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5.12 Traffic and Transportation

This section addresses the potential effects of the Alamitos Energy Center (AEC) on traffic and transportation. Section 5.12.1 describes the project setting and affected environment of the local and regional traffic and transportation routes surrounding the project site. Section 5.12.2 presents the environmental analysis of the project's effects on local traffic volumes and patterns. Section 5.12.3 evaluates potential cumulative effects on traffic and transportation because of other simultaneous projects. Section 5.12.4 describes mitigation measures for the project. Section 5.12.5 describes applicable laws, ordinances, regulations, and standards (LORS). Section 5.12.6 lists the applicable regulatory agencies and contacts. Section 5.12.7 discusses traffic and transportation permits required, and Section 5.12.8 lists the references used to prepare this section.

5.12.1 Setting and Affected Environment

AES Southland Development, LLC (AES-SLD) proposes to construct, own, and operate the AEC—a natural-gas-fired, air-cooled, combined-cycle, electrical generating facility in Long Beach, Los Angeles County, California. The proposed AEC will have a net generating capacity of 1,936 megawatts (MW) and gross generating capacity of 1,995 MW.[1] The AEC will replace and be constructed on the site of the existing Alamitos Generating Station.

The AEC will consist of four 3-on-1 combined-cycle gas turbine power blocks with twelve natural-gas-fired combustion turbine generators (CTG), twelve heat recovery steam generators (HRSG), four steam turbine generators, four air-cooled condensers, and related ancillary equipment. The AEC will use air-cooled condensers for cooling, completely eliminating the existing ocean water once-through-cooling system. The AEC will use potable water provided by the City of Long Beach Water Department (LBWD) for construction, operational process, and sanitary uses but at substantially lower volumes than the existing Alamitos Generating Station has historically used. This water will be supplied through existing onsite potable water lines.

The AEC will interconnect to the existing Southern California Edison (SCE) 230-kilovolt (kV) switchyard adjacent to the north side of the property. Natural gas will be supplied to the AEC via the existing offsite 30-inch-diameter pipeline owned and operated by Southern California Gas Company (SoCalGas) that currently serves the Alamitos Generating Station. Existing water treatment facilities, emergency services, and administration and maintenance buildings will be reused for the AEC. The AEC will require relocation of the natural gas metering facilities and construction of a new natural gas compressor building within the existing Alamitos Generating Station site footprint. Stormwater will be discharged to two retention basins and then ultimately to the San Gabriel River via existing stormwater outfalls.

The AEC will include a new 1,000-foot process/sanitary wastewater pipeline to the first point of interconnection with the existing LBWD sewer system and will eliminate the current practice of treatment and discharge of process/sanitary wastewater to the San Gabriel River. The project may also require upgrading approximately 4,000 feet of the existing offsite LBWD sewer line downstream of the first point of interconnection, therefore, this possible offsite improvement to the LBWD system is also analyzed in this AFC. The total length of the new pipeline (1,000 feet) and the upgraded pipeline (4,000 feet) is approximately 5,000 feet.

To provide fast-starting and stopping, flexible generating resources, the AEC will be configured and deployed as a multi-stage generating (MSG) facility. The MSG configuration will allow the AEC to generate power across a wide and flexible operating range. The AEC can serve both peak and intermediate loads with the added capabilities of rapid startup, significant turndown capability (ability to turn down to a low load), and

[1] Referenced to site ambient average temperature conditions of 65.3 degrees Fahrenheit (°F) dry bulb and 62.7°F wet bulb temperature without evaporative cooler operation.

fast ramp rates (30 percent per minute when operating above minimum gas turbine turndown capacity). As California's intermittent renewable energy portfolio continues to grow, operating in either load following or partial shutdown mode will become necessary to maintain electrical grid reliability, thus placing an increased importance upon the rapid startup, high turndown, steep ramp rate, and superior heat rate of the MSG configuration employed at the AEC.

By using proven combined-cycle technology, the AEC can also run as a baseload facility, if needed, providing greater reliability to meet resource adequacy needs for the southern California electrical system. As an in-basin generating asset, the AEC will provide local generating capacity, voltage support, and reactive power that are essential for transmission system reliability. The AEC will be able to provide system stability by providing reactive power, voltage support, frequency stability, and rotating mass in the heart of the critical Western Los Angeles local reliability area. By being in the load center, the AEC also helps to avoid potential transmission line overloads and can provide reliable local energy supplies when electricity from more distant generating resources is unavailable.

The AEC's combustion turbines and associated equipment will include the use of best available control technology to limit emissions of criteria pollutants and hazardous air pollutants. By being able to deliver flexible operating characteristics across a wide range of generating capacity, at a relatively consistent and superior heat rate, the AEC will help lower the overall greenhouse gas emissions resulting from electrical generation in southern California and allow for smoother integration of intermittent renewable resources.

Existing Alamitos Generating Station Units 1–6 are currently in operation. All six operating units and retired Unit 7 will be demolished as part of the proposed project. Construction and demolition activities at the project site are anticipated to last 139 months, from first quarter 2016 until third quarter 2027. The project will commence with the demolition of retired Unit 7 and other ancillary structures to make room for the construction of AEC Blocks 1 and 2. The demolition of Unit 7 will commence in the first quarter of 2016. The construction of Block 1 is scheduled to commence in the third quarter of 2016 and construction of Block 2 is scheduled to commence in the fourth quarter of 2016. The demolition of existing Units 5 and 6 will make space for the construction of AEC Block 3. AEC Block 3 construction is scheduled to commence in the first quarter of 2020 and will be completed in the second quarter of 2022. The demolition of existing Units 3 and 4 will make space for the construction of AEC Block 4. AEC Block 4 construction is scheduled to commence in the second quarter of 2023 and will be completed in the fourth quarter of 2025. The demolition of remaining existing units is scheduled to commence in the third quarter of 2025.

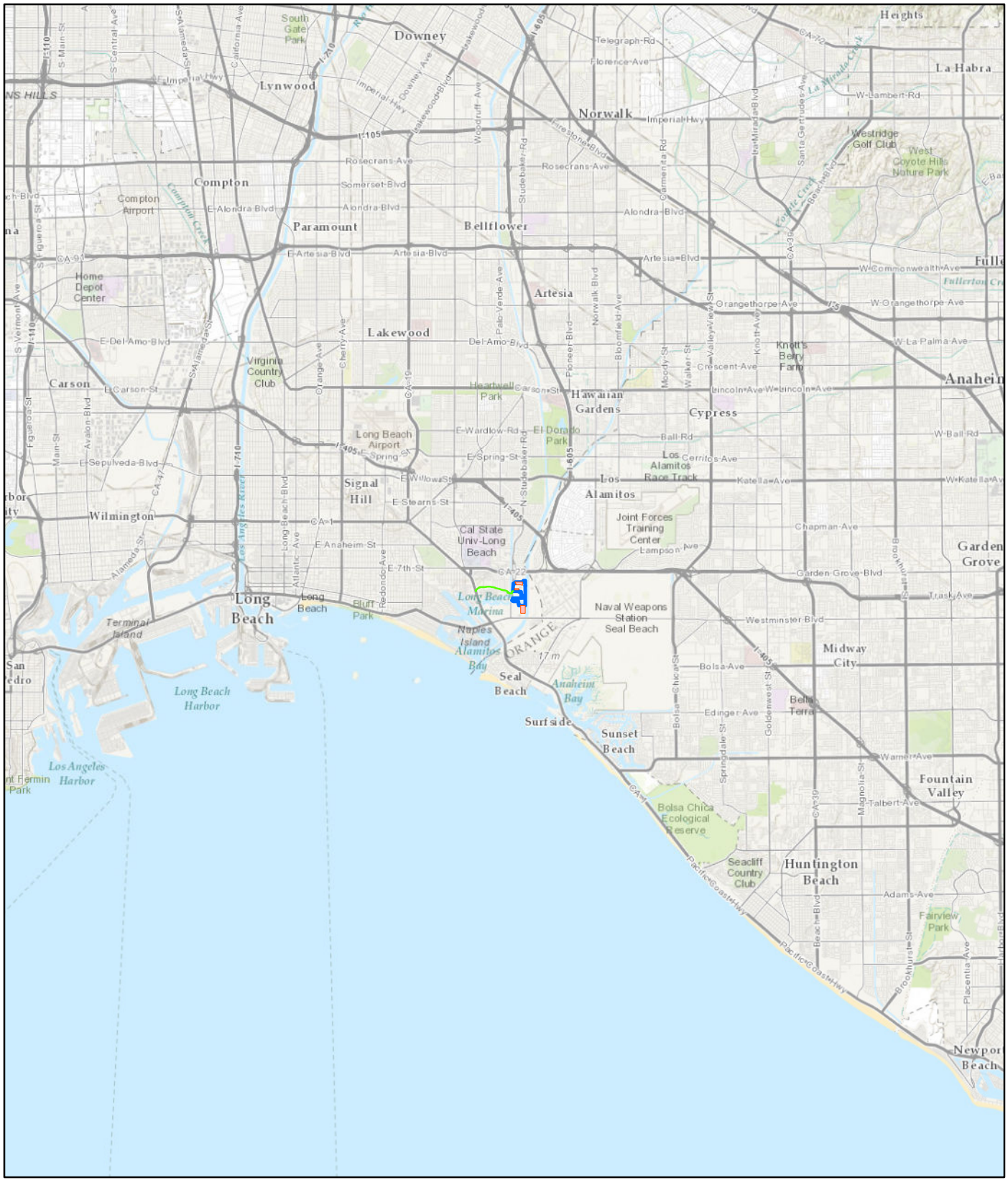
Construction of the AEC will require the use of onsite laydown areas (approximately 8 acres dispersed throughout the existing site) and an approximately 10-acre laydown area located adjacent to the existing site. The adjacent 10-acre laydown area will be shared with another project being developed by the Applicant (Huntington Beach Energy Project [HBEP] 12-AFC-02). Due to the timing for commencement of construction for these two projects, the adjacent laydown area will already be in use for equipment storage before AEC construction begins.

Primary access to the project site is provided via an existing entrance off Studebaker Road, approximately 1,000 feet north of the intersection of Studebaker Road and Loynes Drive.

5.12.1.1 Existing Regional and Local Transportation Facilities

Roadway descriptions and volumes were obtained from the best available sources at the time this analysis was prepared. These sources include the California Department of Transportation (Caltrans) Average Daily Traffic volumes (Caltrans, 2013), the *Second + PCH Development Project Traffic Impact Analysis* (Linscott, Law, and Greenspan, 2010), the City of Long Beach Draft Mobility Element (City of Long Beach, 2013a), and the Transportation Element of the Long Beach General Plan (City of Long Beach, 1991).

The surrounding regional and local roadway networks are shown in Figures 5.12-1, 5.12-2a, and 5.12-2b.



Legend

- Project Boundary
- Parking/Laydown Construction Area
- Process/Sanitary Wastewater Pipeline

0 1.5 3 Miles

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FIGURE 5.12-1
Regional Road Network
Alamitos Energy Center
Long Beach, California

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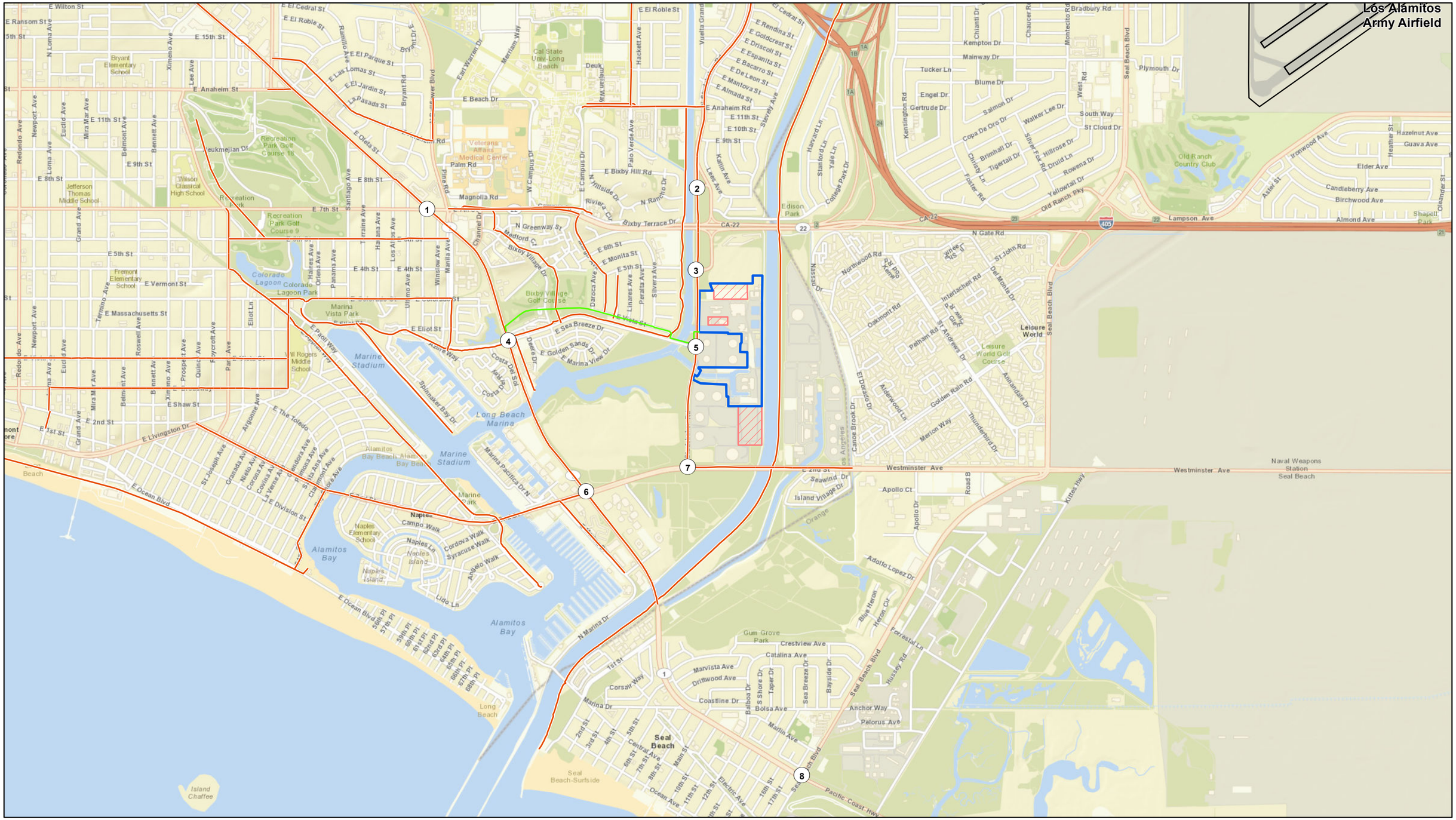

