th St	signal	0.770	C	0.778	C	0.771	C	0.001	0.788	C	0.010	no
I-405 NB ramps/Artesia Blvd.	signal	0.540	A	0.874	D	0.542	A	0.002	0.875	D	0.001	no
I-405 SB ramps/Artesia Blvd.	1-way stop	11.1 sec	B	24.7 sec	C	11.1 sec	B	--	24.8	C	--	no
Prairie Avenue/Artesia Blvd.	signal	<b>0.957</b>	<b>E</b>	0.879	D	<b>0.957</b>	<b>E</b>	0.000	0.888	D	0.009	no
I-405 NB ramps/182nd St	signal	0.695	B	0.892	D	0.699	B	0.004	0.894	D	0.002	no
I-405 SB ramps/Crenshaw Blvd.	signal	<b>1.028</b>	<b>F</b>	0.819	D	<b>1.032</b>	<b>F</b>	0.004	0.826	D	0.007	no
Crenshaw Blvd. /182nd St	signal	0.863	D	<b>0.933</b>	<b>E</b>	0.867	D	0.004	<b>0.933</b>	<b>E</b>	0.000	no
Hermosa Ave-Harbor Dr/Herondo St	signal	0.491	A	0.474	A	0.491	A	0.000	0.474	A	0.000	no
PCH/Catalina Ave	signal	0.825	D	0.878	D	0.826	D	0.001	0.879	D	0.001	no
PCH/Irena Avenue	signal	0.678	B	0.792	C	0.678	B	0.000	0.793	C	0.001	no
PCH/Beryl Street	signal	0.755	C	0.886	D	0.756	C	0.001	0.887	D	0.001	no
Prospect Ave/Beryl Street	signal	0.516	A	0.594	A	0.517	A	0.001	0.594	A	0.000	no
Harkness Lane/Beryl Street	all-way stop	9.9 sec	A	12.9 sec	B	9.9 sec	A	--	12.9	B	--	no
Flagler Lane/Beryl Street	all-way stop	11.1 sec	B	14.0 sec	B	11.1 sec	B	--	14.0	B	--	no

Notes: Signalized intersections analyzed with the Intersection Capacity Utilization (ICU) methodology which provides LOS in terms of volume-to-capacity (V/C) ratios.

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Unsignalized intersections analyzed with Highway Capacity Manual (HCM) methodology which provided LOS in terms of average control delay for entire intersection (for all-way stop control), or for critical movement (for 1- or 2-way stop control).

**BOLD** Indicates intersection is currently operating with unsatisfactory LOS (LOS D, E F in Hermosa Beach, and LOS F in Redondo Beach, Torrance, and Caltrans/CMP intersections).

**BOLD** Indicates intersection would be significantly impacted by the Proposed Project (Hermosa Beach: LOS C or better to LOS D, E, or F, or, additional  $\geq 0.010$  V/C to intersections operating at LOS D, E, or F in the baseline condition; Redondo Beach and Torrance: LOS D or better to LOS E or F, or, addition of  $\geq 0.010$  V/C to intersections operating at LOS E or F in baseline condition; CMP /Caltrans: project creates LOS F condition and adds  $\geq 0.020$  V/C to intersections operating at LOS F in baseline condition; all unsignalized intersections: project creates LOS E or F condition from LOS D or better, or, addition of 10% of traffic to intersection at LOS E or F).

Updated information, Errata to Traffic Impact Analysis (TIA) and Addendum TIA for E&B Oil Development Project in the City of Hermosa Beach (2014b).

Source: Arch Beach Consultants, 2012, 2014a & 2014b

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Table 4.13-14 Year 2016 plus Phase 3 Intersection Level of Service Summary (Caltrans and Torrance Intersections)

Intersection	Control	Year 2016 Baseline				Year 2016 plus Construction Phase 3				Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
PCH/Artesia Boulevard	signal	<b>82.7 sec</b>	<b>F</b>	27.0 sec	C	<b>82.4 sec</b>	<b>F</b>	27.2 sec	C	no
PCH/21st Street	signal	6.2sec	A	4.3sec	A	6.1 sec	A	4.3sec	A	no
PCH/Aviation Boulevard	signal	<b>94.2 sec</b>	<b>F</b>	<b>93.3 sec</b>	<b>F</b>	<b>96.0 sec</b>	<b>F</b>	<b>93.4 sec</b>	<b>F</b>	no
PCH/8th Street	signal	13.7sec	B	12.sec	B	13.7sec	B	12.7sec	B	no
PCH/5th Street	signal	11.4sec	B	8.9sec	A	11.4sec	B	8.9sec	A	no
PCH/2nd Street	signal	8.0sec	A	9.3sec	A	8.0sec	A	9.7 sec	A	no
PCH/Herondo Ave-Anita St	signal	23.8 sec	C	36.9 sec	D	25.0 sec	C	37.6 sec	D	no
PCH/Pier Avenue-14th Street	signal	12.2 sec	B	16.9 sec	B	12.3 sec	B	17.1 sec	B	no
PCH/16th Street	signal	7.3 sec	A	9.4sec	A	7.3 sec	A	9.4sec	A	no
Meyer Ln-Entradero Ave/190th St	signal	18.3 sec	B	12.6 sec	B	18.3 sec	B	12.6 sec	B	no
Anza Avenue/190th Street	signal	25.7 sec	C	21.5 sec	C	25.7 sec	C	21.5 sec	C	no
Inglewood Ave/190th St	signal	<b>60.2 sec</b>	<b>E</b>	<b>84.4 sec</b>	<b>F</b>	<b>61.6 sec</b>	<b>E</b>	<b>84.1 sec</b>	<b>F</b>	no
Hawthorne Blvd. /190th St	signal	31.6 sec	C	32.4 sec	C	31.6 sec	C	32.5 sec	C	no
Prairie Avenue/190th St	signal	34.3 sec	C	37.6 sec	D	34.4 sec	C	37.7 sec	D	no
Crenshaw Blvd. /190th St	signal	33.8 sec	C	33.7 sec	C	33.8 sec	C	33.9 sec	C	no
Western Avenue/190th St	signal	30.1 sec	C	29.9 sec	C	30.1 sec	C	29.9 sec	C	no
I-405 NB ramps/Artesia Blvd.	signal	13.9 sec	B	24.2 sec	C	14.0 sec	B	24.3 sec	C	no
Prairie Avenue/Artesia Blvd.	signal	37.5 sec	D	33.0 sec	C	37.5 sec	D	33.4 sec	C	no

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Table 4.13-14 Year 2016 plus Phase 3 Intersection Level of Service Summary (Caltrans and Torrance Intersections)

Intersection	Control	Year 2016 Baseline				Year 2016 plus Construction Phase 3				Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
I-405 NB ramps/182nd St	signal	17.8 sec	B	25.0 sec	C	18.0 sec	B	25.1 sec	C	no
I-405 SB ramps/Crenshaw Blvd.	signal	34.9 sec	C	21.0 sec	C	35.5 sec	D	21.1 sec	C	no
Crenshaw Blvd. /182nd St	signal	29.7 sec	C	30.1 sec	C	29.8 sec	C	30.1 sec	C	no
Hermosa Ave-Harbor Dr/Herondo St	signal	16.5 sec	B	15.4 sec	B	16.5 sec	B	15.4 sec	B	no
PCH/Catalina Ave	signal	13.7 sec	B	11.2 sec	B	13.7 sec	B	11.2 sec	B	no
PCH/Irena Avenue	signal	4.4 sec	A	5.9 sec	A	4.4 sec	A	5.9 sec	A	no
PCH/Beryl Street	signal	8.1 sec	A	12.6 sec	B	8.1 sec	A	12.6 sec	B	no

Notes: Caltrans and/or Torrance signalized intersections analyzed with the Highway Capacity Manual (HCM) methodology which provides LOS in terms of average control delay for entire intersection.

**BOLD** Indicates intersection would operate with unsatisfactory LOS (LOS E or LOS F).

**BOLD** Indicates intersection would be significantly impacted by the Proposed Project (Caltrans/CMP: project creates LOS F condition and add  $\geq 0.020$  V/C, or, addition of  $\geq 0.020$  V/C to intersections operating at LOS F in baseline condition per ICU analysis; Torrance: project creates LOS E or F condition from LOS D or better, or, addition of  $\geq 0.010$  V/C to intersections operating at LOS E or F in baseline condition per ICU analysis). Updated information, Errata to Traffic Impact Analysis (TIA) and Addendum TIA for E&B Oil Development Project in the City of Hermosa Beach (2014b).

Source: Arch Beach Consultants, 2012, 2014a & 2014b

Table 4.13-15 Year 2018 plus Phase 4 Intersection Level of Service Summary (ICU – Signalized Intersection)

Intersection	Control	Year 2018 Baseline				Year 2018 plus Construction Phase 4						Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		Change	P.M. Peak Hour		Change	
		V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS		V/C or Delay	LOS		
PCH/Artesia Boulevard	signal	1.265	F	0.832	D	1.265	F	0.000	0.834	D	0.002	no
PCH/21st Street	signal	0.730	C	0.681	B	0.730	C	0.000	0.681	B	0.000	no
PCH/Aviation Boulevard	signal	1.140	F	1.124	F	1.143	F	0.003	1.125	F	0.001	no
PCH/8th Street	signal	0.858	D	0.830	D	0.860	D	0.002	0.831	D	0.001	no
PCH/5th Street	signal	0.810	D	0.749	C	0.812	D	0.002	0.749	C	0.000	no
PCH/2nd Street	signal	0.758	C	0.781	C	0.760	C	0.002	0.783	C	0.002	no
PCH/Herondo Ave-Anita St	signal	0.858	D	1.100	F	0.869	D	0.011	1.101	F	0.001	no
PCH/Pier Avenue-14th Street	signal	0.664	B	0.778	C	0.664	B	0.000	0.78	C	0.002	no
Prospect Avenue/Artesia Blvd.	signal	0.579	A	0.686	B	0.582	A	0.003	0.69	B	0.004	no
Prospect Ave/Aviation Blvd.	signal	0.647	B	0.733	C	0.647	B	0.000	0.733	C	0.000	no
Prospect Ave/Anita Street	signal	0.478	A	0.555	A	0.478	A	0.000	0.56	A	0.005	no
PCH/16th Street	signal	0.691	B	0.656	B	0.691	B	0.000	0.656	B	0.000	no
Ocean Drive/Aviation Blvd.	signal	0.405	A	0.460	A	0.405	A	0.000	0.46	A	0.000	no
Valley Drive/Pier Avenue	all-way stop	12.5 sec	B	20.8 sec	C	12.7 sec	B	--	21.2 sec	C	--	no
Ardmore Avenue/Pier Avenue	all-way stop	12.4 sec	B	17.6 sec	C	12.5 sec	B	--	17.7 sec	C	--	no
Valley Drive/11th Street	all-way stop	7.8 sec	A	9.3 sec	A	7.9 sec	A	--	9.3 sec	A	--	no

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Table 4.13-15 Year 2018 plus Phase 4 Intersection Level of Service Summary (ICU – Signalized Intersection)

Intersection	Control	Year 2018 Baseline				Year 2018 plus Construction Phase 4						Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		Change	P.M. Peak Hour		Change	
		V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS		V/C or Delay	LOS		
Valley Place Drive/11th	1-way stop	9.7 sec	A	11.1 sec	B	9.8 sec	A	--	11.2 sec	B	--	no
Valley Street Drive/8th	all-way stop	9.4 sec	A	12.1 sec	B	9.5 sec	A	--	12.2 sec	B	--	no
Valley Street Drive/2nd	all-way stop	8.7 sec	A	11.1 sec	B	8.7 sec	A	--	11.5 sec	B	--	no
Valley Street Drive/6th	all-way stop	8.0 sec	A	9.4 sec	A	8.0 sec	A	--	9.6 sec	A	--	no
Valley Drive/Herondo Street	all-way stop	11.1 sec	B	15.9 sec	C	11.1 sec	B	--	16.1 sec	C	--	no
Flagler Ln/Anita St-190th St	all-way stop	33.2 sec	D	31.7 sec	D	34.4 sec	D	--	32.5 sec	D	--	no
Blossom Lane-Beryl St/190th St	2-way stop	<b>155.2 sec</b>	<b>F</b>	<b>733.2 sec</b>	<b>F</b>	<b>162.7 sec</b>	<b>F</b>	--	<b>776.7 sec</b>	<b>F</b>	--	no
Meyer Ln-Entradero Ave/190th St	signal	0.845	D	0.688	B	0.845	D	0.000	0.693	B	0.005	no
Anza Avenue/190th Street	signal	0.847	D	0.743	C	0.847	D	0.000	0.747	C	0.004	no
Inglewood Ave/190th St	signal	<b>1.117</b>	<b>F</b>	<b>1.204</b>	<b>F</b>	<b>1.121</b>	<b>F</b>	0.004	<b>1.204</b>	<b>F</b>	<b>0.000</b>	no
Firmona Avenue/190th St	2-way stop	<b>319.9 sec</b>	<b>F</b>	<b>206.8 sec</b>	<b>F</b>	<b>335.0 sec</b>	<b>F</b>	--	<b>211.8 sec</b>	<b>F</b>	--	no
Hawthorne Blvd./190th St	signal	<b>0.925</b>	<b>E</b>	<b>0.925</b>	<b>E</b>	<b>0.925</b>	<b>E</b>	0.000	<b>0.925</b>	<b>E</b>	0.000	no
Prairie Avenue/190th St	signal	0.863	D	<b>0.987</b>	<b>E</b>	0.864	D	0.001	<b>0.987</b>	<b>E</b>	0.000	no
Crenshaw Blvd./190th St	signal	<b>0.910</b>	<b>E</b>	0.883	D	<b>0.910</b>	<b>E</b>	0.000	0.887	D	0.004	no
Western Avenue/190th St	signal	0.774	C	0.792	C	0.774	C	0.000	0.792	C	0.000	no

Table 4.13-15 Year 2018 plus Phase 4 Intersection Level of Service Summary (ICU – Signalized Intersection)

Intersection	Control	Year 2018 Baseline				Year 2018 plus Construction Phase 4						Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		Change	P.M. Peak Hour		Change	
		V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS		V/C or Delay	LOS		
I-405 NB ramps/Artesia Blvd.	signal	0.543	A	0.878	D	0.544	A	0.001	0.878	D	0.000	no
I-405 SB ramps/Artesia Blvd.	1-way stop	11.1 sec	B	25.1 sec	D	11.1 sec	B	--	25.1 sec	D	--	no
Prairie Avenue/Artesia Blvd.	signal	<b>0.961</b>	<b>E</b>	0.883	D	<b>0.961</b>	<b>E</b>	0.000	0.887	D	0.004	no
I-405 NB ramps/182nd St	signal	0.698	B	0.896	D	0.700	C	0.002	0.897	D	0.001	no
I-405 SB ramps/Crenshaw Blvd.	signal	<b>1.032</b>	<b>F</b>	0.823	D	<b>1.035</b>	<b>F</b>	0.003	0.827	D	0.004	no
Crenshaw Blvd./182nd St	signal	0.867	D	<b>0.938</b>	<b>E</b>	0.869	D	0.002	<b>0.938</b>	<b>E</b>	0.000	no
Hermosa Ave-Harbor Dr/Herondo St	signal	0.493	A	0.476	A	0.493	A	0.000	0.476	A	0.000	no
PCH/Catalina Ave	signal	0.829	D	0.882	D	0.829	D	0.000	0.883	D	0.001	no
PCH/Irena Avenue	signal	0.680	B	0.796	C	0.681	B	0.001	0.796	C	0.000	no
PCH/Beryl Street	signal	0.758	C	0.890	D	0.759	C	0.001	0.891	D	0.001	no
Prospect Ave/Beryl Street	signal	0.519	A	0.596	A	0.519	A	0.000	0.596	A	0.000	no
Harkness Lane/Beryl Street	all-way stop	9.9 sec	A	13.0 sec	B	9.9 sec	A	--	13 sec	B	--	no
Flagler Lane/Beryl Street	all-way stop	11.1 sec	B	14.1 sec	B	11.1 sec	B	--	14.1 sec	B	--	no

Notes: Signalized intersections analyzed with the Intersection Capacity Utilization (ICU) methodology which provides LOS in terms of volume-to-capacity (V/C) ratios.

Unsignalized intersections analyzed with Highway Capacity Manual (HCM) methodology which provided LOS in terms of average control delay for entire intersection (for all-way stop control), or for critical movement (for 1- or 2-waystop control).

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**BOLD** Indicates intersection is currently operating with unsatisfactory LOS (LOS D, E F in Hermosa Beach, and LOS F in Redondo Beach, Torrance, and Caltrans/CMP intersections).

**BOLD** Indicates intersection would be significantly impacted by the Proposed Project (Hermosa Beach: LOS C or better to LOS D, E, or F, or, additional  $\geq 0.010$  V/C to intersections operating at LOS D, E, or F in the baseline condition; Redondo Beach and Torrance: LOS D or better to LOS E or F, or, addition of  $\geq 0.010$  V/C to intersections operating at LOS E or F in baseline condition; CMP /Caltrans: project creates LOS F condition and adds  $\geq 0.020$  V/C to intersections operating at LOS F in baseline condition; all unsignalized intersections: project creates LOS E or F condition from LOS D or better, or, addition of 10% of traffic to intersection at LOS E or F).

Updated information, Errata to Traffic Impact Analysis (TIA) and Addendum TIA for E&B Oil Development Project in the City of Hermosa Beach (2014b).

Source: Arch Beach Consultants, 2012, 2014a & 2014b

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**Table 4.13-16 Year 2018 plus Phase 4 Intersection Level of Service Summary (HCM – Caltrans and Torrance Intersections)**

Intersection	Control	Year 2018 Baseline				Year 2018 plus Construction Phase 4				Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
PCH/Artesia Boulevard	signal	<b>84.3 sec</b>	<b>F</b>	27.1 sec	C	<b>84.1 sec</b>	<b>F</b>	27.2 sec	C	no
PCH/21st Street	signal	6.2sec	A	4.3sec	A	6.2sec	A	4.3sec	A	no
PCH/Aviation Boulevard	signal	<b>96.2 sec</b>	<b>F</b>	<b>95.0 sec</b>	<b>F</b>	<b>97.1 sec</b>	<b>F</b>	<b>95.2 sec</b>	<b>F</b>	no
PCH/8th Street	signal	13.8sec	B	12.6sec	B	13.8sec	B	12.7sec	B	no
PCH/5th Street	signal	11.5sec	B	9.0sec	A	11.5sec	B	9.0sec	A	no
PCH/2nd Street	signal	8.1sec	A	9.4sec	A	8.1sec	A	9.6sec	A	no
PCH/Herondo Ave-Anita St	signal	23.9 sec	C	37.5 sec	D	24.5 sec	C	37.9 sec	D	no
PCH/Pier Avenue-14th Street	signal	12.2 sec	B	17.0 sec	B	12.3 sec	B	17.0 sec	B	no
PCH/16th Street	signal	7.3 sec	A	9.4sec	A	7.3 sec	A	9.4sec	A	no
Meyer Ln-Entradero Ave/190th St	signal	18.4 sec	B	12.7 sec	B	18.4 sec	B	12.6 sec	B	no
Anza Avenue/190th Street	signal	25.8 sec	C	21.5 sec	C	25.8 sec	C	21.5 sec	C	no
Inglewood Ave/190th St	signal	<b>61.2 sec</b>	<b>E</b>	<b>85.9 sec</b>	<b>F</b>	<b>61.9 sec</b>	<b>E</b>	<b>85.8 sec</b>	<b>F</b>	no
Hawthorne Blvd. /190th St	signal	31.8 sec	C	32.6 sec	C	31.8 sec	C	32.7 sec	C	no
Prairie Avenue/190th St	signal	34.4 sec	C	37.9 sec	D	34.5 sec	C	37.9 sec	D	no
Crenshaw Blvd. /190th St	signal	34.0 sec	C	33.8 sec	C	34.0 sec	C	33.9 sec	C	no
Western Avenue/190th St	signal	30.2 sec	C	30.0 sec	C	30.2 sec	C	30.0 sec	C	no
I-405 NB ramps/Artesia	signal	13.9 sec	B	24.4 sec	C	14.0 sec	B	24.4 sec	C	no

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**Table 4.13-16 Year 2018 plus Phase 4 Intersection Level of Service Summary (HCM – Caltrans and Torrance Intersections)**

Intersection	Control	Year 2018 Baseline				Year 2018 plus Construction Phase 4				Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
Blvd.										
Prairie Avenue/Artesia Blvd.	signal	37.8 sec	D	33.2 sec	C	37.8 sec	D	33.3 sec	C	no
I-405 NB ramps/182nd St	signal	17.8 sec	B	25.4 sec	C	17.9 sec	B	25.5 sec	C	no
I-405 SB ramps/Crenshaw Blvd.	signal	35.6 sec	D	21.1 sec	C	36.0 sec	D	21.2 sec	C	no
Crenshaw Blvd. /182nd St	signal	29.8 sec	C	30.3 sec	C	29.9 sec	C	30.3 sec	C	no
Hermosa Ave-Harbor Dr/Herondo St	signal	16.6 sec	B	15.4 sec	B	16.6 sec	B	15.4 sec	B	no
PCH/Catalina Ave	signal	13.8 sec	B	11.3 sec	B	13.8 sec	B	11.3 sec	B	no
PCH/Irena Avenue	signal	4.4 sec	A	6.0 sec	A	4.4 sec	A	6.0 sec	A	no
PCH/Beryl Street	signal	8.1 sec	A	12.7 sec	B	8.1 sec	A	12.7 sec	B	no

Notes: Caltrans and/or Torrance signalized intersections analyzed with the Highway Capacity Manual (HCM) methodology which provides LOS in terms of average control delay for entire intersection.

**BOLD** Indicates intersection would operate with unsatisfactory LOS (LOS E or LOS F).

**BOLD** Indicates intersection would be significantly impacted by the Proposed Project (Caltrans/CMP: project creates LOS F condition and add  $\geq 0.020$  V/C, or, addition of  $\geq 0.020$  V/C to intersections operating at LOS F in baseline condition per ICU analysis; Torrance: project creates LOS E or F condition from LOS D or better, or, addition of  $\geq 0.010$  V/C to intersections operating at LOS E or F in baseline condition per ICU analysis).

Updated information, Errata to Traffic Impact Analysis (TIA) and Addendum TIA for E&B Oil Development Project in the City of Hermosa Beach (2014b).

Source: Arch Beach Consultants, 2012, 2014a & 2014b

Table 4.13-17 Build out Year 2035 plus Phase 4 Intersection Level of Service Summary (ICU – Signalized Intersections)

Intersection	Control	Year 2035 Baseline				Year 2035 plus Operational Phase						Significant Impact?
		AM Peak Hour		P.M. Peak Hour		A.M. Peak Hour			P.M. Peak Hour			
		V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS	Change	V/C or Delay	LOS	Change	
PCH/Artesia Boulevard	signal	<b>1.303</b>	<b>F</b>	0.856	D	<b>1.303</b>	<b>F</b>	0.000	0.857	D	0.001	no
PCH/21st Street	signal	0.750	C	0.700	C	0.750	C	0.000	0.7	C	0.000	no
PCH/Aviation Boulevard	signal	<b>1.174</b>	<b>F</b>	<b>1.153</b>	<b>F</b>	<b>1.175</b>	<b>F</b>	0.001	<b>1.154</b>	<b>F</b>	0.001	no
PCH/8th Street	signal	0.883	D	0.854	D	0.884	D	0.001	0.854	D	0.000	no
PCH/5th Street	signal	0.833	D	0.770	C	0.834	D	0.001	0.77	C	0.000	no
PCH/2nd Street	signal	0.780	C	0.804	D	0.781	C	0.001	0.804	D	0.000	no
PCH/Herondo Ave-Anita St	signal	0.883	D	<b>1.132</b>	<b>F</b>	0.887	D	0.004	<b>1.133</b>	<b>F</b>	0.001	no
PCH/Pier Avenue-14th Street	signal	0.682	B	0.800	C	0.682	B	0.000	0.801	D	0.001	no
Prospect Avenue/Artesia Blvd.	signal	0.594	A	0.705	C	0.595	A	0.001	0.706	C	0.001	no
Prospect Ave/Aviation Blvd.	signal	0.665	B	0.753	C	0.665	B	0.000	0.753	C	0.000	no
Prospect Ave/Anita Street	signal	0.490	A	0.570	A	0.490	A	0.000	0.572	A	0.002	no
PCH/16th Street	signal	0.710	C	0.674	B	0.710	C	0.000	0.674	B	0.000	no
Ocean Drive/Aviation Blvd.	signal	0.415	A	0.471	A	0.415	A	0.000	0.471	A	0.000	no
Valley Drive/Pier Avenue	all-way stop	12.8 sec	B	22.4 sec	C	12.9 sec	B	--	22.6 sec	C	--	no
Ardmore Avenue/Pier Avenue	all-way stop	12.8 sec	B	18.7 sec	C	12.8 sec	B	--	18.8 sec	C	--	no
Valley Drive/11th Street	all-way stop	7.9 sec	A	9.4 sec	A	7.9 sec	A	--	9.4 sec	A	--	no
Valley Drive/11th	1-way	9.7	A	11.3 sec	B	9.8	A	--	11.3 sec	B	--	no

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Table 4.13-17 Build out Year 2035 plus Phase 4 Intersection Level of Service Summary (ICU – Signalized Intersections)

Intersection	Control	Year 2035 Baseline				Year 2035 plus Operational Phase						Significant Impact?	
		AM Peak Hour		P.M. Peak Hour		A.M. Peak Hour			P.M. Peak Hour				
		V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS	Change	V/C or Delay	LOS	Change		
Place	stop	sec				sec							
Valley Drive/8th Street	all-way stop	9.5 sec	A	12.5 sec	B	9.6 sec	A	--	12.6 sec	B	--	no	
Valley Drive/2nd Street	all-way stop	8.8 sec	A	11.5 sec	B	8.8 sec	A	--	11.6 sec	B	--	no	
Valley Drive/6th Street	all-way stop	8.0 sec	A	9.6 sec	A	8.0 sec	A	--	9.6 sec	A	--	no	
Valley Drive/Herondo Street	all-way stop	11.3 sec	B	16.7 sec	C	11.3 sec	B	--	16.7 sec	C	--	no	
Flagler Ln/Anita St-190th St	all-way stop	<b>37.7 sec</b>	<b>E</b>	<b>36.2 sec</b>	<b>E</b>	<b>38.2 sec</b>	<b>E</b>	--	<b>36.5 sec</b>	<b>E</b>	--	no	
Blossom Lane-Beryl St/190th St	2-way stop	<b>236.4 sec</b>	<b>F</b>	<b>600.0 sec</b>	<b>F</b>	<b>240.2 sec</b>	<b>F</b>	--	<b>600 sec</b>	<b>F</b>	--	no	
Meyer Ln-Entradero Ave/190th St	signal	0.870	D	0.704	C	0.870	D	0.000	0.706	C	0.002	no	
Anza Avenue/190th Street	signal	0.872	D	0.764	C	0.872	D	0.000	0.765	C	0.001	no	
Inglewood Ave/190th St	signal	<b>1.150</b>	<b>F</b>	<b>1.240</b>	<b>F</b>	<b>1.151</b>	<b>F</b>	0.001	<b>1.240</b>	<b>F</b>	<b>0.000</b>	no	
Firmona Avenue/190th St	2-way stop	<b>412.7 sec</b>	<b>F</b>	<b>270.5 sec</b>	<b>F</b>	<b>419.2 sec</b>	<b>F</b>	--	<b>272.7 sec</b>	<b>F</b>	--	no	
Hawthorne Blvd./190th St	signal	<b>0.952</b>	<b>E</b>	<b>0.952</b>	<b>E</b>	<b>0.952</b>	<b>E</b>	0.000	<b>0.952</b>	<b>E</b>	0.000	no	
Prairie Avenue/190th St	signal	0.888	D	<b>1.016</b>	<b>F</b>	0.888	D	0.000	<b>1.016</b>	<b>F</b>	0.000	no	
Crenshaw Blvd./190th St	signal	<b>0.937</b>	<b>E</b>	<b>0.909</b>	<b>E</b>	<b>0.937</b>	<b>E</b>	0.000	0.91	D	0.001	no	
Western Avenue/190th St	signal	0.796	C	0.815	D	0.796	C	0.000	0.815	D	0.000	no	