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- Project Boundary
- Parking/Laydown Construction Area
- Process/Sanitary Wastewater Pipeline
- Bikeway
- (#) Study Intersection

0 2,000 4,000 Feet

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FIGURE 5.12-2A
Local Transportation Network
Alamitos Energy Center
Long Beach, California

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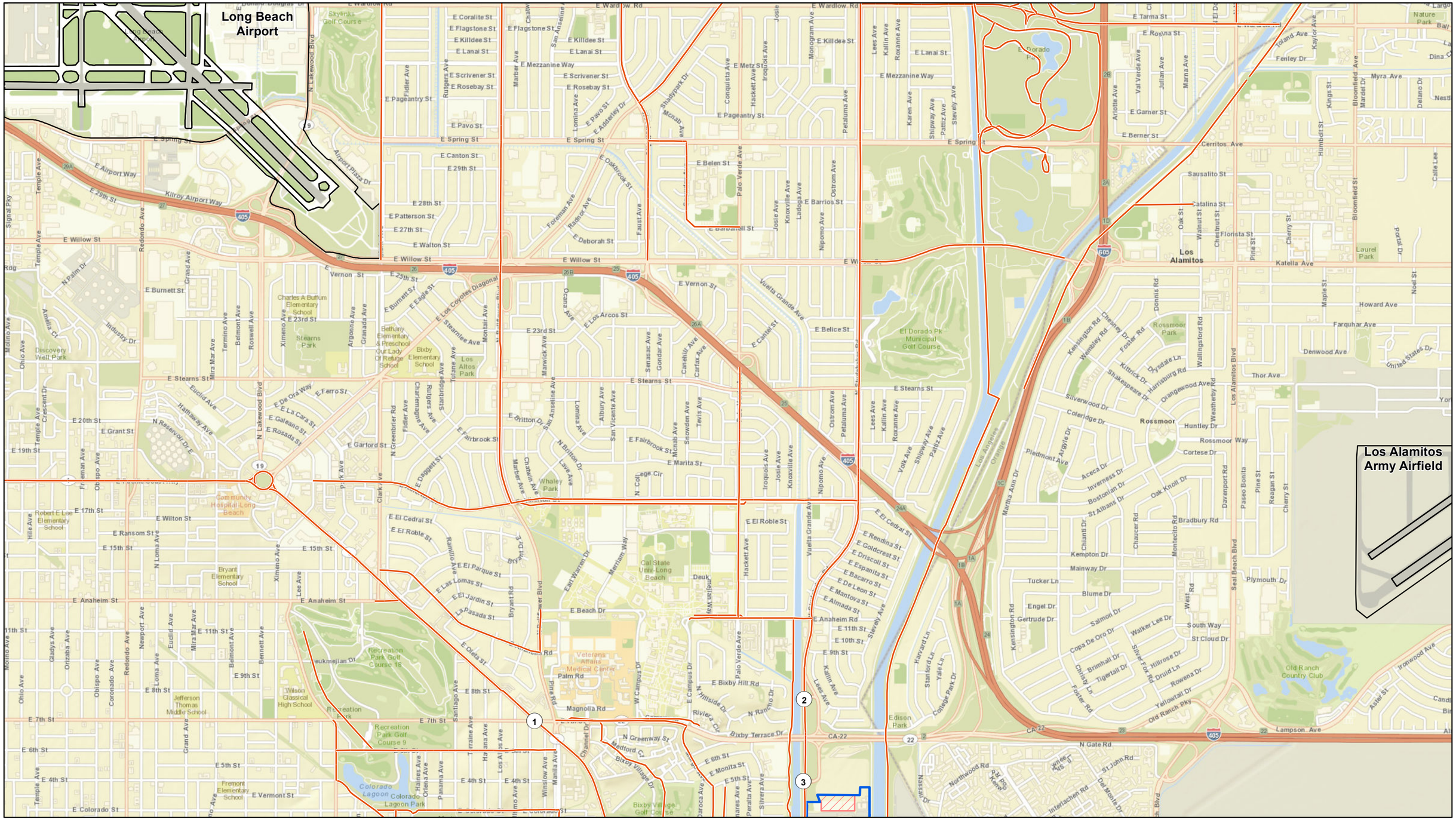

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- Project Boundary
- Parking/Laydown Construction Area
- Process/Sanitary Wastewater Pipeline
- Bikeway
- (#) Study Intersection

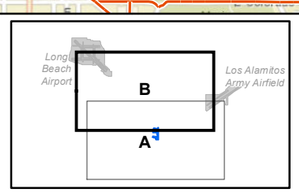

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FIGURE 5.12-2B
Local Transportation Network
Alamitos Energy Center
Long Beach, California

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Regional access to the AEC site is provided from Interstate 405 (I-405), I-605, State Route 22 (SR 22)/East 7th Street, and SR 1/Pacific Coast Highway (PCH). Local access to the project site is primarily provided from East 7th Street, North Studebaker Road, Loynes Drive, East 2nd Street, and PCH. Construction workers, construction materials, and AEC employees (for operations) traveling to the AEC site are anticipated to use the roadways described below.

I-405 is a north–south freeway, running along the western and southern parts of the greater Los Angeles area from Irvine in the south to near San Fernando in the north. I-405 is heavily traveled by commuters and freight haulers along its entire length. Traffic volumes along I-405 between Seal Beach Boulevard and its interchange with I-605 average 371,000 vehicles per day (Caltrans, 2013).

I-605 is a north-south freeway connecting East Long Beach with the San Gabriel Valley. Traffic volumes along I-605 between its interchange with SR 22 and I-405 average between 171,000 and 181,000 vehicles per day (Caltrans, 2013).

SR 22 (East 7th Street within Long Beach), between Bellflower Boulevard to the west and approximately Studebaker Road to the east, is a six-lane divided roadway running east-west. The posted speed limit is generally 40 miles per hour (mph). Traffic volumes along SR 22 near Studebaker Road average between 68,000 and 95,000 vehicles per day (Caltrans, 2013).

PCH connects to I-5 in Dana Point, and to cities and counties along the Pacific coast to the north. In the vicinity of the project, PCH is a four to six-lane north-south major arterial. Left-turn lanes are provided at major intersections. The speed limit along PCH in the project vicinity is generally 45 mph. Traffic volumes along PCH near SR 22 average from 26,000 vehicles per day (Caltrans, 2013).

Studebaker Road is generally a four-lane divided roadway oriented in a north-south direction. The posted speed limit on Studebaker Road is 45 mph. Primary access to the project site is provided via an existing entrance off Studebaker Road, approximately 1,000 feet north of the intersection of Studebaker Road and Loynes Drive.

2nd Street is generally a four-lane divided east-west roadway. Between Naples Plaza and Studebaker Road, 2nd Street is a six-lane divided roadway. The posted speed limit ranges from 25 to 50 mph.

5.12.1.2 Heavy/Oversized Loads Haul Route

Heavy and oversized components of the electrical generator sets for AEC (CTGs, components of the HRSGs, transformers, and other oversize and heavy components) will be transported by ship or rail to the Port of Long Beach. The AEC heavy haul route is listed in Table 5.12-1, as well as the anticipated permitting agency for each road section. From the port, these loads will be transported to the site by truck (with appropriate heavy/oversize permits from the agencies listed in Table 5.12-1) along the heavy haul route (shown in Figure 5.12-3) to the onsite construction laydown area. A full description of the route is provided in Appendix 5.12A. However, the final route will be determined when the heavy/oversize load permits are submitted to the appropriate jurisdictions.

For AEC construction, the heavy/oversize loads are expected to be permitted typically for late-night deliveries. Late-night transport of heavy/oversize loads is common practice to minimize conflicts with general traffic. The volume of these heavy/oversize trips for AEC (and the background traffic in late-night hours) will be low enough (a maximum of two deliveries per month for 6 months) that a traffic operations analysis is not indicated for these infrequent, late-night heavy/oversize load transport activities.

Although the heavy vehicle route would deviate from the heavy vehicle routes identified in the City of Long Beach Municipal Code for through-traffic, the Municipal Code (Volume I, Title 10, Section 10.40) does allow trucks to continue along nondesignated through routes if they are going directly to a business for deliveries/pickups.

TABLE 5.12-1
Heavy Haul Route (Port of Long Beach to AEC Site)

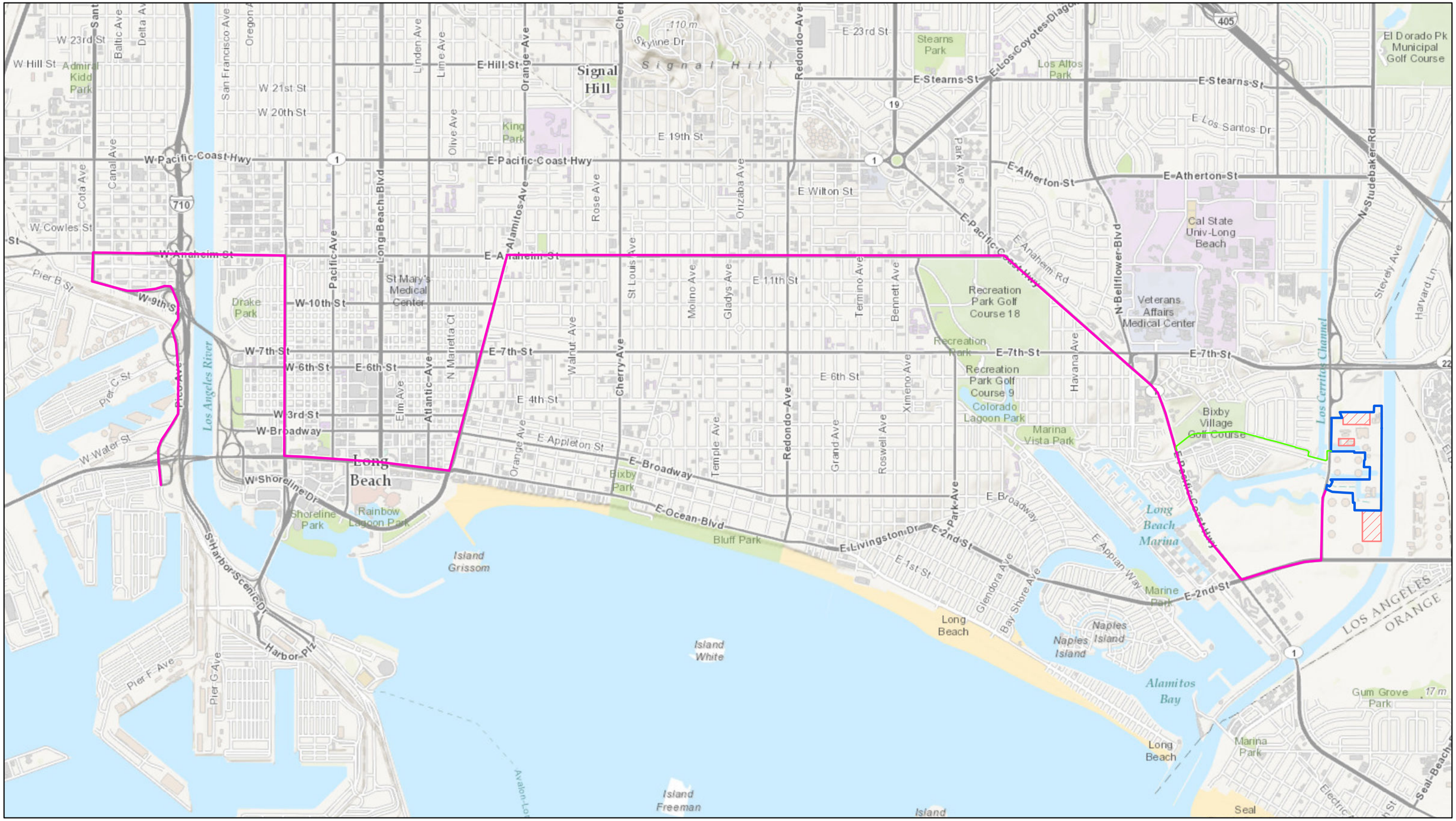
Heavy Haul Route Road Segment	Permitting Agency
Harbor Plaza to Pico Avenue	City of Long Beach/County of Los Angeles*
Pico Avenue to West 10th Street	City of Long Beach/County of Los Angeles*
10th Street changes to 9th Street	City of Long Beach/County of Los Angeles*
9th Street to Santa Fe Avenue	City of Long Beach/County of Los Angeles*
Santa Fe Avenue to West Anaheim Street	City of Long Beach/County of Los Angeles*
West Anaheim Street to Magnolia Avenue	City of Long Beach
Magnolia Avenue to East Ocean Boulevard	City of Long Beach
East Ocean Boulevard to Alamitos Avenue	City of Long Beach
Alamitos Avenue to East Anaheim Street	City of Long Beach
East Anaheim Street to PCH	City of Long Beach
PCH to East 2nd Street	Caltrans
East 2nd Street to North Studebaker Road	City of Long Beach

*Within the Overweight Corridor/Harbor District of the City of Long Beach, the City of Long Beach Department of Public Works is responsible for the issuance of permits for the operation of overweight vehicles carrying reducible loads and the Los Angeles County Department of Public Works is responsible for issuing permits for the transportation of non-reducible loads. Should the project have both reducible and non-reducible loads, a permit from both agencies would be required.