Table 4.13-17 Build out Year 2035 plus Phase 4 Intersection Level of Service Summary (ICU – Signalized Intersections)

Intersection	Control	Year 2035 Baseline				Year 2035 plus Operational Phase						Significant Impact?
		AM Peak Hour		P.M. Peak Hour		A.M. Peak Hour			P.M. Peak Hour			
		V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS	Change	V/C or Delay	LOS	Change	
I-405 NB ramps/Artesia Blvd.	signal	0.557	A	<b>0.903</b>	<b>E</b>	0.558	A	0.001	<b>0.903</b>	<b>E</b>	<b>0.000</b>	no
I-405 SB ramps/Artesia Blvd.	1-way stop	11.2 sec	B	28.1 sec	D	11.2 sec	B	--	28.1 sec	D	--	no
Prairie Avenue/Artesia Blvd.	signal	<b>0.990</b>	<b>E</b>	<b>0.909</b>	<b>E</b>	<b>0.990</b>	<b>E</b>	0.000	<b>0.91</b>	<b>E</b>	<b>0.001</b>	no
I-405 NB ramps/182nd St	signal	0.717	C	<b>0.922</b>	<b>E</b>	0.718	C	0.001	<b>0.923</b>	<b>E</b>	<b>0.001</b>	no
I-405 SB ramps/Crenshaw Blvd.	signal	<b>1.063</b>	<b>F</b>	0.847	D	<b>1.064</b>	<b>F</b>	0.001	0.848	D	0.001	no
Crenshaw Blvd./182nd St	signal	0.892	D	<b>0.965</b>	<b>E</b>	0.892	D	0.000	<b>0.965</b>	<b>E</b>	0.000	no
Hermosa Ave-Harbor Dr/Herondo St	signal	0.506	A	0.488	A	0.506	A	0.000	0.488	A	0.000	no
PCH/Catalina Ave	signal	0.853	D	<b>0.908</b>	<b>E</b>	0.853	D	0.000	<b>0.908</b>	<b>E</b>	<b>0.000</b>	no
PCH/Irena Avenue	signal	0.699	B	0.818	D	0.699	B	0.000	0.818	D	0.000	no
PCH/Beryl Street	signal	0.780	C	<b>0.916</b>	<b>E</b>	0.780	C	0.000	<b>0.916</b>	<b>E</b>	<b>0.000</b>	no
Prospect Ave/Beryl Street	signal	0.532	A	0.612	B	0.532	A	0.000	0.612	B	0.000	no
Harkness Lane/Beryl Street	all-way stop	10.1 sec	B	13.5 sec	B	10.1 sec	B	--	13.5 sec	B	--	no
Flagler Lane/Beryl Street	all-way stop	11.4 sec	B	14.8 sec	B	11.4 sec	B	--	14.8 sec	B	--	no

Notes: Signalized intersections analyzed with the Intersection Capacity Utilization (ICU) methodology which provides LOS in terms of volume-to-capacity (V/C) ratios.

Unsignalized intersections analyzed with Highway Capacity Manual (HCM) methodology which provided LOS in terms of average control delay for entire intersection (for all-way stop control), or for critical movement (for 1- or 2-waystop control).

#### 4.13 Transportation and Traffic

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**BOLD** Indicates intersection is currently operating with unsatisfactory LOS (LOS D, E F in Hermosa Beach, and LOS F in Redondo Beach, Torrance, and Caltrans/CMP intersections).

**BOLD** Indicates intersection would be significantly impacted by the Proposed Project (Hermosa Beach: LOS C or better to LOS D, E, or F, or, additional  $\geq 0.010$  V/C to intersections operating at LOS D, E, or F in the baseline condition; Redondo Beach and Torrance: LOS D or better to LOS E or F, or, addition of  $\geq 0.010$  V/C to intersections operating at LOS E or F in baseline condition; CMP /Caltrans: project creates LOS F condition and adds  $\geq 0.020$  V/C to intersections operating at LOS F in baseline condition; all unsignalized intersections: project creates LOS E or F condition from LOS D or better, or, addition of 10% of traffic to intersection at LOS E or F).

Updated information, Errata to Traffic Impact Analysis (TIA) and Addendum TIA for E&B Oil Development Project in the City of Hermosa Beach (2014b).

Source: Arch Beach Consultants, 2012, 2014a & 2014b

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Table 4.13-18 Build out Year 2035 plus Phase 4 Intersection Level of Service Summary (HCM – Caltrans and Torrance Intersections)

Intersection	Control	Year 2035 Baseline				Year 2035 plus Operational Phase				Significant Impact?
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
PCH/Artesia Boulevard	signal	<b>94.5 sec</b>	<b>F</b>	27.7 sec	C	<b>94.5 sec</b>	<b>F</b>	27.8 sec	C	no
PCH/21st Street	signal	6.4sec	A	4.4sec	A	6.4sec	A	4.4sec	A	no
PCH/Aviation Boulevard	signal	<b>109.1 sec</b>	<b>F</b>	<b>107.9 sec</b>	<b>F</b>	<b>109.3 sec</b>	<b>F</b>	<b>107.9 sec</b>	<b>F</b>	no
PCH/8th Street	signal	14.4sec	B	13.3sec	B	14.4sec	B	13.3sec	B	no
PCH/5th Street	signal	12.0sec	B	9.3sec	A	12.0sec	B	9.3sec	A	no
PCH/2nd Street	signal	8.4sec	A	9.8sec	A	8.4sec	A	9.9sec	A	no
PCH/Herondo Ave-Anita St	signal	24.6 sec	C	42.2 sec	D	24.9 sec	C	42.3 sec	D	no
PCH/Pier Avenue-14th Street	signal	12.3 sec	B	17.4 sec	B	12.4 sec	B	17.4 sec	B	no
PCH/16th Street	signal	7.5 sec	A	9.6sec	A	7.5 sec	A	9.6sec	A	no
Meyer Ln-Entradero Ave/190th St	signal	18.9 sec	B	13.0 sec	B	18.9 sec	B	13.0 sec	B	no
Anza Avenue/190th Street	signal	26.7 sec	C	21.9 sec	C	26.6 sec	C	21.9 sec	C	no
Inglewood Ave/190th St	signal	<b>68.0 sec</b>	<b>E</b>	<b>95.7 sec</b>	<b>F</b>	<b>68.3 sec</b>	<b>E</b>	<b>95.7 sec</b>	<b>F</b>	no
Hawthorne Blvd. /190th St	signal	32.8 sec	C	33.9 sec	C	32.8 sec	C	33.9 sec	C	no
Prairie Avenue/190th St	signal	35.5 sec	D	40.0 sec	D	35.5 sec	D	40.0 sec	D	no
Crenshaw Blvd. /190th St	signal	35.1 sec	D	34.8 sec	C	35.1 sec	D	34.8 sec	C	no
Western Avenue/190th St	signal	30.7 sec	C	30.4 sec	C	30.7 sec	C	30.4 sec	C	no
I-405 NB ramps/Artesia Blvd.	signal	14.1 sec	B	25.8 sec	C	14.1 sec	B	25.8 sec	C	no
Prairie Avenue/Artesia Blvd.	signal	40.2 sec	D	34.1 sec	C	40.2 sec	D	34.1 sec	C	no
I-405 NB ramps/182nd St	signal	17.9 sec	B	29.2 sec	C	18.0 sec	B	29.5 sec	C	no
I-405 SB ramps/Crenshaw Blvd.	signal	40.2 sec	D	21.7 sec	C	40.4 sec	D	21.7 sec	C	no
Crenshaw Blvd. /182nd St	signal	30.5 sec	C	31.2 sec	C	30.6 sec	C	31.2 sec	C	no
Hermosa Ave-Harbor Dr/Herondo St	signal	16.6 sec	B	15.5 sec	B	16.6 sec	B	15.5 sec	B	no
PCH/Catalina Ave	signal	14.2 sec	B	11.8 sec	B	14.2 sec	B	11.8 sec	B	no
PCH/Irena Avenue	signal	4.5 sec	A	6.2 sec	A	4.5 sec	A	6.2 sec	A	no
PCH/Beryl Street	signal	8.3 sec	A	13.2 sec	B	8.3 sec	A	13.2 sec	B	no

#### 4.13 Transportation and Traffic

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Notes: Caltrans and/or Torrance signalized intersections analyzed with the Highway Capacity Manual (HCM) methodology which provides LOS in terms of average control delay for entire intersection.

**BOLD** Indicates intersection would operate with unsatisfactory LOS (LOS E or LOS F).

**BOLD** Indicates intersection would be significantly impacted by the Proposed Project (Caltrans/CMP: project creates LOS F condition and add  $\geq 0.020$  V/C, or, addition of  $\geq 0.020$  V/C to intersections operating at LOS F in baseline condition per ICU analysis; Torrance: project creates LOS E or F condition from LOS D or better, or, addition of  $\geq 0.010$  V/C to intersections operating at LOS E or F in baseline condition per ICU analysis). Updated information, Errata to Traffic Impact Analysis (TIA) and Addendum TIA for E&B Oil Development Project in the City of Hermosa Beach (2014b).

Source: Arch Beach Consultants, 2012, 2014a & 2014b

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Table 4.13-19 Phase 1 Roadway Segment Analysis

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
Pier Ave. from PCH to Valley Dr	a.m.	2,800	959	966	0.34	A	982	0.35	B	0.57%	no
	p.m.	2,800	1,103	1,112	0.40	B	1,128	0.40	B	0.57%	no
	daily	29,000	15,529	15,650	0.54	C	15,760	0.54	C	0.38%	no
Valley Dr from Pier Ave. to 11 <sup>th</sup> St	a.m.	2,000	417	421	0.21	A	437	0.22	A	0.80%	no
	p.m.	2,000	558	563	0.28	A	579	0.29	A	0.80%	no
	daily	15,000	5,789	5,834	0.39	B	5,944	0.40	B	0.73%	no
Valley from 11 <sup>th</sup> St to 8 <sup>th</sup> St	a.m.	2,000	388	391	0.20	A	407	0.20	A	0.80%	no
	p.m.	2,000	523	527	0.26	A	543	0.27	A	0.80%	no
	daily	15,000	5,346	5,388	0.36	B	5,498	0.37	B	0.73%	no
Valley Dr from 8 <sup>th</sup> St to 2 <sup>nd</sup> St	a.m.	2,000	289	292	0.15	A	308	0.15	A	0.80%	no
	p.m.	2,000	471	475	0.24	A	491	0.25	A	0.80%	no
	daily	15,000	4,724	4,761	0.32	A	4,871	0.32	A	0.73%	no
Valley Dr from 2 <sup>nd</sup> St to Herondo St	a.m.	2,000	252	253	0.13	A	269	0.13	A	0.80%	no
	p.m.	2,000	408	411	0.21	A	427	0.21	A	0.80%	no
	daily	15,000	3,631	3,659	0.24	A	3,769	0.25	A	0.73%	no
Herondo St from Valley Dr to PCH	a.m.	1,680	918	925	0.55	C	941	0.56	C	0.95%	no
	p.m.	1,680	988	996	0.59	C	1,012	0.60	C	0.95%	no
	daily	13,000	12,544	12,642	0.97	E	12,752	0.98	E	0.85%	no
6 <sup>th</sup> St from Valley Dr to Hermosa Ave	a.m.	200	72	73	0.36	B	89	0.44	B	8.00%	no
	p.m.	200	73	74	0.37	B	90	0.45	B	8.00%	no
	daily	2,500	806	812	0.32	A	922	0.37	B	4.40%	no
Herondo St/Anita St from Valley Dr to PCH	a.m.	1,680	637	642	0.38	B	658	0.39	B	0.95%	no
	p.m.	1,680	913	920	0.55	C	936	0.56	C	0.95%	no
	daily	13,000	10,764	10,848	0.83	D	10,958	0.84	D	0.85%	no
Herondo St/Anita St from PCH to Prospect Ave	a.m.	1,680	990	998	0.59	C	1,014	0.60	C	0.95%	no
	p.m.	1,680	1,455	1,466	0.87	D	1,482	0.88	D	0.95%	no
	daily	13,000	17,012	17,145	1.32	F(1)	17,255	1.33	F(1)	0.85%	no
Valley Dr from Pier Ave. to	a.m.	2,000	324	327	0.16	A	343	0.17	A	0.80%	no
	p.m.	2,000	487	491	0.25	A	507	0.25	A	0.80%	no