5.12.1.3 Existing Roadway and Intersection Operations

To identify the operating condition at roadways and intersections, the level of service (LOS) methodology from the *Highway Capacity Manual* (HCM) is used (Transportation Research Board, 2010). LOS is used to quantify impacts of traffic volumes verses roadway capacity with a letter value. The letter scale ranges from A to F with LOS A representing free flow conditions and LOS F representing congested conditions. Average daily traffic (ADT) volumes were used to assess the LOS for the study area local streets, and AM and PM peak-hour turning movement counts were used to assess intersection LOS.

The roadway segments were evaluated based on the volume to capacity (V/C) ratio for average daily conditions. In conformance with the City of Long Beach requirements and Los Angeles County Congestion Management Program requirements the intersection conditions were evaluated using the Intersection Capacity Utilization (ICU) methodology (Los Angeles County Metropolitan Transportation Authority, 2010). The ICU method estimates the V/C relationship for an intersection based on the individual V/C ratios for key conflicting traffic movements. The ICU numerical value represents the percent signal (green) time, and thus capacity, required by existing and future traffic.



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- Project Boundary
- Parking/Laydown Construction Area
- Process/Sanitary Wastewater Pipeline
- Route

0 2,500 5,000 Feet

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FIGURE 5.12-3
Heavy Haul Route
Alamitos Energy Center
Long Beach, California

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5.12.1.3.1 Existing Roadway Conditions

Table 5.12-2 provides a summary of LOS, V/C ratios, and traffic flow characteristics for roadways.

TABLE 5.12-2
Level of Service Criteria for Roadway Segments

LOS	V/C Ratio	Traffic Flow Characteristics
A	0.000 – 0.600	Free flow; insignificant delays
B	0.601 – 0.700	Stable operation; minimal delays
C	0.701 – 0.800	Stable operation; acceptable delays
D	0.801 – 0.900	Approaching unstable flow; queues develop rapidly but no excessive delays
E	0.901 – 1.000	Unstable operation; significant delays
F	> 1.000	Forced flow; jammed conditions

Source: Transportation Research Board, 2000.

Table 5.12-3 provides a summary of LOS, V/C ratios, and traffic flow characteristics for signalized intersections.

TABLE 5.12-3
Level of Service Criteria for Signalized Intersections

LOS	V/C Ratio	Definition
A	0.000 - 0.600	Conditions of free unobstructed flow, no delays and all signal phases sufficient in duration to clear all approaching vehicles.
B	0.610 - 0.700	Conditions of stable flow, very little delay, a few phases are unable to handle all approaching vehicles.
C	0.710- 0.800	Conditions of stable flow, delays are low to moderate, full use of peak direction signal phases is experienced.
D	0.810 – 0.900	Conditions approaching unstable flow, delays are moderate to heavy, significant signal time deficiencies are experienced for short durations during the peak traffic period.
E	0.910 – 1.000	Conditions of unstable flow, delays are significant, signal phase timing is generally insufficient, congestion exists for extended duration throughout the peak period.
F	> 1.000	Conditions of forced flow, travel speeds are low, and volumes are well above capacity. This condition is often caused when vehicles released by an upstream signal are unable to proceed because of back-ups from a downstream signal.

Source: Transportation Research Board, 2010

The Transportation Element of the Long Beach General Plan has established an objective to maintain LOS D or better for roadways and intersections (City of Long Beach, 1991). The City of Long Beach is in the process of drafting the 2035 Mobility Element of its General Plan, which includes an update to the street classification system toward a context-sensitive street classification approach (City of Long Beach, 2013a). This approach is intended to promote a more efficient, balanced, and multimodal mobility network. As a result of this shift to context-sensitive design, the LOS standard is LOS D for regional corridors, boulevards, and avenues (major), and a new standard of LOS C is recommended for avenues (minor) and collector streets.

For the study intersection located in the City of Seal Beach (PCH at Seal Beach Boulevard), LOS D is the minimum acceptable condition that should be maintained during the peak commute hours (City of Seal Beach, 2003).

5.12.1.3.2 Existing Roadway LOS

ADT volumes were obtained from Caltrans for PCH and SR 22 (Caltrans, 2013). The roadway segment analysis focused on the state highways because current daily traffic volumes were not available for other local roadways in the study area. The existing roadway ADT is illustrated in Figure 5.12-4. Along PCH, in the project study area, trucks comprise approximately 2.4 percent of the total vehicular traffic.

The City of Long Beach Circulation Element does not identify specific roadway capacities for its streets, so the roadway capacities contained in the City of Seal Beach Circulation Element (City of Seal Beach, 2003) were used to evaluate the study roadways. The City of Seal Beach roadway capacities are assumed to be representative of the roadway capacities in Long Beach due to the similarities in roadway characteristics within the two cities. Table 5.12-4 is a summary of the daily traffic volumes and V/C ratios for existing conditions.

TABLE 5.12-4
Existing Roadway Segment LOS

State Highway	Between	And	Number of Lanes	Daily Vehicle Capacity[a]	Existing		
					ADT	V/C	LOS[c]
PCH	Outer traffic circle/ East Atherton St.	East Anaheim St.	4	37,500	28,500	0.760	C
	East Anaheim St.	SR 22	4	37,500	34,500	**0.920**	**E**
	SR 22	Bellflower Blvd.	6	56,300	26,000	0.462	A
	Bellflower Blvd.	Loynes Dr.	6	56,300	35,000	0.622	B
	Loynes Dr.	Orange County line	5	46,875	46,000	**0.981**	**E**
	Orange County line	Seal Beach Blvd.	4	37,500	46,000	**1.227**	**F**
SR 22	PCH	Bellflower Blvd.	6	56,300	57,800	**1.027**	**F**
	Bellflower Blvd.	East Campus Rd.	6	56,300	61,000	**1.083**	**F**
	East Campus Rd.	Studebaker Rd.	6	56,300	68,000	**1.208**	**F**
	Studebaker Rd.	Orange County line	4[b]	79,400	95,000	**1.196**	**F**

[a]Roadway capacities were obtained from the City of Seal Beach Circulation Element.

[b]SR 22 becomes a four-lane freeway east of Studebaker Rd. Freeway capacity based on Florida Department of Transportation (FDOT) Level of Service/Quality Handbook (FDOT, 2013).

[c]Unacceptable LOS shown in **bold**.

5.12.1.3.3 Existing Intersection LOS

AM and PM peak hour intersection turning movement counts were obtained from the *Second + PCH Development Traffic Impact Analysis* (Linscott, Law, and Greenspan, 2010) for eight signalized intersections in the vicinity of the project site. The existing intersection turning movement counts are illustrated in Figure 5.12-4.

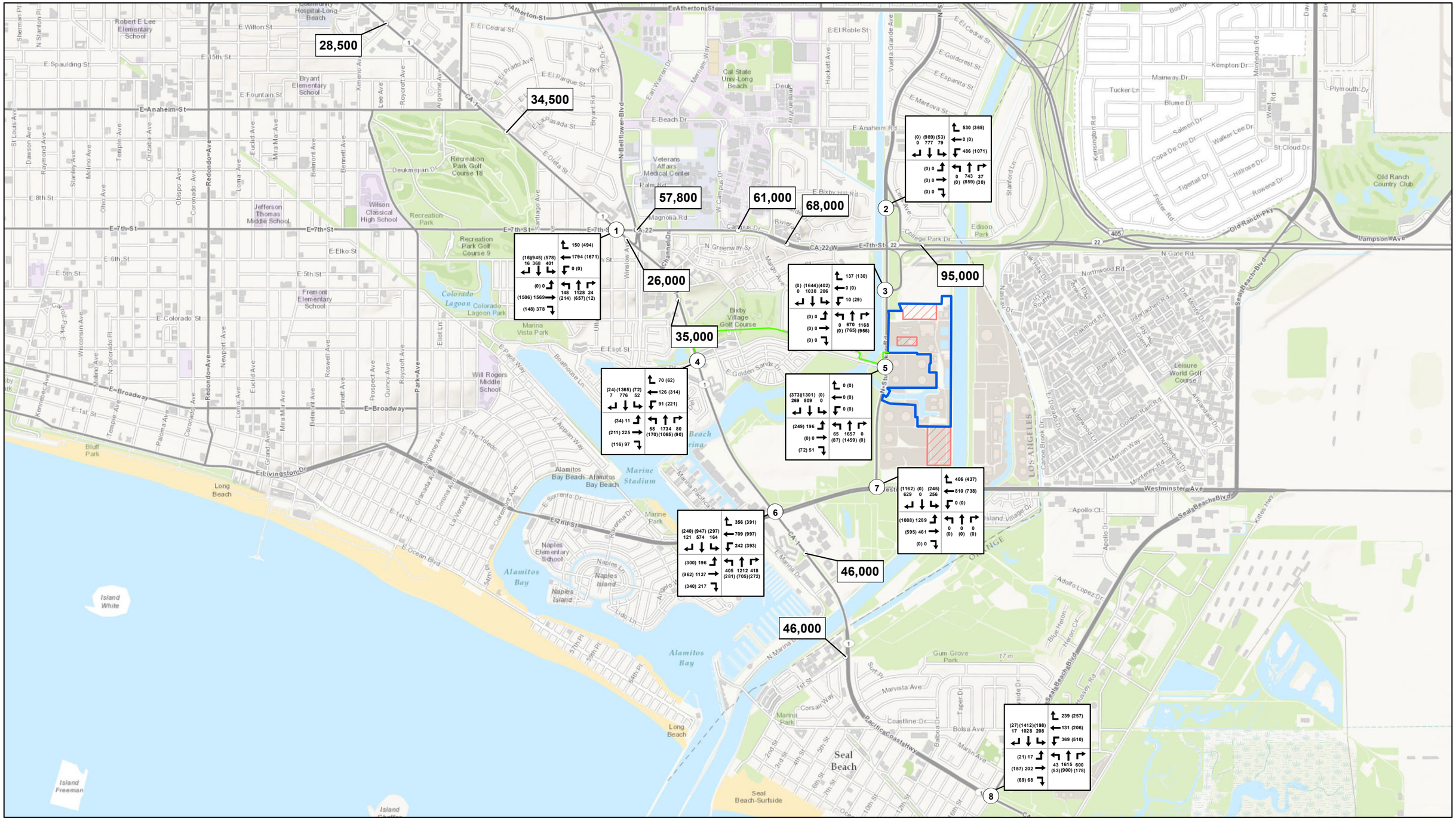

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FIGURE 5.12-4
Existing Average Daily Roadway Volumes and Peak Hour Intersection Volumes
Alamitos Energy Center
Long Beach, California

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The existing intersection LOS is summarized in Table 5.12-5. As shown, four of the study intersections do not meet the City's LOS criterion during the morning peak hour and three of the study intersections do not meet the LOS criterion during the afternoon peak hour.

TABLE 5.12-5
Existing Intersection LOS Summary

		AM Peak Hour		PM Peak Hour	
	Intersection	V/C	LOS*	V/C	LOS*
1	PCH at 7th Street	**1.090**	**F**	**1.012**	**F**
2	Studebaker Road at SR 22 Westbound Ramps	0.600	B	0.831	D
3	Studebaker Road at SR 22 Eastbound Ramps	0.492	A	0.674	B
4	PCH at Loynes Drive	**0.907**	**E**	0.796	C
5	Studebaker Road at Loynes Drive	0.736	C	0.692	B
6	Studebaker Road at 2nd Street	**0.943**	**E**	**0.906**	**E**
7	PCH at 2nd Street	**1.047**	**F**	**1.122**	**F**
8	Seal Beach Boulevard at PCH	0.865	D	0.742	C

*Unacceptable LOS shown in **bold**

5.12.1.4 Truck Routes

The California Vehicle Code (CVC) Sections 35550–35559 regulates the use of trucks on state facilities, including I-405, I-605, PCH, and SR 22. The City of Long Beach regulates the use of trucks on city roadways. Project-related trucks (construction, demolition, and operations) will travel along designated truck routes near the project site. Existing regional and local truck routes (excluding state facilities) in Long Beach include:

5.12.1.4.1 Existing Regional Truck Routes

- Cherry Avenue (northern city limits to PCH, within Long Beach)
- Paramount Boulevard (northern city limits to South Street)
- 7th Street (PCH to Studebaker Road)

5.12.1.4.2 Existing Local Truck Routes

- Santa Fe Avenue (PCH to Anaheim Street)
- Long Beach Boulevard (within city limits)
- Lakewood Boulevard (within city limits)
- Bellflower Boulevard (Carson Street to PCH)
- Norwalk Boulevard (within city limits)
- South Street (Cherry Avenue to eastern city limits)
- Carson Street (Cherry Avenue to eastern city limits)
- Spring Street (Long Beach Boulevard to eastern city limits)
- Willow Street (I-710 to Clark Avenue, within Long Beach)
- Anaheim Street (western city limits to I-710)
- I-405, I-710, and I-91

In addition to the designated truck routes above, a heavy/oversize haul route for larger heavy haul trucks is shown in Figure 5.12-3 and discussed in Section 5.12.1.2. The heavy haul trucks will come from the Port of Long Beach directly to the construction laydown area at the project site. The anticipated permitting agency

for each road section is also discussed in Section 5.12.1.2. Appendix 5.12A provides the Heavy Haul Route and details on heavy/oversize truck routes.

5.12.1.5 Local Transportation Projects

The Fiscal Year 2013 Capital Improvement Program (CIP) represents the City of Long Beach's short-range strategic capital investment. The CIP identifies and provides for two types of expenditures: strategic improvements to existing infrastructure, and one-time projects designed to address important community needs. There are ten major sections of capital improvement programs that are defined by the type of capital investment. The Transportation Enhancements section contains programs designed to meet increased needs for mobility resulting from economic growth utilizing a combination of funds. These funds include Proposition C, Gas Tax Street Improvement Capital, Capital Projects, Transportation Improvement Fees, and federal and county grants. The transportation improvements include street and intersection widening, traffic signal system expansion and upgrades, transit improvements, neighborhood traffic management, bike lanes, and bike paths. This section also includes programs that monitor and evaluate traffic congestion areas throughout the city and responds with projects to relieve congestion or enhance traffic safety. The proposed 2013 budget for transportation enhancements is $24,724,932. A summary of the proposed projects is shown in Table 5.12-6.

TABLE 5.12-6
Capital Improvement Program for Fiscal Year 2013 for the City of Long Beach

Transportation Enhancements Program Number and Title	
PR5340	Light Rail Landscaping Prop A 02-210
PW4204	Steam Cleaning Downtown
PW5010	Bikeway & Pedestrian Improvements
PW5020	Congestion Management Program Compliance
PW5040	Opticom Installation
PW5070	I-605 Retail Center
PW5130	Neighborhood Traffic Mitigation
PW5170	Traffic Mitigation Program
PW5190	Traffic Signals-New Installations & Enhancements
PW5240	East-West Corridor Bus Speed
PW5260	Major Corridor Enhancement Program
PW5280	Light Rail Transit Related Improvements
PW5290	Millennium Beautification Program
PW5340	Citywide Pedestrian Safety Enhancement
PW5350	Downtown Regional Bikeway Connection
PW5370	I-710 FWY Major Corridor Improvements
PW5380	Traffic Operations
PW5400	I-710 FWY Rehab Traffic Control
PW5410	LED Traffic Signal Conversion Program
PW5440	Historic District Street Signs
PW6020	Queensway Bay Bike Path
PWT010	Sustainable Transportation Improvements
PWT020	Congestion Management Program Compliance
PWT030	Special Problem Locations
PWT040	Opticom Installation
PWT110	Citywide Signage Program
PWT130	Neighborhood Traffic Mitigation
PWT170	Traffic Mitigation Program
PWT190	Traffic & Pedestrian Signals
PWT260	Major Corridor Enhancement Program
PWT280	Light Rail Transit Related Improvements
PWT300	Parking Mitigation
PWT360	Adaptive Traffic Management System
PWT370	I-710 FWY Major Corridor Improvements
PWT380	Traffic Operations
PWT500	Annual Traffic Count Program
PWT510	Street Tree Removal and Replacement

Source: City of Long Beach, 2013b

5.12.1.6 Pedestrian and Bicycle Facilities

Long Beach's local street network has a well-developed bicycle circulation system that includes signed bike routes (Class III bicycle facilities), striped and signed bike lanes (Class II bicycle facilities), and on-street bike paths that are physically separated from automobile traffic (Class I bicycle facilities). This on-street bicycle network system includes 15 miles of bike routes, 19 miles of bike lanes, and 29 miles of bike paths. In addition to the on-street bicycle network, Long Beach has more than 60 miles of off-street bike and pedestrian paths within its boundaries. Major bike facilities include:

- Shoreline Pedestrian Bike Path: A 3.1-mile bike and pedestrian path along the beach from Alamitos Avenue to 54th Place

- Los Angeles River Bikeway: A 29.1-mile bikeway along the Los Angeles River and through the Downtown Marina. The path connects to the Shoreline Pedestrian Bike Path
- San Gabriel River Bike Trail: A 28-mile bikeway along the San Gabriel River and through El Dorado Regional Park
- El Dorado Park Bike Path: A 4-mile bikeway through the 450-acre El Dorado Regional Park; it connects with the San Gabriel River Bike Trail at various locations
- Heartwell Park Bike Path: A 2.5-mile bikeway through the 162-acre Heartwell Park and connecting to the San Gabriel River Bike Trail and several Class II bike lanes

The existing and proposed bicycle network in Long Beach is shown in Figures 5.12-2a and 5.12-2b.

5.12.1.7 Public Transportation

Transit service in Long Beach is provided by Long Beach Transit (LBT), Los Angeles County Metropolitan Transportation Authority (Metro), and the Orange County Transportation Authority (OCTA). See Figures 5.12-2a and 5.12-2b for the bus routes in the vicinity of the project site.

LBT provides transit and demand-response services in Long Beach and surrounding communities. LBT operates two types of bus services, within its 98-square-mile service area, local service and a downtown Passport circulator. Local service provided by LBT provides fixed-route service with frequent stops in Long Beach and adjacent cities. LBT also provides a transportation service to mobility impaired residents called Dial-A-Lift. During the summer, LBT also operates the AquaLink, a catamaran that carries passengers between the Downtown Long Beach waterfront and the Alamitos Bay Landing, as well as the AquaBus water taxi service that visits marinas and docks along the downtown waterfront. In total – on road and on water – LBT operates 38 local service routes in Long Beach. In 2012, LBT served 28 million annual passengers for 86 million annual passenger miles with 182 buses and 14 demand-response vehicles. On average, LBT serves approximately 89,000 daily weekday boardings, 58,000 Saturday boardings, and 50,200 Sunday boardings (City of Long Beach, 2013a).

Regional transportation for Long Beach is operated by Metro. On a regional scale, Metro operates five types of bus service: local service, limited-stop service, express service, shuttles, and circulators and rapid service, as well as passenger rail and transitway service in its 1,513-square-mile service area. Within Long Beach, Metro operates a limited number of local and express buses and the Metro Blue Line passenger rail. Most transit activity in Long Beach is focused around the Long Beach Transit Gallery, located on 1st Street between Pine Avenue and Pacific Avenue in Downtown Long Beach. The Long Beach Transit Gallery serves as the southern terminus of the Metro Blue Line and is the main transit hub for bus connections to various Metro, Long Beach Transit, Los Angeles Department of Transportation Commuter Express, and Torrance Transit bus routes. Part of the Metro Rail Transit System that runs north-south from Los Angeles to Long Beach, the Metro Blue Line starts at 7th Street/Metro Center/Julian Dixon in Downtown Los Angeles and travels south via Long Beach Avenue, Willowbrook Avenue, and Long Beach Boulevard to its final destination at the Long Beach Transit gallery. The Metro Blue Line operates Monday through Sunday, including all major holidays (City of Long Beach, 2013a). The nearest station to the site is the 1st Street Station, approximately 5 miles west of the project site.

OCTA operates 76 bus lines, encompassing every city in Orange County. Some of the lines serve the Los Angeles County border communities of Lakewood, La Mirada, Cerritos, Hawaiian Gardens, and Long Beach along with express service to Los Angeles, Diamond Bar, Chino Hills, and Chino and the Riverside County cities of Riverside and Corona.

5.12.1.8 Rail Traffic

The nearest passenger rail service is approximately 12 miles northeast of the project site at the Amtrak station in Fullerton. Commercial rail service in the area consists of the Burlington Northern Santa Fe (BNSF) Railroad.

Metro is planning several rail projects that would improve connectivity within the region, and Long Beach in particular. The Regional Connector Transit Corridor project includes the addition of a 1.9-mile underground Light Rail Transit Line that will connect the Metro Gold Line to the Metro Blue Line and the future Expo Line. Using this connector, passengers will be able to travel from Montclair to Long Beach and from East Los Angeles to Santa Monica on a "one-seat ride." By providing continuous through service between these lines, the Regional Connector is anticipated to improve access to local and regional destinations, and improve the connectivity of the transportation network for the region. Operations are planned to begin in 2019.

The second major project affecting Long Beach is the Harbor Subdivision, a historic single-track main line of the BNSF Railway. This 26-mile railway extending between the rail yards near downtown Los Angeles and the Ports of Los Angeles and Long Beach was once the primary link between the two ports and the transcontinental rail network. Today, rail traffic from the ports primarily uses the Alameda Corridor to access the transcontinental rail yards, leaving the Harbor Subdivision relatively underutilized. A study conducted by Metro examined the feasibility of turning the Harbor Subdivision into a transit corridor. The study examined the extension of the Green Line to Torrance, the creation of a new light rail transit line, and the possibility of a maglev high-speed rail system. If constructed, the transit system along the Harbor Subdivision could be extended to Metro Blue Line at the Willow Station. This connection would provide more transportation choices to Long Beach residents and workers traveling to and from communities in southwest Los Angeles County.

5.12.1.9 Air Traffic

Federal Aviation Administration (FAA) Regulations, 14 Code of Federal Regulations (CFR) Part 77, establish standards for determining obstructions in navigable airspace and set forth requirements for notification of proposed construction. These regulations require FAA notification for construction higher than 200 feet above ground level. Notification also is required if the obstruction is lower than specified heights and falls within restricted airspace in the approaches to public or military airports and heliports. For airports with runways longer than 3,200 feet, the restricted space extends 20,000 feet (3.3 nautical miles) from the runway. For airports with runways measuring 3,200 feet or less, the restricted space extends 10,000 feet (1.7 nautical miles). For public or military heliports, the restricted space extends 5,000 feet (0.8 nautical mile).

People traveling to and from Long Beach are serviced by three main airports: Los Angeles International Airport (LAX), John Wayne Airport (SNA), and the Long Beach Airport (LGB). The nearest public airport to the AEC is LGB, located approximately 3.8 miles to the northwest of the project site. LAX is approximately 20 miles northwest of the project site and SNA is approximately 15 miles to the south of the project site. The Torrance Municipal Airport (14 miles northwest of the site) and the Fullerton Municipal Airport (10 miles northeast of the site) also provide limited air travel within the region. The nearest military airport is the Los Alamitos Army Airfield, which is approximately 2.7 miles northeast of AEC. Both airports are shown on Figures 5.12-2a and 5.12-2b, Local Transportation Network.

In addition to the airports noted above, there are also three public or private heliports within 2 miles of AEC. For public or private heliports, the restricted space extends 5,000 feet (0.8 nautical mile/0.9 mile) from the heliport. The three heliports are as follows:

- Boeing Seal Beach (Ground Level) Heliport 1.0 mile
- Boeing Seal Beach (Rooftop) Heliport 1.0 mile
- Rockwell Facility Heliport 1.1 miles

All three heliports are more than 0.8 nautical mile from AEC. Most heliports and helistops are provided for law enforcement and emergency medical transportation services. Others are used by private helicopter operators and helicopter tour services.

5.12.2 Environmental Analysis

This section assesses the traffic and transportation effects associated with AEC construction/demolition and operation activities. This analysis examines potential effects on roadway and intersection LOS expected during AEC construction/demolition and operation activities.

The peak construction or demolition period will require up to 447 workers to access the project site during the AM and PM peak hours in months 29, 30, and 31 (May, June, and July 2018). During operations, the project is expected to require an average weekday workforce of 51. To evaluate the worst-case scenario, traffic impacts associated with the peak construction or demolition period, anticipated to occur in 2018, were analyzed. It also was assumed that the project will be fully operational by 2028, with no construction or demolition activities occurring.

The 2012-2035 Regional Transportation Plan, prepared by the Southern California Association of Governments (SCAG), provides an annual average growth rate for the SCAG region (SCAG, 2010). The SCAG growth rate, estimated at 1.2 percent per year, was applied to the existing traffic volumes to estimate the 2018 traffic conditions when the project will generate the greatest number of construction-related trips. The project construction traffic was added to the 2018 traffic volumes and the study area roadway and intersection LOS were calculated.

To reflect the estimated traffic conditions during project operations, the growth rate was applied to the existing volumes through 2028. The project operations traffic was added to the 2028 traffic volumes and the study area roadway and intersection LOS were calculated.

5.12.2.1 Significance Criteria

Appendix G of the California Environmental Quality Act (CEQA) is a screening tool, not a method for setting thresholds of significance. Appendix G is typically used in the Initial Study phase of the CEQA process, asking a series of questions. The purpose of these questions is to determine whether a project requires an Environmental Impact Report, a Mitigated Negative Declaration, or a Negative Declaration. As the Governor's Office of Planning and Research stated, "Appendix G of the Guidelines lists a variety of potentially significant effects, but does not provide a means of judging whether they are indeed significant in a given set of circumstances." The answers to the Appendix G questions are not determinative of whether an impact is significant or less than significant. Nevertheless, the questions presented in CEQA Appendix G are instructive.

In terms of Traffic and Transportation, Appendix G, asks, in part, whether the project would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? (Appendix G, Section XVI(a))
- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? (Appendix G, Section XVI(b))
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? (Appendix G, Section XVI(c))
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? (Appendix G, Section XVI(d))

- Result in inadequate emergency access? (Appendix G, Section XVI(e))
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? (Appendix G, Section XVI(f))

In Long Beach, impacts on local and regional transportation systems are considered significant if:

- An unacceptable peak hour LOS (i.e., LOS E or F) at any of the key intersections is projected. The current LOS, if worse than LOS D (i.e., LOS E or F), should also be maintained (Iteris, 2010); and
- The project increases traffic demand at the study intersection by 2 percent of capacity (ICU increase ≥ 0.020), causing or worsening LOS E or F (Iteris, 2010).

The roadway LOS was calculated based on the V/C ratio; however, the City of Long Beach does not have impact criteria for roadway segments. Therefore, for the purposes of this analysis, the project's potential roadway impacts were evaluated based on whether the project would increase traffic demand on the study roadways by 2 percent or more of capacity, causing or worsening LOS E or F. This is consistent with the City of Long Beach intersection impact thresholds.