**4.13 Transportation and Traffic**

**Table 4.13-19 Phase 1 Roadway Segment Analysis**

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
6 <sup>th</sup> St	daily	15,000	4,709	4,746	0.32	A	4,856	0.32	A	0.73%	no
Valley Dr from 6 <sup>th</sup> St to Herondo St	a.m.	2,000	265	267	0.13	A	283	0.14	A	0.80%	no
	p.m.	2,000	448	451	0.23	A	467	0.23	A	0.80%	no
Prospect Ave. from Artesia Blvd. to Aviation Blvd.	daily	15,000	4,021	4,052	0.27	A	4,162	0.28	A	0.73%	no
Prospect Ave. from Aviation Blvd. to Anita St	a.m.	2,000	334	337	0.17	A	353	0.18	A	0.80%	no
	p.m.	2,000	555	559	0.28	A	575	0.29	A	0.80%	no
	daily	15,000	4,788	4,825	0.32	A	4,935	0.33	A	0.73%	no
Aviation Blvd. from PCH to Artesia Blvd.	a.m.	2,000	750	756	0.38	B	772	0.39	B	0.80%	no
	p.m.	2,000	859	866	0.43	B	882	0.44	B	0.80%	no
	daily	15,000	9,165	9,236	0.62	C	9,346	0.62	C	0.73%	no
N Lucia Ave. from Agate St to Anita St	a.m.	2,800	1,815	1,829	0.65	C	1,845	0.66	C	0.57%	no
	p.m.	2,800	2,022	2,038	0.73	D	2,054	0.73	D	0.57%	no
	daily	29,000	28,049	28,268	0.97	E	28,378	0.98	E	0.38%	no
N Maria Ave. from Beryl St to Anita St	a.m.	1,000	44	44	0.04	A	60	0.06	A	1.60%	no
	p.m.	1,000	56	56	0.06	A	72	0.07	A	1.60%	no
	daily	5,000	451	455	0.09	A	565	0.11	A	2.20%	no
N Paulina Ave. from Beryl St to Anita St	a.m.	1,000	53	53	0.05	A	69	0.07	A	1.60%	no
	p.m.	1,000	48	48	0.05	A	64	0.06	A	1.60%	no
	daily	5,000	606	611	0.12	A	721	0.14	A	2.20%	no
N Prospect Ave. from Beryl St to Anita St	a.m.	1,000	63	63	0.06	A	79	0.08	A	1.60%	no
	p.m.	1,000	58	58	0.06	A	74	0.07	A	1.60%	no
	daily	5,000	629	634	0.13	A	744	0.15	A	2.20%	no
N Prospect Ave. from Anita St to North RB City Limits	a.m.	3,600	908	915	0.25	A	931	0.26	A	0.44%	no
	p.m.	3,600	1,032	1,040	0.29	A	1,056	0.29	A	0.44%	no
	daily	30,000	10,763	10,847	0.36	B	10,957	0.37	B	0.37%	no
Harkness Lane from	a.m.	3,600	652	657	0.18	A	673	0.19	A	0.44%	no
	p.m.	3,600	949	956	0.27	A	972	0.27	A	0.44%	no
	daily	30,000	9,519	9,593	0.32	A	9,703	0.32	A	0.37%	no

Table 4.13-19 Phase 1 Roadway Segment Analysis

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
Agate St to Anita St	p.m.	1,000	240	242	0.24	A	258	0.26	A	1.60%	no
	daily	5,000	2,562	2,582	0.52	B	2,692	0.54	C	2.20%	no
Harkness Lane from Anita St to Ripley Ave	a.m.	1,000	176	177	0.18	A	193	0.19	A	1.60%	no
	p.m.	1,000	261	263	0.26	A	279	0.28	A	1.60%	no
	daily	5,000	2,467	2,486	0.50	B	2,596	0.52	B	2.20%	no
Flagler Lane from Beryl St to 190 <sup>th</sup> St	a.m.	1,000	259	261	0.26	A	277	0.28	A	1.60%	no
	p.m.	1,000	339	342	0.34	A	358	0.36	B	1.60%	no
	daily	5,000	3,391	3,417	0.68	C	3,527	0.71	D	2.20%	no
Beryl St from Flagler Lane to 190 <sup>th</sup> St	a.m.	3,600	676	681	0.19	A	697	0.19	A	0.44%	no
	p.m.	3,600	699	704	0.20	A	720	0.20	A	0.44%	no
	daily	30,000	8,889	8,958	0.30	A	9,068	0.30	A	0.37%	no
Blossom Lane from 190 <sup>th</sup> St to Havemeyer Lane	a.m.	1,000	55	55	0.06	A	71	0.07	A	1.60%	no
	p.m.	1,000	63	63	0.06	A	79	0.08	A	1.60%	no
	daily	5,000	736	742	0.15	A	852	0.17	A	2.20%	no
Anita St from Prospect Ave. to Flagler Lane	a.m.	4,800	1,466	1,477	0.31	A	1,493	0.31	A	0.33%	no
	p.m.	4,800	1,508	1,520	0.32	A	1,536	0.32	A	0.33%	no
	daily	50,000	18,417	18,561	0.37	B	18,671	0.37	B	0.22%	no
190 <sup>th</sup> St from Flagler Lane to Blossom Lane-N Beryl St	a.m.	4,800	1,594	1,606	0.33	A	1,622	0.34	A	0.33%	no
	p.m.	4,800	1,549	1,561	0.33	A	1,577	0.33	A	0.33%	no
	daily	50,000	20,051	20,207	0.40	B	20,317	0.41	B	0.22%	no
190 <sup>th</sup> St from Meyer Lane-Entradero Ave. to Anza Ave	a.m.	4,800	2,479	2,498	0.52	B	2,514	0.52	B	0.33%	no
	p.m.	4,800	2,543	2,563	0.53	C	2,579	0.54	C	0.33%	no
	daily	50,000	31,561	31,807	0.64	C	31,917	0.64	C	0.22%	no
190 <sup>th</sup> St from Blossom Land-N Beryl St to Meyer Lane-Entradero Ave	a.m.	4,800	2,759	2,781	0.58	C	2,797	0.58	C	0.33%	no
	p.m.	4,800	2,562	2,582	0.54	C	2,598	0.54	C	0.33%	no
	daily	50,000	33,598	33,860	0.68	C	33,970	0.68	C	0.22%	no
190 <sup>th</sup> St from Anza Ave. to Inglewood Ave	a.m.	4,800	3,008	3,031	0.63	C	3,047	0.63	C	0.33%	no
	p.m.	4,800	2,930	2,953	0.62	C	2,969	0.62	C	0.33%	no
	daily	50,000	38,946	39,250	0.78	D	39,360	0.79	D	0.22%	no

**4.13 Transportation and Traffic**

**Table 4.13-19 Phase 1 Roadway Segment Analysis**

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
190 <sup>th</sup> St from Inglewood Ave. to Firmona Ave	a.m.	4,800	2,302	2,320	0.48	B	2,336	0.49	B	0.33%	no
	p.m.	4,800	2,226	2,243	0.47	B	2,259	0.47	B	0.33%	no
	daily	50,000	29,756	29,988	0.60	C	30,098	0.60	C	0.22%	no
190 <sup>th</sup> St from Firmona Ave. to Hawthorne Blvd. (SR 107)	a.m.	4,800	2,433	2,452	0.51	B	2,468	0.51	B	0.33%	no
	p.m.	4,800	2,375	2,394	0.50	B	2,410	0.50	B	0.33%	no
	daily	50,000	30,551	30,789	0.62	C	30,899	0.62	C	0.22%	no
190 <sup>th</sup> St from Hawthorne Blvd. (SR 107) to Prairie Ave	a.m.	4,800	2,300	2,318	0.48	B	2,334	0.49	B	0.33%	no
	p.m.	4,800	2,386	2,405	0.50	B	2,421	0.50	B	0.33%	no
	daily	50,000	30,460	30,698	0.61	C	30,808	0.62	C	0.22%	no
190 <sup>th</sup> St from Prairie Ave. to Crenshaw Blvd.	a.m.	4,800	3,215	3,240	0.68	C	3,256	0.68	C	0.33%	no
	p.m.	4,800	3,280	3,306	0.69	C	3,322	0.69	C	0.33%	no
	daily	50,000	41,171	41,492	0.83	D	41,602	0.83	D	0.22%	no
Prairie Ave. from 182 <sup>nd</sup> St to 190 <sup>th</sup> St	a.m.	4,800	2,663	2,684	0.56	C	2,700	0.56	C	0.33%	no
	p.m.	4,800	2,929	2,952	0.61	C	2,968	0.62	C	0.33%	no
	daily	50,000	36,382	36,666	0.73	D	36,776	0.74	D	0.22%	no
Crenshaw Blvd. from I-405 to 190 <sup>th</sup> St	a.m.	4,800	3,647	3,675	0.77	D	3,691	0.77	D	0.33%	no
	p.m.	4,800	3,929	3,960	0.82	D	3,976	0.83	D	0.33%	no
	daily	50,000	52,317	52,725	1.05	F(0)	52,835	1.06	F(0)	0.22%	no
190 <sup>th</sup> St from Crenshaw Ave. to Van Ness Ave	a.m.	4,800	2,910	2,933	0.61	C	2,949	0.61	C	0.33%	no
	p.m.	4,800	2,996	3,019	0.63	C	3,035	0.63	C	0.33%	no
	daily	50,000	33,226	33,485	0.67	C	33,595	0.67	C	0.22%	no
190 <sup>th</sup> St from Van Ness Ave. to Western Ave	a.m.	4,800	2,859	2,881	0.60	C	2,897	0.60	C	0.33%	no
	p.m.	4,800	3,007	3,030	0.63	C	3,046	0.63	C	0.33%	no
	daily	50,000	36,474	36,758	0.74	D	36,868	0.74	D	0.22%	no
I 405 at Crenshaw Blvd.	peak hour	19,200	16,900	17,032	0.89	D	17,048	0.89	D	0.08%	no
I 405 at Artesia Blvd.	peak hour	19,200	16,400	16,528	0.86	D	16,544	0.86	D	0.08%	no

Source: Existing demand from Arch Beach Consulting (2012) and Arch Beach Consulting (2013a). Capacities from City of Hermosa Beach Circulation Element, HCM, American Association of State Highway and Transportation Guidelines, and approximate design volumes.

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**4.13 Transportation and Traffic**

**Table 4.13-20 Phase 2 Roadway Segment Analysis**

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
Pier Ave. from PCH to Valley Dr	a.m.	2,800	959	966	0.34	A	1,002	0.36	B	1.29%	no
	p.m.	2,800	1,103	1,112	0.40	B	1,148	0.41	B	1.29%	no
	daily	29,000	15,529	15,650	0.54	C	15,820	0.55	C	0.59%	no
Valley Dr from Pier Ave. to 11 <sup>th</sup> St	a.m.	2,000	417	421	0.21	A	457	0.23	A	1.80%	no
	p.m.	2,000	558	563	0.28	A	599	0.30	A	1.80%	no
	daily	15,000	5,789	5,834	0.39	B	6,004	0.40	B	1.13%	no
Valley from 11 <sup>th</sup> St to 8 <sup>th</sup> St	a.m.	2,000	388	391	0.20	A	427	0.21	A	1.80%	no
	p.m.	2,000	523	527	0.26	A	563	0.28	A	1.80%	no
	daily	15,000	5,346	5,388	0.36	B	5,558	0.37	B	1.13%	no
Valley Dr from 8 <sup>th</sup> St to 2 <sup>nd</sup> St	a.m.	2,000	289	292	0.15	A	328	0.16	A	1.80%	no
	p.m.	2,000	471	475	0.24	A	511	0.26	A	1.80%	no
	daily	15,000	4,724	4,761	0.32	A	4,931	0.33	A	1.13%	no
Valley Dr from 2 <sup>nd</sup> St to Herondo St	a.m.	2,000	252	253	0.13	A	289	0.14	A	1.80%	no
	p.m.	2,000	408	411	0.21	A	447	0.22	A	1.80%	no
	daily	15,000	3,631	3,659	0.24	A	3,829	0.26	A	1.13%	no
Herondo St from Valley Dr to PCH	a.m.	1,680	918	925	0.55	C	961	0.57	C	2.14%	no
	p.m.	1,680	988	996	0.59	C	1,032	0.61	C	2.14%	no
	daily	13,000	12,544	12,642	0.97	E	12,812	0.99	E	1.31%	no
6 <sup>th</sup> St from Valley Dr to Hermosa Ave	a.m.	200	72	73	0.36	B	109	0.54	C	18.00%	no
	p.m.	200	73	74	0.37	B	110	0.55	C	18.00%	no
	daily	2,500	806	812	0.32	A	982	0.39	B	6.80%	no
Herondo St/Anita St from Valley Dr to PCH	a.m.	1,680	637	642	0.38	B	678	0.40	B	2.14%	no
	p.m.	1,680	913	920	0.55	C	956	0.57	C	2.14%	no
	daily	13,000	10,764	10,848	0.83	D	11,018	0.85	D	1.31%	no
Herondo St/Anita St from PCH to Prospect Ave	a.m.	1,680	990	998	0.59	C	1,034	0.62	C	2.14%	no
	p.m.	1,680	1,455	1,466	0.87	D	1,502	0.89	D	2.14%	no
	daily	13,000	17,012	17,145	1.32	F(1)	17,315	1.33	F(1)	1.31%	no
Valley Dr from	a.m.	2,000	324	327	0.16	A	363	0.18	A	1.80%	no

Table 4.13-20 Phase 2 Roadway Segment Analysis

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
Pier Ave. to 6 <sup>th</sup> St	p.m.	2,000	487	491	0.25	A	527	0.26	A	1.80%	no
	daily	15,000	4,709	4,746	0.32	A	4,916	0.33	A	1.13%	no
Valley Dr from 6 <sup>th</sup> St to Herondo St	a.m.	2,000	265	267	0.13	A	303	0.15	A	1.80%	no
	p.m.	2,000	448	451	0.23	A	487	0.24	A	1.80%	no
	daily	15,000	4,021	4,052	0.27	A	4,222	0.28	A	1.13%	no
Prospect Ave. from Artesia Blvd. to Aviation Blvd.	a.m.	2,000	334	337	0.17	A	373	0.19	A	1.80%	no
	p.m.	2,000	555	559	0.28	A	595	0.30	A	1.80%	no
	daily	15,000	4,788	4,825	0.32	A	4,995	0.33	A	1.13%	no
Prospect Ave. from Aviation Blvd. to Anita St	a.m.	2,000	750	756	0.38	B	792	0.40	B	1.80%	no
	p.m.	2,000	859	866	0.43	B	902	0.45	B	1.80%	no
	daily	15,000	9,165	9,236	0.62	C	9,406	0.63	C	1.13%	no
Aviation Blvd. from PCH to Artesia Blvd.	a.m.	2,800	1,815	1,829	0.65	C	1,865	0.67	C	1.29%	no
	p.m.	2,800	2,022	2,038	0.73	D	2,074	0.74	D	1.29%	no
	daily	29,000	28,049	28,268	0.97	E	28,438	0.98	E	0.59%	no
N Lucia Ave. from Agate St to Anita St	a.m.	1,000	44	44	0.04	A	80	0.08	A	3.60%	no
	p.m.	1,000	56	56	0.06	A	92	0.09	A	3.60%	no
	daily	5,000	451	455	0.09	A	625	0.12	A	3.40%	no
N Maria Ave. from Beryl St to Anita St	a.m.	1,000	53	53	0.05	A	89	0.09	A	3.60%	no
	p.m.	1,000	48	48	0.05	A	84	0.08	A	3.60%	no
	daily	5,000	606	611	0.12	A	781	0.16	A	3.40%	no
N Paulina Ave. from Beryl St to Anita St	a.m.	1,000	63	63	0.06	A	99	0.10	A	3.60%	no
	p.m.	1,000	58	58	0.06	A	94	0.09	A	3.60%	no
	daily	5,000	629	634	0.13	A	804	0.16	A	3.40%	no
N Prospect Ave. from Beryl St to Anita St	a.m.	3,600	908	915	0.25	A	951	0.26	A	1.00%	no
	p.m.	3,600	1,032	1,040	0.29	A	1,076	0.30	A	1.00%	no
	daily	30,000	10,763	10,847	0.36	B	11,017	0.37	B	0.57%	no
N Prospect Ave. from Anita St to	a.m.	3,600	652	657	0.18	A	693	0.19	A	1.00%	no
	p.m.	3,600	949	956	0.27	A	992	0.28	A	1.00%	no

#### 4.13 Transportation and Traffic

**Table 4.13-20 Phase 2 Roadway Segment Analysis**

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
North RB City Limits	daily	30,000	9,519	9,593	0.32	A	9,763	0.33	A	0.57%	no
Harkness Lane from Agate St to Anita St	a.m.	1,000	166	167	0.17	A	203	0.20	A	3.60%	no
	p.m.	1,000	240	242	0.24	A	278	0.28	A	3.60%	no
	daily	5,000	2,562	2,582	0.52	B	2,752	0.55	C	3.40%	no
Harkness Lane from Anita St to Ripley Ave	a.m.	1,000	176	177	0.18	A	213	0.21	A	3.60%	no
	p.m.	1,000	261	263	0.26	A	299	0.30	A	3.60%	no
	daily	5,000	2,467	2,486	0.50	B	2,656	0.53	C	3.40%	no
Flagler Lane from Beryl St to 190 <sup>th</sup> St	a.m.	1,000	259	261	0.26	A	297	0.30	A	3.60%	no
	p.m.	1,000	339	342	0.34	A	378	0.38	B	3.60%	no
	daily	5,000	3,391	3,417	0.68	C	3,587	0.72	D	3.40%	no
Beryl St from Flagler Lane to 190 <sup>th</sup> St	a.m.	3,600	676	681	0.19	A	717	0.20	A	1.00%	no
	p.m.	3,600	699	704	0.20	A	740	0.21	A	1.00%	no
	daily	30,000	8,889	8,958	0.30	A	9,128	0.30	A	0.57%	no
Blossom Lane from 190 <sup>th</sup> St to Havemeyer Lane	a.m.	1,000	55	55	0.06	A	91	0.09	A	3.60%	no
	p.m.	1,000	63	63	0.06	A	99	0.10	A	3.60%	no
	daily	5,000	736	742	0.15	A	912	0.18	A	3.40%	no
Anita St from Prospect Ave. to Flagler Lane	a.m.	4,800	1,466	1,477	0.31	A	1,513	0.32	A	0.75%	no
	p.m.	4,800	1,508	1,520	0.32	A	1,556	0.32	A	0.75%	no
	daily	50,000	18,417	18,561	0.37	B	18,731	0.37	B	0.34%	no
190 <sup>th</sup> St from Flagler Lane to Blossom Lane-N Beryl St	a.m.	4,800	1,594	1,606	0.33	A	1,642	0.34	A	0.75%	no
	p.m.	4,800	1,549	1,561	0.33	A	1,597	0.33	A	0.75%	no
	daily	50,000	20,051	20,207	0.40	B	20,377	0.41	B	0.34%	no
190 <sup>th</sup> St from Meyer Lane-Entradero Ave. to Anza Ave	a.m.	4,800	2,479	2,498	0.52	B	2,534	0.53	C	0.75%	no
	p.m.	4,800	2,543	2,563	0.53	C	2,599	0.54	C	0.75%	no
	daily	50,000	31,561	31,807	0.64	C	31,977	0.64	C	0.34%	no
190 <sup>th</sup> St from Blossom Land-N Beryl St to Meyer Lane-Entradero Ave	a.m.	4,800	2,759	2,781	0.58	C	2,817	0.59	C	0.75%	no
	p.m.	4,800	2,562	2,582	0.54	C	2,618	0.55	C	0.75%	no
	daily	50,000	33,598	33,860	0.68	C	34,030	0.68	C	0.34%	no

Table 4.13-20 Phase 2 Roadway Segment Analysis

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
190 <sup>th</sup> St from Anza Ave. to Inglewood Ave	a.m.	4,800	3,008	3,031	0.63	C	3,067	0.64	C	0.75%	no
	p.m.	4,800	2,930	2,953	0.62	C	2,989	0.62	C	0.75%	no
	daily	50,000	38,946	39,250	0.78	D	39,420	0.79	D	0.34%	no
190 <sup>th</sup> St from Inglewood Ave. to Firmona Ave	a.m.	4,800	2,302	2,320	0.48	B	2,356	0.49	B	0.75%	no
	p.m.	4,800	2,226	2,243	0.47	B	2,279	0.47	B	0.75%	no
	daily	50,000	29,756	29,988	0.60	C	30,158	0.60	C	0.34%	no
190 <sup>th</sup> St from Firmona Ave. to Hawthorne Blvd. (SR 107)	a.m.	4,800	2,433	2,452	0.51	B	2,488	0.52	B	0.75%	no
	p.m.	4,800	2,375	2,394	0.50	B	2,430	0.51	B	0.75%	no
	daily	50,000	30,551	30,789	0.62	C	30,959	0.62	C	0.34%	no
190 <sup>th</sup> St from Hawthorne Blvd. (SR 107) to Prairie Ave	a.m.	4,800	2,300	2,318	0.48	B	2,354	0.49	B	0.75%	no
	p.m.	4,800	2,386	2,405	0.50	B	2,441	0.51	B	0.75%	no
	daily	50,000	30,460	30,698	0.61	C	30,868	0.62	C	0.34%	no
190 <sup>th</sup> St from Prairie Ave. to Crenshaw Blvd.	a.m.	4,800	3,215	3,240	0.68	C	3,276	0.68	C	0.75%	no
	p.m.	4,800	3,280	3,306	0.69	C	3,342	0.70	D	0.75%	no
	daily	50,000	41,171	41,492	0.83	D	41,662	0.83	D	0.34%	no
Prairie Ave. from 182 <sup>nd</sup> St to 190 <sup>th</sup> St	a.m.	4,800	2,663	2,684	0.56	C	2,720	0.57	C	0.75%	no
	p.m.	4,800	2,929	2,952	0.61	C	2,988	0.62	C	0.75%	no
	daily	50,000	36,382	36,666	0.73	D	36,836	0.74	D	0.34%	no
Crenshaw Blvd. from I-405 to 190 <sup>th</sup> St	a.m.	4,800	3,647	3,675	0.77	D	3,711	0.77	D	0.75%	no
	p.m.	4,800	3,929	3,960	0.82	D	3,996	0.83	D	0.75%	no
	daily	50,000	52,317	52,725	1.05	F(0)	52,895	1.06	F(0)	0.34%	no
190 <sup>th</sup> St from Crenshaw Ave. to Van Ness Ave	a.m.	4,800	2,910	2,933	0.61	C	2,969	0.62	C	0.75%	no
	p.m.	4,800	2,996	3,019	0.63	C	3,055	0.64	C	0.75%	no
	daily	50,000	33,226	33,485	0.67	C	33,655	0.67	C	0.34%	no
190 <sup>th</sup> St from Van Ness Ave. to Western Ave	a.m.	4,800	2,859	2,881	0.60	C	2,917	0.61	C	0.75%	no
	p.m.	4,800	3,007	3,030	0.63	C	3,066	0.64	C	0.75%	no
	daily	50,000	36,474	36,758	0.74	D	36,928	0.74	D	0.34%	no
I 405 at Crenshaw Blvd.	peak	19,200	16,900	17,032	0.89	D	17,068	0.89	D	0.19%	no

**4.13 Transportation and Traffic**

**Table 4.13-20 Phase 2 Roadway Segment Analysis**

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
	hour										
I 405 at Artesia Blvd.	peak hour	19,200	16,400	16,528	0.86	D	16,564	0.86	D	0.19%	no

Source: Existing demand from Arch Beach Consulting (2012) and Arch Beach Consulting (2013a). Capacities from City of Hermosa Beach Circulation Element, HCM, American Association of State Highway and Transportation Guidelines, and approximate design volumes.

Table 4.13-21 Phase 3 Roadway Segment Analysis

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
Pier Ave. from PCH to Valley Dr	a.m.	2,800	959	968	0.35	B	1,035	0.37	B	2.39%	no
	p.m.	2,800	1,103	1,115	0.40	B	1,182	0.42	B	2.39%	no
	daily	29,000	15,529	15,691	0.54	C	15,909	0.55	C	0.75%	no
Valley Dr from Pier Ave. to 11 <sup>th</sup> St	a.m.	2,000	417	422	0.21	A	489	0.24	A	3.35%	no
	p.m.	2,000	558	564	0.28	A	631	0.32	A	3.35%	no
	daily	15,000	5,789	5,849	0.39	B	6,067	0.40	B	1.45%	no
Valley from 11 <sup>th</sup> St to 8 <sup>th</sup> St	a.m.	2,000	388	392	0.20	A	459	0.23	A	3.35%	no
	p.m.	2,000	523	529	0.26	A	596	0.30	A	3.35%	no
	daily	15,000	5,346	5,402	0.36	B	5,620	0.37	B	1.45%	no
Valley Dr from 8 <sup>th</sup> St to 2 <sup>nd</sup> St	a.m.	2,000	289	292	0.15	A	359	0.18	A	3.35%	no
	p.m.	2,000	471	476	0.24	A	543	0.27	A	3.35%	no
	daily	15,000	4,724	4,773	0.32	A	4,991	0.33	A	1.45%	no
Valley Dr from 2 <sup>nd</sup> St to Herondo St	a.m.	2,000	252	254	0.13	A	321	0.16	A	3.35%	no
	p.m.	2,000	408	412	0.21	A	479	0.24	A	3.35%	no
	daily	15,000	3,631	3,669	0.24	A	3,887	0.26	A	1.45%	no
Herondo St from Valley Dr to PCH	a.m.	1,680	918	928	0.55	C	995	0.59	C	3.99%	no
	p.m.	1,680	988	998	0.59	C	1,065	0.63	C	3.99%	no
	daily	13,000	12,544	12,674	0.97	E	12,892	0.99	E	1.68%	no
6 <sup>th</sup> St from Valley Dr to Hermosa Ave	a.m.	200	72	73	0.36	B	140	0.70	D	33.50%	no
	p.m.	200	73	74	0.37	B	141	0.70	D	33.50%	no
	daily	2,500	806	814	0.33	A	1,032	0.41	B	8.72%	no
Herondo St/Anita St from Valley Dr to PCH	a.m.	1,680	637	644	0.38	B	711	0.42	B	3.99%	no
	p.m.	1,680	913	922	0.55	C	989	0.59	C	3.99%	no
	daily	13,000	10,764	10,876	0.84	D	11,094	0.85	D	1.68%	no
Herondo St/Anita St from PCH to Prospect Ave	a.m.	1,680	990	1,000	0.60	C	1,067	0.64	C	3.99%	no
	p.m.	1,680	1,455	1,470	0.88	D	1,537	0.91	D	3.99%	no
	daily	13,000	17,012	17,189	1.32	F(1)	17,407	1.34	F(1)	1.68%	no
Valley Dr from	a.m.	2,000	324	327	0.16	A	394	0.20	A	3.35%	no