Based on the City of Seal Beach Traffic Impact Study Guidelines (City of Seal Beach, 2010), within Seal Beach, the following increases in ICU are deemed as "significant" and require mitigation:

Existing ICU	**Project Related Increase in ICU**
0.00 – 0.69	0.06
0.70 – 0.79	0.04
0.80 – 0.89	0.02
0.90+	0.01

5.12.2.2 Construction and Demolition Traffic

5.12.2.2.1 Construction and Demolition Trip Generation

Estimates of the project's peak construction and/or demolition traffic were developed based on the projected size of the AEC construction and demolition workforce and the anticipated truck deliveries to the site. The peak construction or demolition period will require up to 447 workers, including craft people, supervisory, support, and construction management personnel. The peak workforce will occur during construction of Power Blocks 1 and 2, anticipated to occur during 2018. The construction plan is based on a single 10-hour shift Monday through Friday, and an 8-hour shift on Saturday. Construction will typically take place between 7 a.m. and 6 p.m., Monday through Friday, and 9 a.m. and 5 p.m. on Saturday.

Materials such as concrete, pipe, wire and cable, fuels, reinforcing steel, and small tools and consumables will be delivered to the site by truck. Some of the heavy equipment items will be transported by rail. Rail deliveries will be offloaded in the Long Beach area and transported by truck to the site. Truck deliveries of construction materials and equipment will generally occur on weekdays between 6:00 a.m. and 6:00 p.m. The peak truck deliveries will occur during month 56 (during construction of Power Block 3 and demolition of Units 5 and 6) and again during month 95 (during construction of Power Block 4 and demolition of Units 3 and 4) when 21 trucks per day (for a total of 42 truck trips/day) will be transporting demolition waste and construction equipment and materials.

Construction and demolition trip estimates are presented in Table 5.12-7. Although the truck trips will peak in month 56 and month 95, the peak traffic generation (workforce and truck trips combined) will occur during month 30, coinciding with the peak construction or demolition workforce. During the peak month, the estimated number of workers daily round trips is 894 (447 workers x 2 trips per worker = 894 total trips) plus 30 truck trips (15 trucks x 2 trips per truck = 30 total trips). For a conservative analysis (i.e., an analysis that will overstate potential impacts compared to actual impacts) it was assumed that none of the workers

will carpool. Truck trips were also converted to passenger car equivalent units (PCEs) at a ratio of 1.5 passenger cars for each truck, consistent with the 2010 HCM guidelines. It was assumed that one delivery (equivalent to two trips) would be made during each peak hour.

TABLE 5.12-7
Construction Trip Generation

		AM Peak Hour			PM Peak Hour		
Trip Type	ADT	In	Out	Total	In	Out	Total
Delivery/Haul Trucks	30	1	1	2	1	1	2
Delivery/Haul Trucks PCE (1.5)	45	2	2	4	2	2	4
Workers	894	447	0	447	0	447	447
Total Construction Traffic in PCE	939	449	2	451	2	449	451

5.12.2.2.2 Construction Traffic Distribution

Based on an analysis of the AEC location and surrounding transportation facilities, the following assumptions were used to distribute the construction-workforce-related traffic over the study area network:

- One-third of the trips would come from Long Beach, Signal Hill, and communities located west of the AEC site.
- One-third of the trips would come from Lakewood, Los Alamitos, Cyprus, Cerritos, and communities located to the north of the AEC site.
- One-third of the trips would come from Garden Grove, Westminster, Fountain Valley, and communities located east and south of the AEC site.

The project trip distribution is presented in Figure 5.12-5.

5.12.2.2.3 Roadway LOS with Construction Traffic

The daily traffic volumes generated during the AEC peak construction/demolition period were added to the 2018 daily traffic volumes on each roadway segment, and the LOS was calculated. The resulting LOS for the study area roadway segments for 2018 with and without the project are summarized in Table 5.12-8. The 2018 roadway volumes are illustrated in Figure 5.12-6 and the 2018 roadway volumes with the project-added traffic are illustrated in Figure 5.12-7.

The project will not increase the V/C ratios on the study roadways by more than 2 percent of capacity. As such, construction/demolition traffic impacts on the study roadways are not considered significant.

5.12.2.2.4 Intersection LOS with Construction/Demolition Traffic

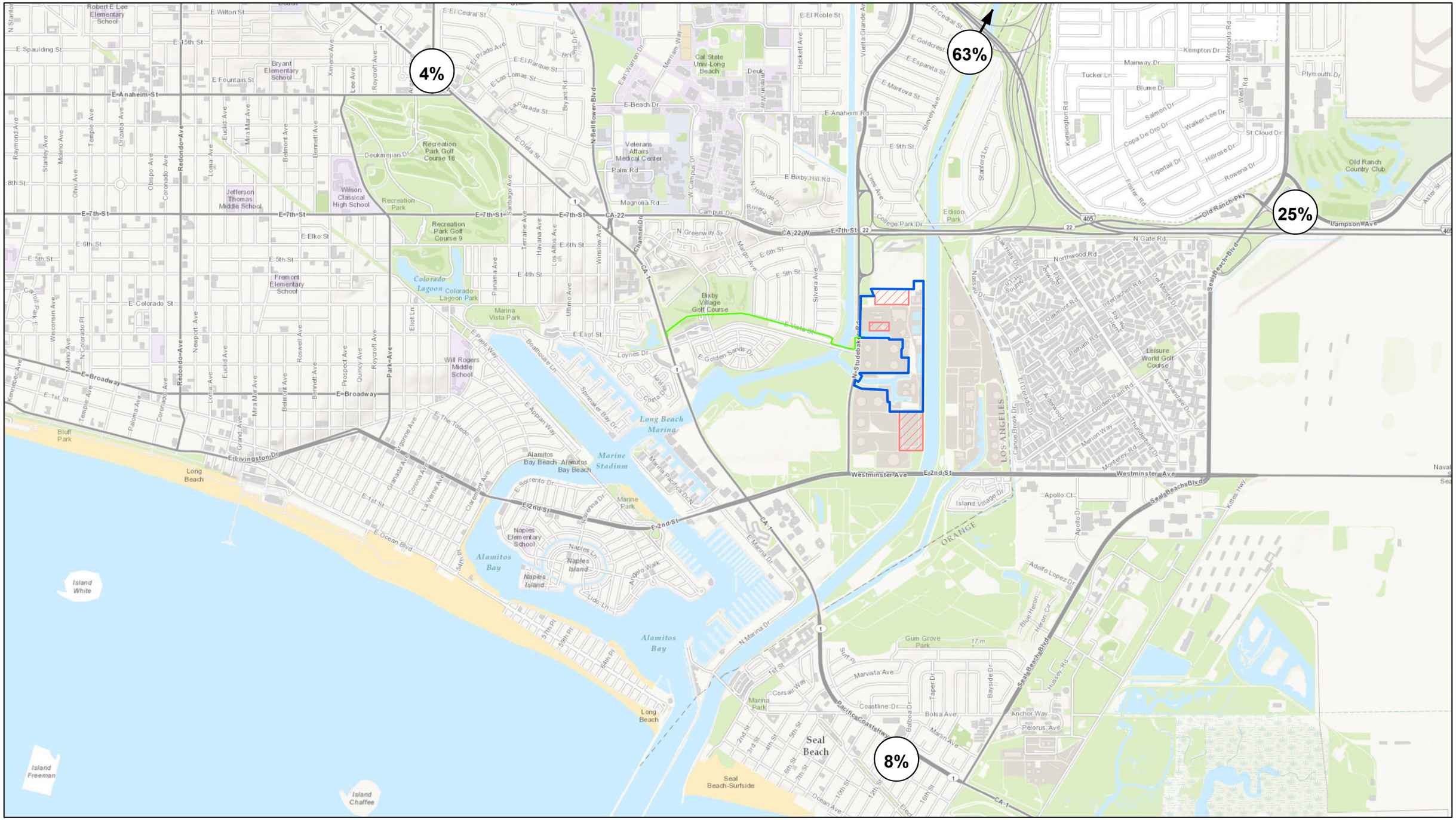
The AM and PM peak-hour traffic generated during the peak construction/demolition period was added to the 2018 peak hour volumes at the analyzed intersections. The results of the 2018 with and without project peak hour LOS analysis for the study intersections are summarized in Tables 5.12-9 and 5.12-10. The 2018 peak hour intersection volumes are illustrated in Figure 5.12-6, and the 2018 peak hour intersection volumes with the project-added traffic are illustrated in Figure 5.12-7.

TABLE 5.12-8
2018 + Project Construction/Demolition Roadway Segment LOS

					2018				2018 + Project				
State Highway	Between	And	Number of Lanes	Daily Vehicle Capacity[a]	ADT	V/C	LOS	Construction Added Trips	ADT	V/C	LOS	Change in V/C	Significant Impact?
PCH	Outer traffic circle / East Atherton St.	East Anaheim St.	4	37,500	31,730	0.846	D	36	31,766	0.847	D	0.001	No
	East Anaheim St.	SR 22	4	37,500	38,410	1.024	F	36	38,446	1.025	F	0.001	No
	SR 22	Bellflower Blvd.	6	56,300	28,947	0.514	A	36	28,983	0.515	A	0.001	No
	Bellflower Blvd.	Loynes Dr.	6	56,300	38,967	0.692	B	36	39,003	0.693	B	0.001	No
	Loynes Dr.	Orange County line	5	46,875	51,213	1.093	F	72	51,285	1.094	F	0.001	No
	Orange County line	Seal Beach Blvd.	4	37,500	51,213	1.366	F	72	51,285	1.368	F	0.002	No
SR 22	PCH	Bellflower Blvd.	6	56,300	64,351	1.143	F	0	64,351	1.143	F	0.000	No
	Bellflower Blvd.	East Campus Rd.	6	56,300	67,913	1.206	F	0	67,913	1.206	F	0.000	No
	East Campus Rd.	Studebaker Rd.	6	56,300	75,707	1.345	F	0	75,707	1.345	F	0.000	No
	Studebaker Rd.	Orange County line	4[b]	79,400	105,767	1.332	F	786	106,553	1.342	F	0.010	No

[a]Roadway capacities were obtained from the City of Seal Beach Circulation Element.

[b]SR 22 becomes a four-lane divided freeway east of Studebaker Rd. Freeway capacity based on Florida Department of Transportation Level of Service/Quality Handbook (FDOT, 2013).



Legend

- Project Boundary
- Parking/Laydown Construction Area
- Process/Sanitary Wastewater Pipeline

0 2,000 4,000 Feet

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FIGURE 5.12-5
Project Trip Distribution
Alamitos Energy Center
Long Beach, California

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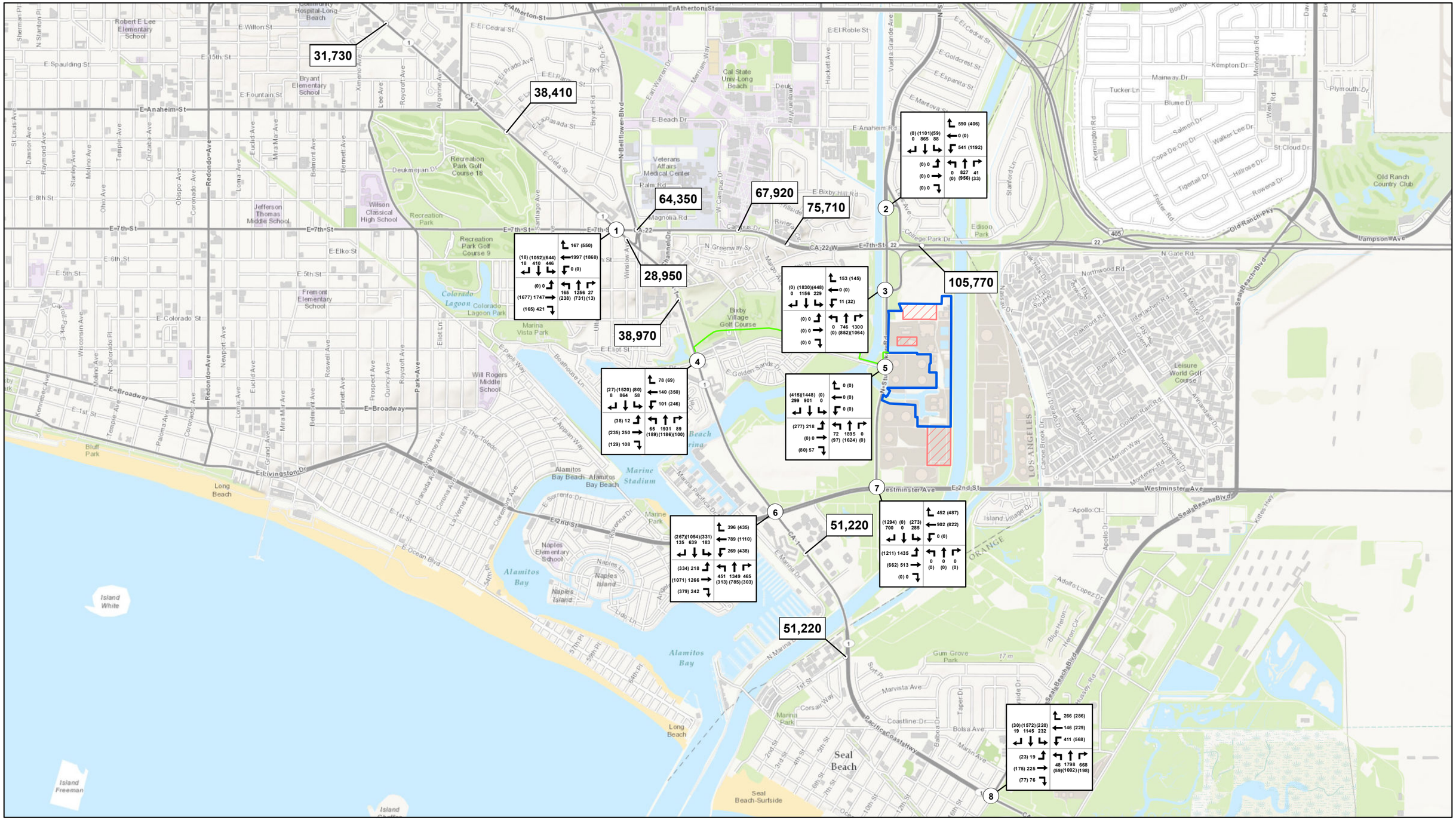