**4.13 Transportation and Traffic**

**Table 4.13-21 Phase 3 Roadway Segment Analysis**

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
Pier Ave. to 6 <sup>th</sup> St	p.m.	2,000	487	492	0.25	A	559	0.28	A	3.35%	no
	daily	15,000	4,709	4,758	0.32	A	4,976	0.33	A	1.45%	no
Valley Dr from 6 <sup>th</sup> St to Herondo St	a.m.	2,000	265	268	0.13	A	335	0.17	A	3.35%	no
	p.m.	2,000	448	453	0.23	A	520	0.26	A	3.35%	no
	daily	15,000	4,021	4,063	0.27	A	4,281	0.29	A	1.45%	no
Prospect Ave. from Artesia Blvd. to Aviation Blvd.	a.m.	2,000	334	337	0.17	A	404	0.20	A	3.35%	no
	p.m.	2,000	555	561	0.28	A	628	0.31	A	3.35%	no
	daily	15,000	4,788	4,838	0.32	A	5,056	0.34	A	1.45%	no
Prospect Ave. from Aviation Blvd. to Anita St	a.m.	2,000	750	758	0.38	B	825	0.41	B	3.35%	no
	p.m.	2,000	859	868	0.43	B	935	0.47	B	3.35%	no
	daily	15,000	9,165	9,260	0.62	C	9,478	0.63	C	1.45%	no
Aviation Blvd. from PCH to Artesia Blvd.	a.m.	2,800	1,815	1,834	0.65	C	1,901	0.68	C	2.39%	no
	p.m.	2,800	2,022	2,043	0.73	D	2,110	0.75	D	2.39%	no
	daily	29,000	28,049	28,341	0.98	E	28,559	0.98	E	0.75%	no
N Lucia Ave. from Agate St to Anita St	a.m.	1,000	44	44	0.04	A	111	0.11	A	6.70%	no
	p.m.	1,000	56	57	0.06	A	124	0.12	A	6.70%	no
	daily	5,000	451	456	0.09	A	674	0.13	A	4.36%	no
N Maria Ave. from Beryl St to Anita St	a.m.	1,000	53	54	0.05	A	121	0.12	A	6.70%	no
	p.m.	1,000	48	48	0.05	A	115	0.12	A	6.70%	no
	daily	5,000	606	612	0.12	A	830	0.17	A	4.36%	no
N Paulina Ave. from Beryl St to Anita St	a.m.	1,000	63	64	0.06	A	131	0.13	A	6.70%	no
	p.m.	1,000	58	59	0.06	A	126	0.13	A	6.70%	no
	daily	5,000	629	636	0.13	A	854	0.17	A	4.36%	no
N Prospect Ave. from Beryl St to Anita St	a.m.	3,600	908	917	0.25	A	984	0.27	A	1.86%	no
	p.m.	3,600	1,032	1,043	0.29	A	1,110	0.31	A	1.86%	no
	daily	30,000	10,763	10,875	0.36	B	11,093	0.37	B	0.73%	no
N Prospect Ave. from Anita St to	a.m.	3,600	652	659	0.18	A	726	0.20	A	1.86%	no
	p.m.	3,600	949	959	0.27	A	1,026	0.28	A	1.86%	no

Table 4.13-21 Phase 3 Roadway Segment Analysis

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
North RB City Limits	daily	30,000	9,519	9,618	0.32	A	9,836	0.33	A	0.73%	no
Harkness Lane from Agate St to Anita St	a.m.	1,000	166	168	0.17	A	235	0.23	A	6.70%	no
	p.m.	1,000	240	242	0.24	A	309	0.31	A	6.70%	no
	daily	5,000	2,562	2,589	0.52	B	2,807	0.56	C	4.36%	no
Harkness Lane from Anita St to Ripley Ave	a.m.	1,000	176	178	0.18	A	245	0.24	A	6.70%	no
	p.m.	1,000	261	264	0.26	A	331	0.33	A	6.70%	no
	daily	5,000	2,467	2,493	0.50	B	2,711	0.54	C	4.36%	no
Flagler Lane from Beryl St to 190 <sup>th</sup> St	a.m.	1,000	259	262	0.26	A	329	0.33	A	6.70%	no
	p.m.	1,000	339	343	0.34	A	410	0.41	B	6.70%	no
	daily	5,000	3,391	3,426	0.69	C	3,644	0.73	D	4.36%	no
Beryl St from Flagler Lane to 190 <sup>th</sup> St	a.m.	3,600	676	683	0.19	A	750	0.21	A	1.86%	no
	p.m.	3,600	699	706	0.20	A	773	0.21	A	1.86%	no
	daily	30,000	8,889	8,981	0.30	A	9,199	0.31	A	0.73%	no
Blossom Lane from 190 <sup>th</sup> St to Havemeyer Lane	a.m.	1,000	55	56	0.06	A	123	0.12	A	6.70%	no
	p.m.	1,000	63	64	0.06	A	131	0.13	A	6.70%	no
	daily	5,000	736	744	0.15	A	962	0.19	A	4.36%	no
Anita St from Prospect Ave. to Flagler Lane	a.m.	4,800	1,466	1,481	0.31	A	1,548	0.32	A	1.40%	no
	p.m.	4,800	1,508	1,524	0.32	A	1,591	0.33	A	1.40%	no
	daily	50,000	18,417	18,609	0.37	B	18,827	0.38	B	0.44%	no
190 <sup>th</sup> St from Flagler Lane to Blossom Lane-N Beryl St	a.m.	4,800	1,594	1,611	0.34	A	1,678	0.35	B	1.40%	no
	p.m.	4,800	1,549	1,565	0.33	A	1,632	0.34	A	1.40%	no
	daily	50,000	20,051	20,260	0.41	B	20,478	0.41	B	0.44%	no
190 <sup>th</sup> St from Meyer Lane-Entradero Ave. to Anza Ave	a.m.	4,800	2,479	2,505	0.52	B	2,572	0.54	C	1.40%	no
	p.m.	4,800	2,543	2,569	0.54	C	2,636	0.55	C	1.40%	no
	daily	50,000	31,561	31,889	0.64	C	32,107	0.64	C	0.44%	no
190 <sup>th</sup> St from Blossom Land-N Beryl St to Meyer Lane-Entradero Ave	a.m.	4,800	2,759	2,788	0.58	C	2,855	0.59	C	1.40%	no
	p.m.	4,800	2,562	2,589	0.54	C	2,656	0.55	C	1.40%	no
	daily	50,000	33,598	33,947	0.68	C	34,165	0.68	C	0.44%	no

#### 4.13 Transportation and Traffic

**Table 4.13-21 Phase 3 Roadway Segment Analysis**

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
190 <sup>th</sup> St from Anza Ave. to Inglewood Ave	a.m.	4,800	3,008	3,039	0.63	C	3,106	0.65	C	1.40%	no
	p.m.	4,800	2,930	2,960	0.62	C	3,027	0.63	C	1.40%	no
	daily	50,000	38,946	39,351	0.79	D	39,569	0.79	D	0.44%	no
190 <sup>th</sup> St from Inglewood Ave. to Firmona Ave	a.m.	4,800	2,302	2,326	0.48	B	2,393	0.50	B	1.40%	no
	p.m.	4,800	2,226	2,249	0.47	B	2,316	0.48	B	1.40%	no
	daily	50,000	29,756	30,065	0.60	C	30,283	0.61	C	0.44%	no
190 <sup>th</sup> St from Firmona Ave. to Hawthorne Blvd. (SR 107)	a.m.	4,800	2,433	2,458	0.51	B	2,525	0.53	C	1.40%	no
	p.m.	4,800	2,375	2,400	0.50	B	2,467	0.51	B	1.40%	no
	daily	50,000	30,551	30,869	0.62	C	31,087	0.62	C	0.44%	no
190 <sup>th</sup> St from Hawthorne Blvd. (SR 107) to Prairie Ave	a.m.	4,800	2,300	2,324	0.48	B	2,391	0.50	B	1.40%	no
	p.m.	4,800	2,386	2,411	0.50	B	2,478	0.52	B	1.40%	no
	daily	50,000	30,460	30,777	0.62	C	30,995	0.62	C	0.44%	no
190 <sup>th</sup> St from Prairie Ave. to Crenshaw Blvd.	a.m.	4,800	3,215	3,248	0.68	C	3,315	0.69	C	1.40%	no
	p.m.	4,800	3,280	3,314	0.69	C	3,381	0.70	D	1.40%	no
	daily	50,000	41,171	41,599	0.83	D	41,817	0.84	D	0.44%	no
Prairie Ave. from 182 <sup>nd</sup> St to 190 <sup>th</sup> St	a.m.	4,800	2,663	2,691	0.56	C	2,758	0.57	C	1.40%	no
	p.m.	4,800	2,929	2,959	0.62	C	3,026	0.63	C	1.40%	no
	daily	50,000	36,382	36,760	0.74	D	36,978	0.74	D	0.44%	no
Crenshaw Blvd. from I-405 to 190 <sup>th</sup> St	a.m.	4,800	3,647	3,685	0.77	D	3,752	0.78	D	1.40%	no
	p.m.	4,800	3,929	3,970	0.83	D	4,037	0.84	D	1.40%	no
	daily	50,000	52,317	52,861	1.06	F(0)	53,079	1.06	F(0)	0.44%	no
190 <sup>th</sup> St from Crenshaw Ave. to Van Ness Ave	a.m.	4,800	2,910	2,940	0.61	C	3,007	0.63	C	1.40%	no
	p.m.	4,800	2,996	3,027	0.63	C	3,094	0.64	C	1.40%	no
	daily	50,000	33,226	33,572	0.67	C	33,790	0.68	C	0.44%	no
190 <sup>th</sup> St from Van Ness Ave. to Western Ave	a.m.	4,800	2,859	2,889	0.60	C	2,956	0.62	C	1.40%	no
	p.m.	4,800	3,007	3,038	0.63	C	3,105	0.65	C	1.40%	no
	daily	50,000	36,474	36,853	0.74	D	37,071	0.74	D	0.44%	no
I 405 at Crenshaw Blvd.	peak	19,200	16,900	17,076	0.89	D	17,068	0.89	D	0.35%	no

Table 4.13-21 Phase 3 Roadway Segment Analysis

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
	hour										
I 405 at Artesia Blvd.	peak hour	19,200	16,400	16,571	0.86	D	16,564	0.87	D	0.35%	no

Source: Existing demand from Arch Beach Consulting (2012) and Arch Beach Consulting (2013a). Capacities from City of Hermosa Beach Circulation Element, HCM, American Association of State Highway and Transportation Guidelines, and approximate design volumes.

4.13 Transportation and Traffic

Table 4.13-22 Phase 4 Roadway Segment Analysis

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
Pier Ave. from PCH to Valley Dr	a.m.	2,800	959	973	0.35	B	1,007	0.36	B	1.21%	no
	p.m.	2,800	1,103	1,120	0.40	B	1,154	0.41	B	1.21%	no
	daily	29,000	15,529	15,771	0.54	C	15,923	0.55	C	0.52%	no
Valley Dr from Pier Ave. to 11 <sup>th</sup> St	a.m.	2,000	417	424	0.21	A	458	0.23	A	1.70%	no
	p.m.	2,000	558	567	0.28	A	601	0.30	A	1.70%	no
	daily	15,000	5,789	5,879	0.39	B	6,031	0.40	B	1.01%	no
Valley from 11 <sup>th</sup> St to 8 <sup>th</sup> St	a.m.	2,000	388	394	0.20	A	428	0.21	A	1.70%	no
	p.m.	2,000	523	531	0.27	A	565	0.28	A	1.70%	no
	daily	15,000	5,346	5,429	0.36	B	5,581	0.37	B	1.01%	no
Valley Dr from 8 <sup>th</sup> St to 2 <sup>nd</sup> St	a.m.	2,000	289	294	0.15	A	328	0.16	A	1.70%	no
	p.m.	2,000	471	478	0.24	A	512	0.26	A	1.70%	no
	daily	15,000	4,724	4,798	0.32	A	4,950	0.33	A	1.01%	no
Valley Dr from 2 <sup>nd</sup> St to Herondo St	a.m.	2,000	252	255	0.13	A	289	0.14	A	1.70%	no
	p.m.	2,000	408	414	0.21	A	448	0.22	A	1.70%	no
	daily	15,000	3,631	3,688	0.25	A	3,840	0.26	A	1.01%	no
Herondo St from Valley Dr to PCH	a.m.	1,680	918	933	0.56	C	967	0.58	C	2.02%	no
	p.m.	1,680	988	1,003	0.60	C	1,037	0.62	C	2.02%	no
	daily	13,000	12,544	12,740	0.98	E	12,892	0.99	E	1.17%	no
6 <sup>th</sup> St from Valley Dr to Hermosa Ave	a.m.	200	72	73	0.37	B	107	0.54	C	17.00%	no
	p.m.	200	73	74	0.37	B	108	0.54	C	17.00%	no
	daily	2,500	806	819	0.33	A	971	0.39	B	6.08%	no
Herondo St/Anita St from Valley Dr to PCH	a.m.	1,680	637	647	0.39	B	681	0.41	B	2.02%	no
	p.m.	1,680	913	927	0.55	C	961	0.57	C	2.02%	no
	daily	13,000	10,764	10,932	0.84	D	11,084	0.85	D	1.17%	no
Herondo St/Anita St from PCH to Prospect Ave	a.m.	1,680	990	1,005	0.60	C	1,039	0.62	C	2.02%	no
	p.m.	1,680	1,455	1,478	0.88	D	1,512	0.90	D	2.02%	no
	daily	13,000	17,012	17,277	1.33	F(1)	17,429	1.34	F(1)	1.17%	no
Valley Dr from	a.m.	2,000	324	329	0.16	A	363	0.18	A	1.70%	no