Legend

- Project Boundary
- Parking/Laydown Construction Area
- Process/Sanitary Wastewater Pipeline
- Peak Hour Volume/PM Peak hour Volume shown in ( )
- XX Average Daily Traffic

0 2,000 4,000 Feet

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FIGURE 5.12-6
2018 Average Daily Roadway Volumes and Peak Hour Intersection Volumes
Alamitos Energy Center
Long Beach, California

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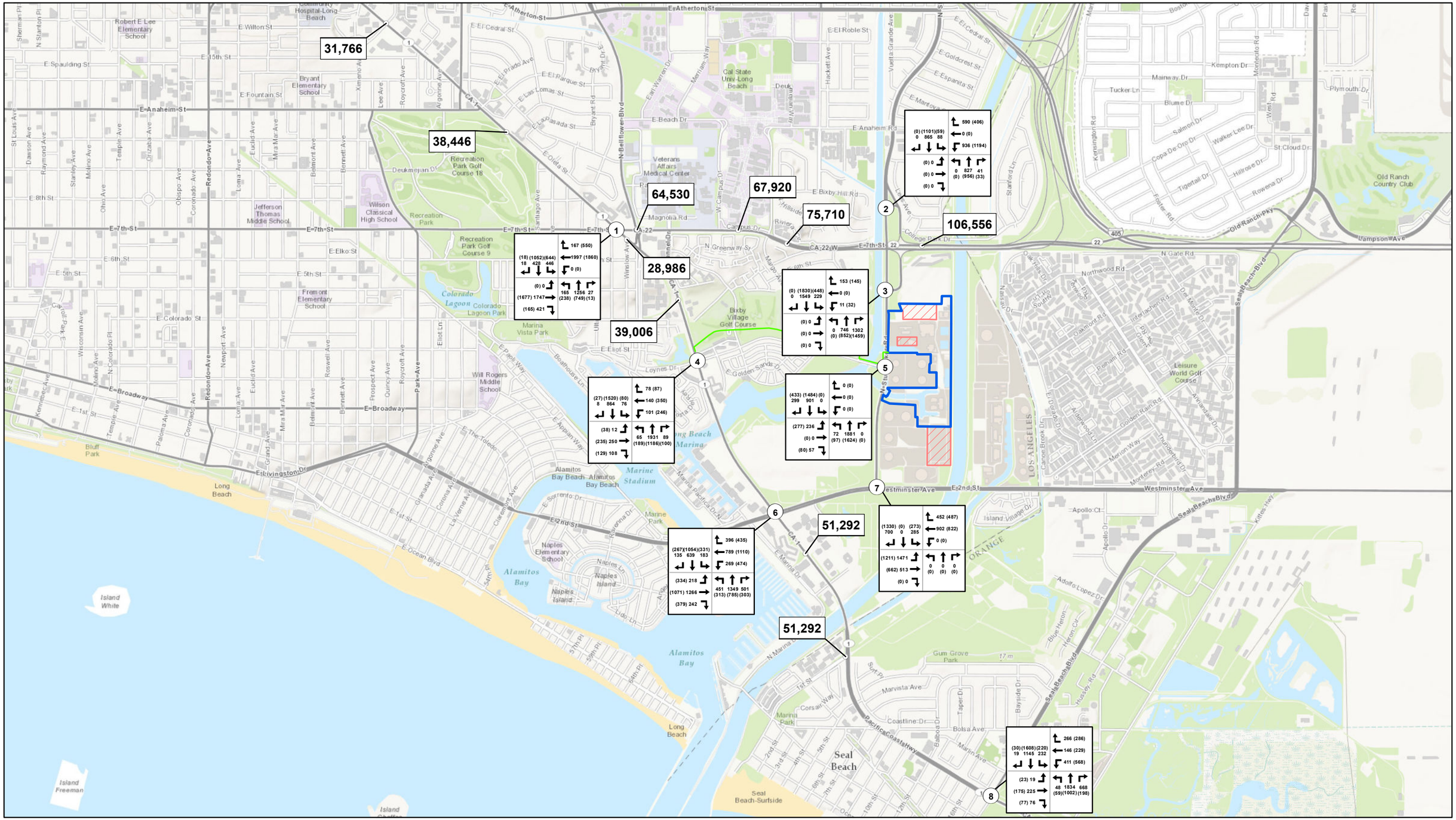

Legend

- Project Boundary
- Parking/Laydown Construction Area
- Process/Sanitary Wastewater Pipeline
- Peak Hour Volume/PM Peak hour Volume shown in ( )
- XX Average Daily Traffic

0 2,000 4,000 Feet

N

FIGURE 5.12-7
2018 + Project Construction
Average Daily Roadway Volumes and Peak Hour Intersection Volumes
Alamitos Energy Center
Long Beach, California

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TABLE 5.12-9
2018 + Project Construction/Demolition AM Peak Hour Intersection LOS

	Intersection	2018 ICU	2018 LOS	2018 + Project ICU	2018 + Project LOS	Change in V/C	Significant Impact without Mitigation?
1	PCH at 7th Street	1.196	F	1.196	F	0.000	No
2	Studebaker Road at SR 22 Westbound Ramps	0.651	B	0.788	C	0.137	No
3	Studebaker Road at SR 22 Eastbound Ramps	0.530	A	0.638	B	0.108	No
4	PCH at Loynes Drive	0.993	E	1.004	F	0.011	No
5	Studebaker Road at Loynes Drive	0.802	D	0.820	D	0.018	No
6	Studebaker Road at 2nd Street	1.029	F	1.037	F	0.008	No
7	PCH at 2nd Street	1.149	F	1.161	F	0.013	No
8	Seal Beach Boulevard at PCH	0.952	E	**0.963**	**E**	**0.011**	**Yes**

TABLE 5.12-10
2018 + Project Construction PM Peak Hour Intersection LOS

	Intersection	2018 ICU	2018 LOS	2018 + Project ICU	2018 + Project LOS	Change in V/C	Significant Impact without Mitigation?
1	PCH at 7th Street	1.110	F	1.114	F	0.004	No
2	Studebaker Road at SR 22 Westbound Ramps	0.908	E	0.909	E	0.001	No
3	Studebaker Road at SR 22 Eastbound Ramps	0.733	C	0.733	C	0.000	No
4	PCH at Loynes Drive	0.869	D	0.869	D	0.000	No
5	Studebaker Road at Loynes Drive	0.754	C	0.754	C	0.000	No
6	Studebaker Road at 2nd Street	0.989	E	1.001	F	0.012	No
7	PCH at 2nd Street	1.232	F	1.243	F	0.011	No
8	Seal Beach Boulevard at PCH	0.816	D	0.827	D	0.011	No

During the morning peak hour, without mitigation measures the project would increase the V/C ratio by 0.011 at the intersection of PCH and Seal Beach Boulevard, which exceeds the City of Seal Beach thresholds. This would be a significant but temporary impact (Table 5.12-9). Although several other study intersections are projected to operate at LOS E or worse under 2018 conditions, the change in the V/C ratio with the project-added traffic is below the City of Long Beach traffic impact thresholds.

During the afternoon peak hour, four intersections are projected to operate at LOS E or worse under 2018 conditions, however, the change in the V/C ratio with the project-added traffic is below the City of Long Beach and City of Seal Beach traffic impact thresholds (Table 5.12-10). The project would not result in any impacts during the afternoon peak hour.

5.12.2.3 Operations Traffic

5.12.2.3.1 Operations Trip Generation and Distribution

The project trip generation during operations is summarized in Table 5.12-11. During operations, the project is expected to require an average workforce of 51 during weekdays and approximately two deliveries per day. As a conservative estimate, the project deliveries are assumed to occur during the AM peak hour when the intersections will be more congested. The project operations traffic was distributed over the study area network based on the same assumptions used to distribute the construction-workforce-related traffic.

TABLE 5.12-11
Operations Trip Generation

		AM Peak Hour			PM Peak Hour		
Trip Type	ADT	In	Out	Total	In	Out	Total
Delivery/Haul Trucks	4	2	2	4	0	0	0
Delivery/Haul Trucks PCE (1.5)	6	3	3	6	0	0	0
Workers	102	51	0	51	0	51	51
Total Operation Traffic in PCE	108	54	3	57	0	51	51

Note:
PCE rounded up as conservative estimate.

5.12.2.3.2 Roadway LOS with Operations Traffic

The daily traffic volumes generated during AEC operation were added to the 2028 traffic volumes on each roadway segment, and the LOS was calculated. The 2028 roadway volumes are shown in Figure 5.12-8, and the 2028 roadway volumes with the project-added traffic are shown in Figure 5.12-9.

The daily traffic volumes and resulting LOS for the study area roadway segments for 2028 with and without the project are summarized in Table 5.12-12. Based on the analysis, seven roadway segments are projected to operate at an unacceptable LOS. The project will not change the V/C ratio by more than 2 percent for any of these roadway segments or LOS. As such, the AEC operations traffic impacts on these roadways are not considered significant.

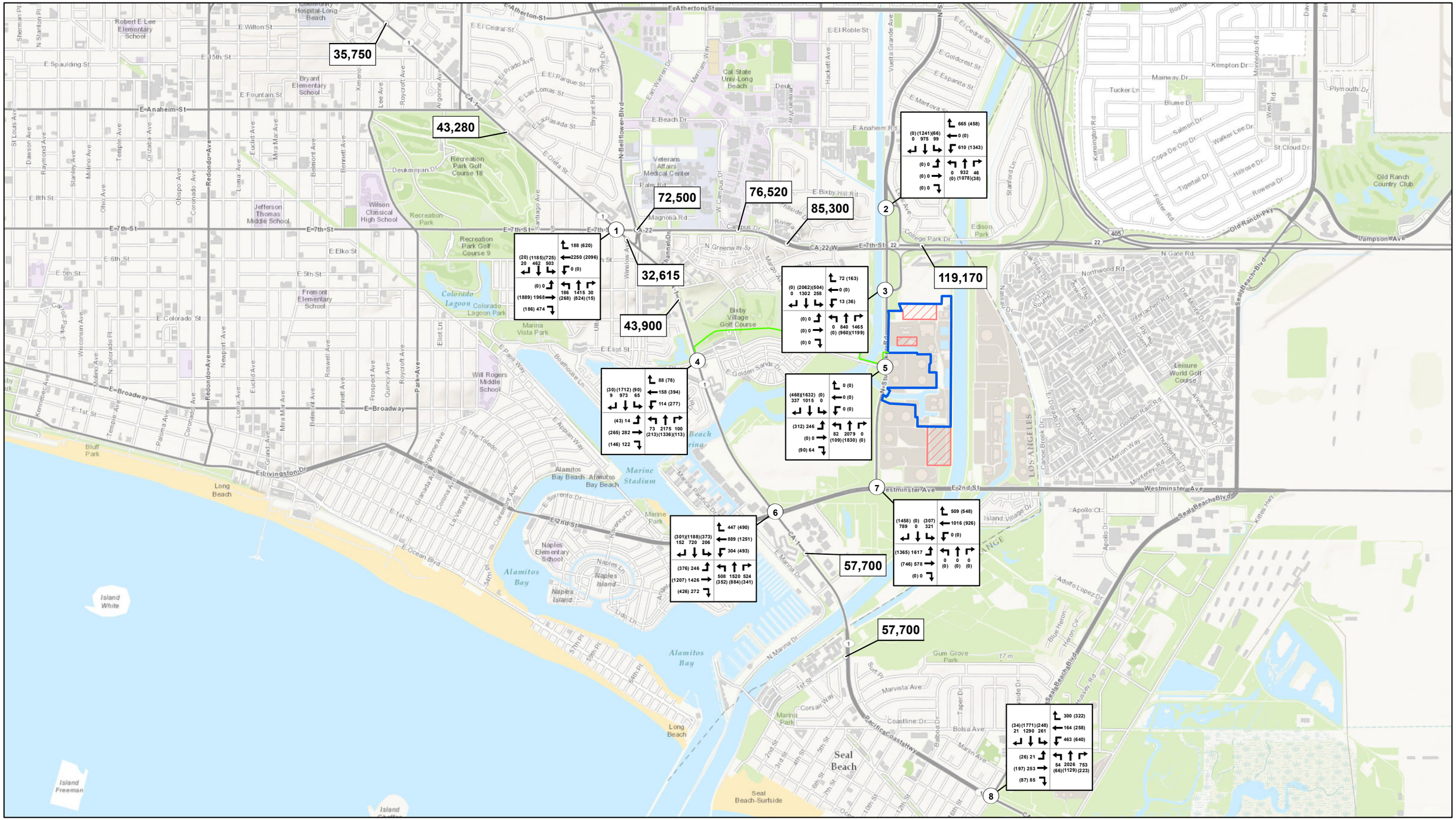
5.12.2.3.3 Intersection LOS with Operations Traffic

The peak-hour traffic generated during AEC operation was added to the 2028 turning movement counts at the analyzed intersections. The results of the 2028 with and without the project peak hour LOS analysis for the study intersections are summarized in Tables 5.12-13 and 5.12-14. The 2028 peak hour intersection volumes are shown in Figure 5.12-8 and the 2028 peak hour intersections volumes with the project-added traffic are shown in Figure 5.12-9.

Six of the study intersections will operate at LOS E or worse during both peak hours with the project-added operations traffic. The project traffic would not increase the intersection traffic volume by more than 2 percent at these intersections. As such, the AEC operations traffic impact on these intersections is not considered significant.

5.12.2.4 Transport of Hazardous Materials

Some of the hazardous materials produced during demolition, construction, and operations will include oil, oily rags, lead batteries, asbestos waste, solvents, and paint. Transportation of hazardous materials will comply with Caltrans, U.S. Environmental Protection Agency, California Department of Toxic Substances Control, California Highway Patrol (CHP), and California State Fire Marshal regulations.



Legend

- Project Boundary
- Parking/Laydown Construction Area
- Process/Sanitary Wastewater Pipeline
- ← Peak Hour Volume/PM Peak hour Volume shown in ( )
- XX Average Daily Traffic

0 2,000 4,000 Feet

N

FIGURE 5.12-8
2028 Average Daily Roadway Volumes and Peak Hour Intersection Volumes
Alamitos Energy Center
Long Beach, California

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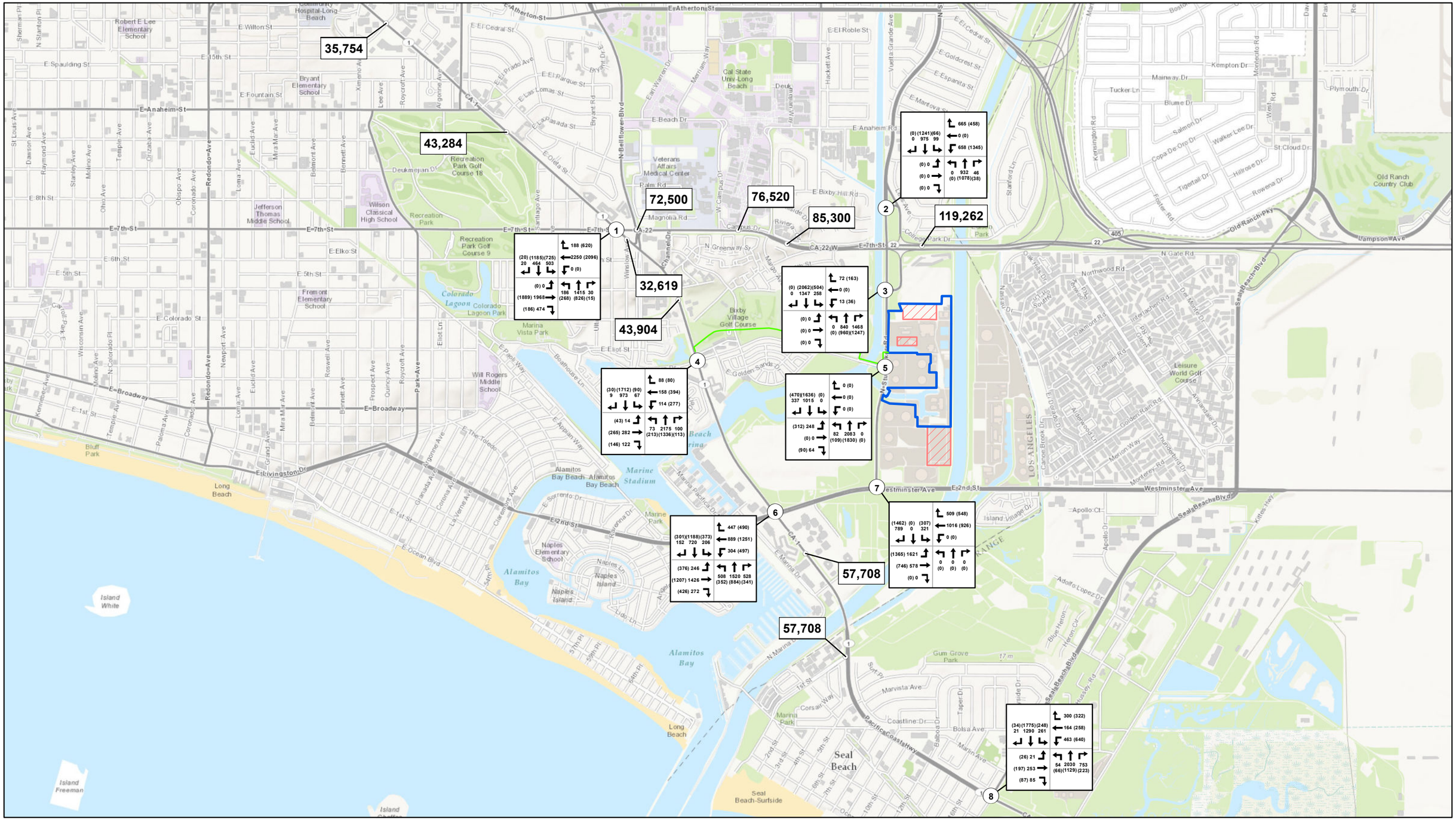

Legend

- Project Boundary
- Parking/Laydown Construction Area
- Process/Sanitary Wastewater Pipeline
- Peak Hour Volume/PM Peak hour Volume shown in ( )
- XX Average Daily Traffic

0 2,000 4,000 Feet

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FIGURE 5.12-9
2028 + Project Operation
Average Daily Roadway Volumes and Peak Hour Intersection Volumes
Alamitos Energy Center
Long Beach, California

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TABLE 5.12-12
2028 + Project Operation Roadway Segment LOS

					2028				2028 + Project				
State Highway	Between	And	Number of Lanes	Daily Vehicle Capacity[a]	ADT	V/C	LOS	Operations Added Trips	ADT	V/C	LOS	Change in V/C	Significant Impact?
PCH	Outer traffic circle/ East Atherton St.	East Anaheim St.	4	37,500	35,750	0.953	E	4	35,754	0.953	E	0.000	No
	East Anaheim St.	SR 22	4	37,500	43,276	1.154	F	4	43,280	1.154	F	0.000	No
	SR 22	Bellflower Blvd.	6	56,300	32,614	0.579	A	4	32,618	0.579	A	0.000	No
	Bellflower Blvd.	Loynes Dr.	6	56,300	43,903	0.780	C	4	43,907	0.780	C	0.000	No
	Loynes Dr.	Orange County line	5	46,875	57,702	1.231	F	8	57,710	1.231	F	0.000	No
	Orange County line	Seal Beach Blvd.	4	37,500	57,702	1.539	F	8	57,710	1.539	F	0.000	No
SR 22	PCH	Bellflower Blvd.	6	56,300	72,503	1.288	F	0	72,503	1.288	F	0.000	No
	Bellflower Blvd.	East Campus Rd.	6	56,300	76,517	1.359	F	0	76,517	1.359	F	0.000	No
	East Campus Rd.	Studebaker Rd.	6	56,300	85,298	1.515	F	0	85,298	1.515	F	0.000	No
	Studebaker Rd.	Orange County line	4[b]	79,400[b]	119,166	1.501	F	92	119,258	1.502	F	0.001	No

[a]Roadway capacities were obtained from the City of Seal Beach Circulation Element.

[b]SR 22 becomes a four-lane divided freeway east of Studebaker Rd. Freeway capacity based on Florida Department of Transportation Level of Service/Quality Handbook (FDOT, 2013).

Similar to the current operations of the Alamitos Generating Station, aqueous ammonia, a regulated substance, will continue to be delivered to the AEC during operation and transported in accordance with CVC Section 32100.5, which regulates the transportation of hazardous materials that pose an inhalation hazard. For a complete list of materials, quantities, estimated number of trips, routes, means of transportation, and any hazards associated with transport see Section 5.5, Hazardous Materials Handling, and Section 5.14, Waste Management. Hazardous waste generated at the AEC facility will be stored at the facility for less than 90 days. The waste will then be transported to an offsite treatment, storage, and disposal facility by a permitted hazardous waste transporter.

TABLE 5.12-13
2028 + Project Operation AM Peak Hour Intersection LOS

		2028		2028 + Project		Change in V/C	Significant Impact?
	Intersection	ICU	LOS	ICU	LOS		
1	PCH at 7th Street	1.329	F	1.329	F	0.000	No
2	Studebaker Road at SR 22 Westbound Ramps	0.715	C	0.732	C	0.017	No
3	Studebaker Road at SR 22 Eastbound Ramps	0.578	A	0.578	A	0.000	No
4	PCH at Loynes Drive	1.099	F	1.100	F	0.001	No
5	Studebaker Road at Loynes Drive	0.885	D	0.887	D	0.002	No
6	Studebaker Road at 2nd Street	1.138	F	1.138	F	0.000	No
7	PCH at 2nd Street	1.276	F	1.277	F	0.001	No
8	Seal Beach Boulevard at PCH	1.060	F	1.062	F	0.002	No

TABLE 5.12-14
2028 + Project Operation PM Peak Hour Intersection LOS

		2028		2028 + Project		Change in V/C	Significant Impact?
	Intersection	ICU	LOS	ICU	LOS		
1	PCH at 7th Street	1.274	F	1.274	F	0.000	No
2	Studebaker Road at SR 22 Westbound Ramps	1.038	F	1.038	F	0.000	No
3	Studebaker Road at SR 22 Eastbound Ramps	0.807	D	0.807	D	0.000	No
4	PCH at Loynes Drive	0.961	E	0.961	E	0.000	No
5	Studebaker Road at Loynes Drive	0.830	D	0.830	D	0.000	No
6	Studebaker Road at 2nd Street	1.091	F	1.092	F	0.001	No
7	PCH at 2nd Street	1.369	F	1.370	F	0.001	No
8	Seal Beach Boulevard at PCH	0.906	E	0.907	E	0.001	No

AEC will have truck traffic associated with the delivery of various cleaning chemical, diesel fuel, lubricants, sulfuric acid, and other hazardous materials associated with plant operation. It is expected that during AEC operation, there will be approximately 32 truck deliveries per month. The truck route used to transport hazardous materials to the AEC site will be via I-405, to SR 22 (7th Street), west along 7th Street, and then

south on Studebaker Road to the AEC entrance. With the exception of Studebaker Road, this route is a designated truck route by Caltrans and the City of Long Beach. Moreover, the City of Long Beach Municipal Code allows trucks on restricted streets when necessary for the purpose of making pickups or deliveries. Removal of hazardous wastes would occur along the same route in the reverse direction. Compliance with applicable regulations will ensure that impacts from the transportation of hazardous materials and hazardous waste will be less than significant.

5.12.2.5 Public Safety

Truck trips, including delivery of hazardous materials and removal of wastes, pose potential hazards for the public. The transporter will be required to obtain a Hazardous Material Transportation License in accordance with CVC Section 32105 and will be required to follow appropriate safety procedures when transporting and handling such materials. There are no at-grade railroad crossings or other road features that affect public safety in the vicinity of the project site.

5.12.2.6 Air Traffic

FAA Regulations, 14 CFR Part 77, establish standards for determining obstructions in navigable airspace and set forth requirements for notification of proposed construction. These regulations require FAA notification for construction over 200 feet above ground level. Notification also is required if the obstruction is lower than specified heights and falls within restricted airspace in the approaches to public or military airports and heliports. For airports with runways longer than 3,200 feet, the restricted space extends 20,000 feet (3.3 nautical miles) from the runway. For airports with runways measuring 3,200 feet or less, the restricted space extends 10,000 feet (1.7 nautical miles). For public or military heliports, the restricted space extends 5,000 feet (0.8 nautical mile).

The nearest public airport to the AEC is the Long Beach Airport, located approximately 3.8 miles to the northwest of the project site. LAX is approximately 20 miles northwest of the project site and John Wayne Airport is approximately 15 miles to the south of the project site. The Torrance Municipal Airport (14 miles northwest of the site) and the Fullerton Municipal Airport (10 miles northeast of the site) also provide limited air travel within the region. The nearest military airport is the Los Alamitos Army Airfield, which is approximately 2.7 miles northeast of AEC.

In addition to the airports above, there are also three public or private heliports within 2 miles of AEC. For public or private heliports, the restricted space extends 5,000 feet (0.8 nautical mile/0.9 mile) from the heliport. The three heliports are as follows:

- Boeing Seal Beach (Ground Level) Heliport 1.0 mile
- Boeing Seal Beach (Rooftop) Heliport 1.0 miles
- Rockwell Facility Heliport 1.1 miles

All three heliports are more than (0.8 nautical miles) from AEC. As part of the analysis for the AEC, a FAA Notice Criteria Tool has been used to determine whether AEC meets Federal Aviation Regulation 77.13 (FAR Section 77.13) requirements regarding the need to notify FAA of AEC construction. The notice criteria tool results are provided in Appendix 3B. Although all structures are well under 200 feet in height, the FAA criteria tool indicates that an FAA Form 7460-1, Notice of Proposed Construction or Alteration will need to be filed with the FAA. See Section 3.0, Transmission System Engineering, and Section 5.6, Land Use, for additional information regarding aviation.

5.12.2.7 Emergency Vehicle Access

Emergency vehicles will be able to access the project site through the entrance off Studebaker Road. There will be no impacts on emergency vehicle access. The small changes in V/C ratio in project area roadway segments and intersections will not have a significant impact on the operations of emergency vehicles.

5.12.2.8 Parking

Construction workers will park at the onsite laydown area within the project site's boundaries. No on-street parking is anticipated, with the exception of the limited construction equipment and workers required during the installation of the wastewater pipeline along East Vista Street in Long Beach. Parking spaces also will be provided to employees during operations. There will be no impact on existing parking capacity.