Table 4.13-22 Phase 4 Roadway Segment Analysis

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
Pier Ave. to 6 <sup>th</sup> St	p.m.	2,000	487	495	0.25	A	529	0.26	A	1.70%	no
	daily	15,000	4,709	4,782	0.32	A	4,934	0.33	A	1.01%	no
Valley Dr from 6 <sup>th</sup> St to Herondo St	a.m.	2,000	265	269	0.13	A	303	0.15	A	1.70%	no
	p.m.	2,000	448	455	0.23	A	489	0.24	A	1.70%	no
	daily	15,000	4,021	4,084	0.27	A	4,236	0.28	A	1.01%	no
Prospect Ave. from Artesia Blvd. to Aviation Blvd.	a.m.	2,000	334	339	0.17	A	373	0.19	A	1.70%	no
	p.m.	2,000	555	564	0.28	A	598	0.30	A	1.70%	no
	daily	15,000	4,788	4,863	0.32	A	5,015	0.33	A	1.01%	no
Prospect Ave. from Aviation Blvd. to Anita St	a.m.	2,000	750	762	0.38	B	796	0.40	B	1.70%	no
	p.m.	2,000	859	872	0.44	B	906	0.45	B	1.70%	no
	daily	15,000	9,165	9,308	0.62	C	9,460	0.63	C	1.01%	no
Aviation Blvd. from PCH to Artesia Blvd.	a.m.	2,800	1,815	1,843	0.66	C	1,877	0.67	C	1.21%	no
	p.m.	2,800	2,022	2,054	0.73	D	2,088	0.75	D	1.21%	no
	daily	29,000	28,049	28,487	0.98	E	28,639	0.99	E	0.52%	no
N Lucia Ave. from Agate St to Anita St	a.m.	1,000	44	45	0.04	A	79	0.08	A	3.40%	no
	p.m.	1,000	56	57	0.06	A	91	0.09	A	3.40%	no
	daily	5,000	451	458	0.09	A	610	0.12	A	3.04%	no
N Maria Ave. from Beryl St to Anita St	a.m.	1,000	53	54	0.05	A	88	0.09	A	3.40%	no
	p.m.	1,000	48	49	0.05	A	83	0.08	A	3.40%	no
	daily	5,000	606	615	0.12	A	767	0.15	A	3.04%	no
N Paulina Ave. from Beryl St to Anita St	a.m.	1,000	63	64	0.06	A	98	0.10	A	3.40%	no
	p.m.	1,000	58	59	0.06	A	93	0.09	A	3.40%	no
	daily	5,000	629	639	0.13	A	791	0.16	A	3.04%	no
N Prospect Ave. from Beryl St to Anita St	a.m.	3,600	908	922	0.26	A	956	0.27	A	0.94%	no
	p.m.	3,600	1,032	1,048	0.29	A	1,082	0.30	A	0.94%	no
	daily	30,000	10,763	10,931	0.36	B	11,083	0.37	B	0.51%	no
N Prospect Ave. from Anita St to	a.m.	3,600	652	662	0.18	A	696	0.19	A	0.94%	no
	p.m.	3,600	949	964	0.27	A	998	0.28	A	0.94%	no

#### 4.13 Transportation and Traffic

**Table 4.13-22 Phase 4 Roadway Segment Analysis**

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
North RB City Limits	daily	30,000	9,519	9,667	0.32	A	9,819	0.33	A	0.51%	no
Harkness Lane from Agate St to Anita St	a.m.	1,000	166	169	0.17	A	203	0.20	A	3.40%	no
	p.m.	1,000	240	244	0.24	A	278	0.28	A	3.40%	no
	daily	5,000	2,562	2,602	0.52	B	2,754	0.55	C	3.04%	no
Harkness Lane from Anita St to Ripley Ave	a.m.	1,000	176	179	0.18	A	213	0.21	A	3.40%	no
	p.m.	1,000	261	265	0.27	A	299	0.30	A	3.40%	no
	daily	5,000	2,467	2,505	0.50	B	2,657	0.53	C	3.04%	no
Flagler Lane from Beryl St to 190 <sup>th</sup> St	a.m.	1,000	259	263	0.26	A	297	0.30	A	3.40%	no
	p.m.	1,000	339	344	0.34	A	378	0.38	B	3.40%	no
	daily	5,000	3,391	3,444	0.69	C	3,596	0.72	D	3.04%	no
Beryl St from Flagler Lane to 190 <sup>th</sup> St	a.m.	3,600	676	687	0.19	A	721	0.20	A	0.94%	no
	p.m.	3,600	699	710	0.20	A	744	0.21	A	0.94%	no
	daily	30,000	8,889	9,028	0.30	A	9,180	0.31	A	0.51%	no
Blossom Lane from 190 <sup>th</sup> St to Havemeyer Lane	a.m.	1,000	55	56	0.06	A	90	0.09	A	3.40%	no
	p.m.	1,000	63	64	0.06	A	98	0.10	A	3.40%	no
	daily	5,000	736	747	0.15	A	899	0.18	A	3.04%	no
Anita St from Prospect Ave. to Flagler Lane	a.m.	4,800	1,466	1,489	0.31	A	1,523	0.32	A	0.71%	no
	p.m.	4,800	1,508	1,532	0.32	A	1,566	0.33	A	0.71%	no
	daily	50,000	18,417	18,704	0.37	B	18,856	0.38	B	0.30%	no
190 <sup>th</sup> St from Flagler Lane to Blossom Lane-N Beryl St	a.m.	4,800	1,594	1,619	0.34	A	1,653	0.34	A	0.71%	no
	p.m.	4,800	1,549	1,573	0.33	A	1,607	0.33	A	0.71%	no
	daily	50,000	20,051	20,364	0.41	B	20,516	0.41	B	0.30%	no
190 <sup>th</sup> St from Meyer Lane-Entradero Ave. to Anza Ave	a.m.	4,800	2,479	2,518	0.52	B	2,552	0.53	C	0.71%	no
	p.m.	4,800	2,543	2,583	0.54	C	2,617	0.55	C	0.71%	no
	daily	50,000	31,561	32,053	0.64	C	32,205	0.64	C	0.30%	no
190 <sup>th</sup> St from Blossom Land-N Beryl St to Meyer Lane-Entradero Ave	a.m.	4,800	2,759	2,802	0.58	C	2,836	0.59	C	0.71%	no
	p.m.	4,800	2,562	2,602	0.54	C	2,636	0.55	C	0.71%	no
	daily	50,000	33,598	34,122	0.68	C	34,274	0.69	C	0.30%	no

Table 4.13-22 Phase 4 Roadway Segment Analysis

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
190 <sup>th</sup> St from Anza Ave. to Inglewood Ave	a.m.	4,800	3,008	3,055	0.64	C	3,089	0.64	C	0.71%	no
	p.m.	4,800	2,930	2,976	0.62	C	3,010	0.63	C	0.71%	no
	daily	50,000	38,946	39,554	0.79	D	39,706	0.79	D	0.30%	no
190 <sup>th</sup> St from Inglewood Ave. to Firmona Ave	a.m.	4,800	2,302	2,338	0.49	B	2,372	0.49	B	0.71%	no
	p.m.	4,800	2,226	2,261	0.47	B	2,295	0.48	B	0.71%	no
	daily	50,000	29,756	30,220	0.60	C	30,372	0.61	C	0.30%	no
190 <sup>th</sup> St from Firmona Ave. to Hawthorne Blvd. (SR 107)	a.m.	4,800	2,433	2,471	0.51	B	2,505	0.52	B	0.71%	no
	p.m.	4,800	2,375	2,412	0.50	B	2,446	0.51	B	0.71%	no
	daily	50,000	30,551	31,028	0.62	C	31,180	0.62	C	0.30%	no
190 <sup>th</sup> St from Hawthorne Blvd. (SR 107) to Prairie Ave	a.m.	4,800	2,300	2,336	0.49	B	2,370	0.49	B	0.71%	no
	p.m.	4,800	2,386	2,423	0.50	B	2,457	0.51	B	0.71%	no
	daily	50,000	30,460	30,935	0.62	C	31,087	0.62	C	0.30%	no
190 <sup>th</sup> St from Prairie Ave. to Crenshaw Blvd.	a.m.	4,800	3,215	3,265	0.68	C	3,299	0.69	C	0.71%	no
	p.m.	4,800	3,280	3,331	0.69	C	3,365	0.70	D	0.71%	no
	daily	50,000	41,171	41,813	0.84	D	41,965	0.84	D	0.30%	no
Prairie Ave. from 182 <sup>nd</sup> St to 190 <sup>th</sup> St	a.m.	4,800	2,663	2,705	0.56	C	2,739	0.57	C	0.71%	no
	p.m.	4,800	2,929	2,975	0.62	C	3,009	0.63	C	0.71%	no
	daily	50,000	36,382	36,950	0.74	D	37,102	0.74	D	0.30%	no
Crenshaw Blvd. from I-405 to 190 <sup>th</sup> St	a.m.	4,800	3,647	3,704	0.77	D	3,738	0.78	D	0.71%	no
	p.m.	4,800	3,929	3,990	0.83	D	4,024	0.84	D	0.71%	no
	daily	50,000	52,317	53,133	1.06	F(0)	53,285	1.07	F(0)	0.30%	no
190 <sup>th</sup> St from Crenshaw Ave. to Van Ness Ave	a.m.	4,800	2,910	2,955	0.62	C	2,989	0.62	C	0.71%	no
	p.m.	4,800	2,996	3,043	0.63	C	3,077	0.64	C	0.71%	no
	daily	50,000	33,226	33,744	0.67	C	33,896	0.68	C	0.30%	no
190 <sup>th</sup> St from Van Ness Ave. to Western Ave	a.m.	4,800	2,859	2,904	0.60	C	2,938	0.61	C	0.71%	no
	p.m.	4,800	3,007	3,054	0.64	C	3,088	0.64	C	0.71%	no
	daily	50,000	36,474	37,043	0.74	D	37,195	0.74	D	0.30%	no
I 405 at Crenshaw Blvd.	peak	19,200	16,900	17,164	0.89	D	17,198	0.90	D	0.18%	no

**4.13 Transportation and Traffic**

**Table 4.13-22 Phase 4 Roadway Segment Analysis**

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
	hour										
I 405 at Artesia Blvd.	peak hour	19,200	16,400	16,656	0.87	D	16,690	0.87	D	0.18%	no

Source: Existing demand from Arch Beach Consulting (2012) and Arch Beach Consulting (2013a). Capacities from City of Hermosa Beach Circulation Element, HCM, American Association of State Highway and Transportation Guidelines, and approximate design volumes.

Table 4.13-23 Operations Roadway Segment Analysis

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
Pier Ave. from PCH to Valley Dr	a.m.	2,800	959	1,005	0.36	B	1,016	0.36	B	0.39%	no
	p.m.	2,800	1,103	1,157	0.41	B	1,168	0.42	B	0.39%	no
	daily	29,000	15,529	16,287	0.56	C	16,331	0.56	C	0.15%	no
Valley Dr from Pier Ave. to 11 <sup>th</sup> St	a.m.	2,000	417	438	0.22	A	449	0.22	A	0.55%	no
	p.m.	2,000	558	585	0.29	A	596	0.30	A	0.55%	no
	daily	15,000	5,789	6,072	0.40	B	6,116	0.41	B	0.29%	no
Valley from 11 <sup>th</sup> St to 8 <sup>th</sup> St	a.m.	2,000	388	407	0.20	A	418	0.21	A	0.55%	no
	p.m.	2,000	523	549	0.27	A	560	0.28	A	0.55%	no
	daily	15,000	5,346	5,607	0.37	B	5,651	0.38	B	0.29%	no
Valley Dr from 8 <sup>th</sup> St to 2 <sup>nd</sup> St	a.m.	2,000	289	303	0.15	A	314	0.16	A	0.55%	no
	p.m.	2,000	471	494	0.25	A	505	0.25	A	0.55%	no
	daily	15,000	4,724	4,955	0.33	A	4,999	0.33	A	0.29%	no
Valley Dr from 2 <sup>nd</sup> St to Herondo St	a.m.	2,000	252	264	0.13	A	275	0.14	A	0.55%	no
	p.m.	2,000	408	427	0.21	A	438	0.22	A	0.55%	no
	daily	15,000	3,631	3,808	0.25	A	3,852	0.26	A	0.29%	no
Herondo St from Valley Dr to PCH	a.m.	1,680	918	963	0.57	C	974	0.58	C	0.65%	no
	p.m.	1,680	988	1,036	0.62	C	1,047	0.62	C	0.65%	no
	daily	13,000	12,544	13,156	1.01	F(0)	13,200	1.02	F(0)	0.34%	no
6 <sup>th</sup> St from Valley Dr to Hermosa Ave	a.m.	200	72	76	0.38	B	87	0.43	B	5.50%	no
	p.m.	200	73	77	0.38	B	88	0.44	B	5.50%	no
	daily	2,500	806	845	0.34	A	889	0.36	B	1.76%	no
Herondo St/Anita St from Valley Dr to PCH	a.m.	1,680	637	668	0.40	B	679	0.40	B	0.65%	no
	p.m.	1,680	913	958	0.57	C	969	0.58	C	0.65%	no
	daily	13,000	10,764	11,289	0.87	D	11,333	0.87	D	0.34%	no
Herondo St/Anita St from PCH to Prospect Ave	a.m.	1,680	990	1,038	0.62	C	1,049	0.62	C	0.65%	no
	p.m.	1,680	1,455	1,526	0.91	D	1,537	0.91	D	0.65%	no
	daily	13,000	17,012	17,842	1.37	F(2)	17,886	1.38	F(2)	0.34%	no
Valley Dr from Pier Ave. to	a.m.	2,000	324	340	0.17	A	351	0.18	A	0.55%	no
	p.m.	2,000	487	511	0.26	A	522	0.26	A	0.55%	no

#### 4.13 Transportation and Traffic

**Table 4.13-23 Operations Roadway Segment Analysis**

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
6 <sup>th</sup> St	daily	15,000	4,709	4,939	0.33	A	4,983	0.33	A	0.29%	no
Valley Dr from 6 <sup>th</sup> St to Herondo St	a.m.	2,000	265	278	0.14	A	289	0.14	A	0.55%	no
	p.m.	2,000	448	470	0.23	A	481	0.24	A	0.55%	no
Prospect Ave. from Artesia Blvd. to Aviation Blvd.	daily	15,000	4,021	4,217	0.28	A	4,261	0.28	A	0.29%	no
Prospect Ave. from Aviation Blvd. to Anita St	a.m.	2,000	334	350	0.18	A	361	0.18	A	0.55%	no
	p.m.	2,000	555	582	0.29	A	593	0.30	A	0.55%	no
	daily	15,000	4,788	5,022	0.33	A	5,066	0.34	A	0.29%	no
Aviation Blvd. from PCH to Artesia Blvd.	a.m.	2,000	750	787	0.39	B	798	0.40	B	0.55%	no
	p.m.	2,000	859	901	0.45	B	912	0.46	B	0.55%	no
	daily	15,000	9,165	9,612	0.64	C	9,656	0.64	C	0.29%	no
N Lucia Ave. from Agate St to Anita St	a.m.	2,800	1,815	1,904	0.68	C	1,915	0.68	C	0.39%	no
	p.m.	2,800	2,022	2,121	0.76	D	2,132	0.76	D	0.39%	no
	daily	29,000	28,049	29,418	1.01	F(0)	29,462	1.02	F(0)	0.15%	no
N Maria Ave. from Beryl St to Anita St	a.m.	1,000	44	46	0.05	A	57	0.06	A	1.10%	no
	p.m.	1,000	56	59	0.06	A	70	0.07	A	1.10%	no
	daily	5,000	451	473	0.09	A	517	0.10	A	0.88%	no
N Paulina Ave. from Beryl St to Anita St	a.m.	1,000	53	56	0.06	A	67	0.07	A	1.10%	no
	p.m.	1,000	48	50	0.05	A	61	0.06	A	1.10%	no
	daily	5,000	606	636	0.13	A	680	0.14	A	0.88%	no
N Prospect Ave. from Beryl St to Anita St	a.m.	1,000	63	66	0.07	A	77	0.08	A	1.10%	no
	p.m.	1,000	58	61	0.06	A	72	0.07	A	1.10%	no
	daily	5,000	629	660	0.13	A	704	0.14	A	0.88%	no
N Prospect Ave. from Anita St to North RB City Limits	a.m.	3,600	908	952	0.26	A	963	0.27	A	0.31%	no
	p.m.	3,600	1,032	1,082	0.30	A	1,093	0.30	A	0.31%	no
	daily	30,000	10,763	11,288	0.38	B	11,332	0.38	B	0.15%	no
Harkness Lane from	a.m.	3,600	652	684	0.19	A	695	0.19	A	0.31%	no
	p.m.	3,600	949	995	0.28	A	1,006	0.28	A	0.31%	no
	daily	30,000	9,519	9,984	0.33	A	10,028	0.33	A	0.15%	no
	a.m.	1,000	166	174	0.17	A	185	0.19	A	1.10%	no

Table 4.13-23 Operations Roadway Segment Analysis

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
Agate St to Anita St	p.m.	1,000	240	252	0.25	A	263	0.26	A	1.10%	no
	daily	5,000	2,562	2,687	0.54	C	2,731	0.55	C	0.88%	no
Harkness Lane from Anita St to Ripley Ave	a.m.	1,000	176	185	0.18	A	196	0.20	A	1.10%	no
	p.m.	1,000	261	274	0.27	A	285	0.28	A	1.10%	no
	daily	5,000	2,467	2,587	0.52	B	2,631	0.53	C	0.88%	no
Flagler Lane from Beryl St to 190 <sup>th</sup> St	a.m.	1,000	259	272	0.27	A	283	0.28	A	1.10%	no
Beryl St from 190 <sup>th</sup> St	p.m.	1,000	339	356	0.36	B	367	0.37	B	1.10%	no
	daily	5,000	3,391	3,556	0.71	D	3,600	0.72	D	0.88%	no
Beryl St from Flagler Lane to 190 <sup>th</sup> St	a.m.	3,600	676	709	0.20	A	720	0.20	A	0.31%	no
	p.m.	3,600	699	733	0.20	A	744	0.21	A	0.31%	no
	daily	30,000	8,889	9,323	0.31	A	9,367	0.31	A	0.15%	no
Blossom Lane from 190 <sup>th</sup> St to Havemeyer Lane	a.m.	1,000	55	58	0.06	A	69	0.07	A	1.10%	no
	p.m.	1,000	63	66	0.07	A	77	0.08	A	1.10%	no
	daily	5,000	736	772	0.15	A	816	0.16	A	0.88%	no
Anita St from Prospect Ave. to Flagler Lane	a.m.	4,800	1,466	1,538	0.32	A	1,549	0.32	A	0.23%	no
	p.m.	4,800	1,508	1,582	0.33	A	1,593	0.33	A	0.23%	no
	daily	50,000	18,417	19,316	0.39	B	19,360	0.39	B	0.09%	no
190 <sup>th</sup> St from Flagler Lane to Blossom Lane-N Beryl St	a.m.	4,800	1,594	1,672	0.35	B	1,683	0.35	B	0.23%	no
	p.m.	4,800	1,549	1,625	0.34	A	1,636	0.34	A	0.23%	no
	daily	50,000	20,051	21,029	0.42	B	21,073	0.42	B	0.09%	no
190 <sup>th</sup> St from Meyer Lane-Entradero Ave. to Anza Ave	a.m.	4,800	2,479	2,600	0.54	C	2,611	0.54	C	0.23%	no
	p.m.	4,800	2,543	2,667	0.56	C	2,678	0.56	C	0.23%	no
	daily	50,000	31,561	33,101	0.66	C	33,145	0.66	C	0.09%	no
190 <sup>th</sup> St from Blossom Land-N Beryl St to Meyer Lane-Entradero Ave	a.m.	4,800	2,759	2,894	0.60	C	2,905	0.61	C	0.23%	no
	p.m.	4,800	2,562	2,687	0.56	C	2,698	0.56	C	0.23%	no
	daily	50,000	33,598	35,238	0.70	D	35,282	0.71	D	0.09%	no
190 <sup>th</sup> St from Anza Ave. to Inglewood Ave	a.m.	4,800	3,008	3,155	0.66	C	3,166	0.66	C	0.23%	no
	p.m.	4,800	2,930	3,073	0.64	C	3,084	0.64	C	0.23%	no
	daily	50,000	38,946	40,847	0.82	D	40,891	0.82	D	0.09%	no

#### 4.13 Transportation and Traffic

**Table 4.13-23 Operations Roadway Segment Analysis**

Roadway Segment	Time	Capacity	Existing	Existing + Ambient (2015)	D/C	LOS	Existing + Ambient + Project	D/C	LOS	% Impact	Significant Impact?
190 <sup>th</sup> St from Inglewood Ave. to Firmona Ave	a.m.	4,800	2,302	2,414	0.50	B	2,425	0.51	B	0.23%	no
	p.m.	4,800	2,226	2,335	0.49	B	2,346	0.49	B	0.23%	no
	daily	50,000	29,756	31,208	0.62	C	31,252	0.63	C	0.09%	no
190 <sup>th</sup> St from Firmona Ave. to Hawthorne Blvd. (SR 107)	a.m.	4,800	2,433	2,552	0.53	C	2,563	0.53	C	0.23%	no
	p.m.	4,800	2,375	2,491	0.52	B	2,502	0.52	B	0.23%	no
	daily	50,000	30,551	32,042	0.64	C	32,086	0.64	C	0.09%	no
190 <sup>th</sup> St from Hawthorne Blvd. (SR 107) to Prairie Ave	a.m.	4,800	2,300	2,412	0.50	B	2,423	0.50	B	0.23%	no
	p.m.	4,800	2,386	2,502	0.52	B	2,513	0.52	B	0.23%	no
	daily	50,000	30,460	31,946	0.64	C	31,990	0.64	C	0.09%	no
190 <sup>th</sup> St from Prairie Ave. to Crenshaw Blvd.	a.m.	4,800	3,215	3,372	0.70	D	3,383	0.70	D	0.23%	no
	p.m.	4,800	3,280	3,440	0.72	D	3,451	0.72	D	0.23%	no
	daily	50,000	41,171	43,180	0.86	D	43,224	0.86	D	0.09%	no
Prairie Ave. from 182 <sup>nd</sup> St to 190 <sup>th</sup> St	a.m.	4,800	2,663	2,793	0.58	C	2,804	0.58	C	0.23%	no
	p.m.	4,800	2,929	3,072	0.64	C	3,083	0.64	C	0.23%	no
	daily	50,000	36,382	38,157	0.76	D	38,201	0.76	D	0.09%	no
Crenshaw Blvd. from I-405 to 190 <sup>th</sup> St	a.m.	4,800	3,647	3,825	0.80	D	3,836	0.80	D	0.23%	no
	p.m.	4,800	3,929	4,121	0.86	D	4,132	0.86	D	0.23%	no
	daily	50,000	52,317	54,870	1.10	F(0)	54,914	1.10	F(0)	0.09%	no
190 <sup>th</sup> St from Crenshaw Ave. to Van Ness Ave	a.m.	4,800	2,910	3,052	0.64	C	3,063	0.64	C	0.23%	no
	p.m.	4,800	2,996	3,142	0.65	C	3,153	0.66	C	0.23%	no
	daily	50,000	33,226	34,847	0.70	D	34,891	0.70	D	0.09%	no
190 <sup>th</sup> St from Van Ness Ave. to Western Ave	a.m.	4,800	2,859	2,999	0.62	C	3,010	0.63	C	0.23%	no
	p.m.	4,800	3,007	3,154	0.66	C	3,165	0.66	C	0.23%	no
	daily	50,000	36,474	38,254	0.77	D	38,298	0.77	D	0.09%	no
I 405 at Crenshaw Blvd.	peak hour	19,200	16,900	17,725	0.92	D	17,736	0.92	D	0.06%	no
I 405 at Artesia Blvd.	peak hour	19,200	16,400	17,200	0.90	D	17,211	0.90	D	0.06%	no

Source: Existing demand from Arch Beach Consulting (2012) and Arch Beach Consulting (2013a). Capacities from City of Hermosa Beach Circulation Element, HCM, American Association of State Highway and Transportation Guidelines, and approximate design volumes.

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## 4.13 Transportation and Traffic

### 4.13.10 Mitigation Monitoring Plan

Proposed Oil Project Mitigation Measures				
Mitigation Measure	Requirements	Compliance Verification		
		Method	Timing	Responsible Party
TR-1a	For Phases 1-3, the Applicant shall fund, through and in consultation with the School District and Safe Routes to School, an afternoon crossing guard to be stationed at the Project Site area to ensure pedestrians passing nearby the Project Site have assistance in crossing the streets and the entrances/exit of the Project Site. Alternately, the Applicant shall ensure that trucks do not travel to and from the Project Site unless school is in session (i.e. truck travel prohibited on Valley Drive after 2:48 p.m., on Wednesdays after 1:45 p.m. or on school minimum days after 12:45 p.m.). The Applicant shall consult with the School District to ensure timing is current.	Review of contracts and site inspections	Prior to Pipeline construction activities	City of Hermosa Beach
TR-1b	For Phases 1-3, the Applicant shall install, subject to the approval of the City Public Works Department, warning signs and blinking yellow lights one block north and south (if applicable with possible one-way on Valley Drive) of the Project Site warning vehicle traffic that trucks may be entering and exiting the roadway. Blinking lights shall only operate when trucks are utilizing the roadway (not 24 hours per day).	Review of design documents and site inspections	Prior to Pipeline construction activities	City of Hermosa Beach
TR-1c	The Applicant shall ensure that all trucks accessing the Project Site and utilizing the Pier Avenue/Valley Drive intersection are less than 65 feet long to prevent safety hazards at the double intersection on Pier Avenue between Valley Drive and Ardmore Avenue.	Review of contracts and site inspections	Prior to Pipeline construction activities	City of Hermosa Beach
TR-1d	For Phases 1-3, the Applicant shall, with the approval and coordination of the City Public Works Department, restripe Valley Drive south of Pier Avenue to be a southerly directed one-way street. No on-street parking shall be allowed on Valley Drive between 6th Street and 8th Street to allow for sufficient line of sight for trucks entering and exiting the Project Site.	Review of design documents and site inspections	Prior to Pipeline construction activities	City of Hermosa Beach
TR-2a	Pipeline construction activities within	Construction	During	City of Hermosa

Proposed Oil Project Mitigation Measures				
Mitigation Measure	Requirements	Compliance Verification		
		Method	Timing	Responsible Party
	the Pipeline right-of-way shall be limited to weekday between the hours of 9:00 a.m. and 3:00 p.m., unless the applicable municipality approves a specific exception to the time limit for periods of limited duration, subject to measures required by the municipality to protect the public health and safety.	scheduling and field verification	Pipeline construction	Beach
TR-2b	The applicant shall implement a Construction Traffic Management Plan (CTMP) during Pipeline construction that includes the following pursuant to the procedures and subject to approval of the applicable municipality: 1) Require the Pipeline contractor(s) to obtain and follow street construction permits in the affected areas (Cities of Hermosa Beach, Redondo Beach, and Torrance, and Caltrans facilities - PCH and Hawthorne Boulevard); 2) Develop detour and traffic management plans consistent with the affected City's standard roadway plans (e.g., Torrance Street Standard T603), the California Manual of Uniform Traffic Control Devices (MUTCD), or the Work Area Traffic Control Handbook (WATCH); 3) Revise Pipeline construction schedules to minimize access impacts to adjacent residents and businesses; and 4) Ensure that all affected residences and business have adequate emergency access during all times and phases of construction.	Approval of CTMP	Prior to Pipeline construction activities	City of Hermosa Beach
TR-3a	The applicant shall be prohibited from routing Proposed Oil Project-related heavy truck exceeding 20,000 pounds on 190 <sup>th</sup> Street between Anza Avenue and PCH, except during Pipeline construction. The Applicant shall comply with all requirements of the applicable city.	Use of alternative route	Phases 1-4	City of Hermosa Beach
TR-3b	The applicant shall route inbound and outbound heavy (>20,000 pounds) truck traffic along PCH and Artesia Boulevard, which are designated truck routes.	Use of alternative route	Phases 1-4	City of Hermosa Beach

#### 4.13 Transportation and Traffic

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Proposed City Maintenance Yard Project Mitigation Measures				
Mitigation Measure	Requirements	Compliance Verification		
		Method	Timing	Responsible Party
TR-4a	The City shall design the permanent Proposed City Maintenance Yard so that it does not enter/exit directly onto Valley Drive.	Review of Plans	Phase 3	City of Hermosa Beach
TR-4b	If the permanent Proposed City Maintenance Yard Project affects the sidewalk, then the design shall incorporate a sidewalk design along Valley Drive which utilizes a landscape buffer to separate the pedestrians from the street.	Review of Plans	Phase 3	City of Hermosa Beach

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