5.12.3 Cumulative Effects

Section 15355 of the CEQA Guidelines defines "cumulative impacts" as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Subsection b of Section 15355 states, in part, that "The cumulative impact *from several projects* is the change in the environment which results from *the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects*." (Emphasis added.) Thus, cumulative impacts under CEQA involve the potential interrelationships of two or more projects, not the impacts from a single project. Specifically, under Section 15130 of the CEQA Guidelines, an Environmental Impact Report is required to discuss cumulative impacts when the project's incremental effect is "cumulatively considerable." Section 15065(a)(3) then defines "cumulatively considerable" as meaning "that the incremental effects of an individual project are significant when viewed in connection with the effects of *other* closely related past projects, the effects of *other* current projects and the effects of probable *future* projects." (Emphasis added.)

Potential cumulative impacts on traffic and transportation from construction and operation of the proposed project are not expected. The project will have a less-than-significant effect on traffic in the immediate vicinity of the project site. Projects that could result in a cumulative impact also would be required to comply with applicable federal, state, and local LORS. The proposed project is unlikely, therefore, to result in cumulative impacts on traffic in combination with other closely related past, present, and reasonably foreseeable future projects.

5.12.4 Mitigation Measures

5.12.4.1 Construction/Demolition Impacts

In the absence of mitigation, the addition of AEC construction and demolition-related traffic could result in a significant but temporary impact at one study intersection with the construction/demolition-added traffic during the morning peak hour. With the following mitigation, this impact will be reduced to a less-than-significant level:

- The construction and demolition contractors shall be required to prepare a Construction and Demolition Transportation Management Plan (TMP). The TMP will address timing of heavy equipment and building material deliveries, potential street or lane closures, signing, lighting, and traffic control device placement. Damage to any roadway caused by project construction traffic will be restored to or near its preexisting condition based on the procedures established by the TMP. The construction and demolition contractors will work with the local agencies to prepare a schedule and mitigation plan for the roadways along the construction routes in accordance with the procedures established by the TMP. The TMP shall also address the employee work schedule during the peak construction/demolition period to limit arrivals during the morning peak hour when project impacts are anticipated.

With implementation of the TMP, the project's impacts on traffic and transportation will be less than significant.

5.12.4.2 Operation Impacts

AEC operations will require an average of 51 employees and a maximum of approximately two deliveries per day, which is less than currently required by the existing Alamitos Generating Station. The traffic associated with this number of employees is minimal and insignificant when added to major movements on highways

and local roadways. The operational traffic will not exceed the City of Long Beach traffic impact thresholds. Consequently no operations-related mitigation measures are required.

5.12.5 Laws, Ordinances, Regulations, and Standards

LORS related to traffic and transportation are summarized in the following subsections. Table 5.12-15 is a summary of applicable federal, state, and local LORS and administering agencies, and describes how the Project Owner will comply with all LORS pertaining to traffic and transportation impacts.

5.12.5.1 Federal LORS

- 49 CFR 172, 173, and 173 provide standards for labels, placards, and markings on hazardous materials shipments by truck (Part 172), standards for packaging hazardous materials (Parts 173), and standards for transporting hazardous materials in tank cars (Part 179). The administering agencies for the above authority are the CHP and U.S. Department of Transportation.
- 49 CFR 350-399, and Appendices A-G, Federal Motor Carrier Safety Regulations, address safety considerations for the transport of goods, materials, and substances over public highways.
- 14 CFR 77.13(2)(i) requires an applicant to notify the FAA of the construction of structures within 20,000 feet of the nearest point of the nearest runway of an airport with at least one runway longer than 3,200 feet. Los Alamitos Army Airfield is the closest airport to the site and is located more than 20,000 feet from the AEC site. Nevertheless, a form 7460-1 will be filed with the FAA.
- As part of the analysis for the AEC, a FAA Notice Criteria Tool has been used to determine whether AEC meets Federal Aviation Regulation 77.13 (FAR Section 77.13) requirements regarding the need to notify FAA of AEC construction. The notice criteria tool results are provided in Appendix 3B. Although all structures are well under 200 feet in height, the FAA criteria tool indicates that the AEC stacks are near a navigation facility and exceed an instrument approach area. Based on the results of this evaluation, an FAA Form 7460-1, Notice of Proposed Construction or Alteration will be filed with the FAA.
- 14 CFR 77.21, 77.23, and 77.25 outline the criteria used by the FAA to determine whether an obstruction would create an air navigation conflict. AEC is more than 5 nautical miles from the nearest airport. Because of the distance, these requirements are not applicable.

5.12.5.2 State LORS

- CVC Sections 13369, 15275, and 15278 address the licensing of drivers and classifications of licenses required to operate particular types of vehicles.
- CVC Section 32100.5 addresses the transportation of hazardous materials that pose an inhalation hazard. Aqueous ammonia, a regulated substance, will be delivered to the facility and transported in accordance with this section by following the designated access routes, as described in Section 5.12.2.4.
- CVC, 13 CCR Section 1160, et seq. provides the CHP with authority to adopt regulations for the transportation of hazardous materials in California. The CHP can issue permits and specify the route for hazardous material delivery.
- California Street and Highways Code (S&HC), Sections 660, 670, 1450, 1460 et seq., 1470, and 1480, regulate right-of-way encroachment and granting of permits for encroachments on state and county roads.
- S&HC Sections 117 and 660–711 and CVC Section 35780 et seq., require permits to transport oversized loads on county roads. S&HC Sections 117 and 660 to 711 require permits for any construction, maintenance, or repair involving encroachment on state highway rights-of-way. CVC Section 35780 requires approval for a permit to transport oversized or excessive loads over state highways.

- California State Planning Law, Government Code Section 65302, requires each city and county to adopt a General Plan, consisting of seven mandatory elements, to guide its physical development. Section 65302(b) requires that a circulation element be one of the mandatory elements.
- All construction in the public right-of-way will need to comply with the *Manual on Uniform Traffic Control Devices* (Federal Highway Administration, 2009).

Caltrans weight and load limitations for state highways apply to all state and local roadways. The weight and load limitations are specified in CVC Sections 35550 to 35559. The following provisions, from the CVC, apply to all roadways and are therefore applicable to this project.

- General Provisions:
  - The gross weight imposed upon the highway by the wheels on any axle of a vehicle shall not exceed 20,000 pounds and the gross weight upon any one wheel, or wheels, supporting one end of an axle, and resting upon the roadway, shall not exceed 10,500 pounds.
  - The maximum wheel load is the lesser of the following: (a) the load limit established by the tire manufacturer, or (b) a load of 620 pounds per lateral inch of tire width, as determined by the manufacturer's rated tire width.
- Vehicles with Trailers or Semi-trailers:
  - The gross weight imposed upon the highway by the wheels on any one axle of a vehicle shall not exceed 18,000 pounds and the gross weight upon any one wheel, or wheels, supporting one end of an axle and resting upon the roadway, shall not exceed 9,500 pounds, except that the gross weight imposed upon the highway by the wheels on any front steering axle of a motor vehicle shall not exceed 12,500 pounds.

5.12.5.3 Local LORS

This section reviews compliance with all relevant local LORS without regard to their applicability as a matter of law. These LORS include the following:

- Los Angeles County has permit authority for county roadways and some local jurisdictions to authorize the movement of vehicles or vehicle combinations exceeding statutory limitations (as to size, weight, and loading of vehicles) per Division 15 of the CVC and Los Angeles County Code; Chapter 16.22 Moving Permits.
- The City of Long Beach's Municipal Code Section 10.41 requires a special permit for overweight vehicles (greater than 80,000 pounds, but no more than 95,000 pounds). The permit allows for travel on designated streets, and special conditions may be imposed. It may include restrictions on the number of trips, seasonal or time limitations, security, damage, and other provisions.
- The City of Long Beach's Municipal Code Section 10.40 allows trucks to continue along nondesignated through routes if they are going directly to a business for deliveries/pickups.
- The City of Long Beach Transportation Element, which is a part of the City of Long Beach General Plan, sets LOS D or better for all city streets and intersections.
- The City of Seal Beach Circulation Element, which is a part of the City of Seal Beach General Plan, sets LOS D or better for all city streets and intersections.
- The City of Seal Beach Municipal Code Section 8.10.135 requires an oversize vehicle permit for vehicles, mobile equipment or loads that weigh or measure in excess of the weight, width, height, or length permitted by the CVC.

TABLE 5.12-15
Laws, Ordinances, Regulations, and Standards for Traffic and Transportation

LORS	Requirements/Applicability	Administering Agency	AFC Sections Explaining Conformance
Federal			
49 CFR, Sections 172, 173 and 179	Require proper handling and storage of hazardous materials during transportation.	U.S. Department of Transportation and Caltrans	Project and transportation will comply with all standards for the transportation of hazardous materials. (Sections 5.12.2.4, 5.12.2.5 and 5.12.7)
14 CFR, Sections 77.13(2)(i), 77.17, 77.21, 77.23, and 77.25	Require an applicant to notify the FAA of the construction or alterations of structures within a certain distance of an airport to avoid air navigation conflicts.	U.S. Department of Transportation and FAA	No airports are within 20,000 feet of the project site; however as part of the analysis for the AEC, a FAA Notice Criteria Tool has been used to determine whether AEC meets Federal Aviation Regulation 77.13 (FAR Section 77.13) requirements regarding the need to notify FAA of AEC construction. The notice criteria tool results are provided in Appendix 3B. Although all structures are well under 200 feet in height, the FAA criteria tool indicates that the AEC stacks are located within the proximity to a navigation facility and exceed an instrument approach area. Based on the results of this evaluation, an FAA Form 7460-1, Notice of Proposed Construction or Alteration will be filed with the FAA. (Section 5.12.2.6)
State			
CVC Sections 13369, 15275, and 15278	Address the licensing of drivers and classifications of licenses required for the operation of particular types of vehicles.	Caltrans	The project will conform to these sections in the CVC. (Sections 5.12.2.4, 5.12.2.5, and 5.12.7)
CVC Section 32100.5	Addresses the safe transport of hazardous materials.	Caltrans	The project will conform to these sections in the CVC. (Sections 5.12.2.4, 5.12.2.5, and 5.12.7)
S&HC Sections 660, 670, 1450, 1460 et seq., 1470, and 1480	Regulate right-of-way encroachment and the granting of permits for encroachments on state and county roads.	Caltrans	The project will conform to these sections in the S&HC. (Sections 5.12.1.2 and 5.12.7)
S&HC Sections 117, 660–711	Require permits from Caltrans for any roadway encroachment during truck transportation and delivery.	Caltrans	Encroachment permits will be obtained by transporters, as required. (Sections 5.12.1.2 and 5.12.7)
CVC Section 35780; S&HC Sections 660–711	Require permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.	Caltrans	Transportation permits will be obtained by transporters for all overloads, as required. (Section 5.12.1.2 and 5.12.7)
CVC Sections 35550–35559	Regulate weight and load limitations.	Caltrans	The project will conform to these sections in the CVC. (Sections 5.12.1.2 and 5.12.7)

TABLE 5.12-15
Laws, Ordinances, Regulations, and Standards for Traffic and Transportation

LORS	Requirements/Applicability	Administering Agency	AFC Sections Explaining Conformance
California State Planning Law, Government Code Section 65302	Project must conform to the General Plan.	City of Long Beach	Project will comply with the City of Long Beach's General Plan. (Sections 5.12.2 and 5.12.4)
CVC, 13 CCR Section 1160 et seq.	Provide the CHP with authority to adopt regulations for the transportation of hazardous materials in California. The CHP can issue permits and specify the route for hazardous material delivery.	California Highway Patrol	The project will conform to these sections in the CVC. (Section 5.12.2.4, 5.12.2.5, and 5.12.7)
Local			
Los Angeles County Code; Chapter 16.22 Moving Permits	Requires a permit for vehicles or vehicle combinations exceeding statutory limitations (as to size, weight, and loading of vehicles) on county roadways, and roads on some local jurisdictions.	Los Angeles County	The project will conform to these sections in the county code. (Section 5.12.1.2 and 5.12.7)
City of Long Beach Municipal Code	Requires a special permit for overweight vehicles (greater than 80,000 pounds, but no more than 95,000 pounds).	City of Long Beach	The project will conform to these sections in the municipal code. (Section 5.12.1.2 and 5.12.7)
Transportation Element of the City of Long Beach General Plan	Specifies long-term transportation planning goals and policies in the City of Long Beach.	City of Long Beach	The project will have a temporary impact on the city's traffic and transportation infrastructure. (Section 5.12.2 and 5.12.4)
City of Seal Beach Municipal Code	Requires an overload permit for vehicles or vehicle combinations exceeding statutory limitations (as to size, weight, and loading of vehicles) on city roadways.	City of Seal Beach	The project will conform to these sections in the municipal code. (Section 5.12.1.2 and 5.12.7)
Circulation Element of the City of Seal Beach General Plan	Specifies long-term transportation planning goals and policies in the City of Seal Beach.	City of Seal Beach	The project will have no significant impact on the city's traffic and transportation infrastructure. (Section 5.12.2 and 5.12.4)

5.12.6 Agency Contacts

Table 5.12-16 lists the agency contacts related to traffic and transportation.

TABLE 5.12-16
Agency Contacts for Traffic and Transportation

Issue	Agency	Persons Contacted
Transportation Permit for Oversized Loads	Caltrans	Eric Gunn Transportation Permits Office 1823 14th Street Sacramento, CA 95811 (916) 322-4116
Hazardous Material Transportation License	CHP	Liz Silva Hazardous Material Licensing Program (916) 843-3445
Transportation Permit for Oversized or Overweight Loads	Los Angeles County	Department of Public Works Transportation Permitting Desk 900 South Fremont Avenue, 8th Floor Alhambra, CA 91803 (626) 458-3126
Overweight Vehicle Special Permit	City of Long Beach	Wing Ma Department of Public Works, Traffic and Transportation Bureau 333 West Ocean Boulevard, 10th floor Long Beach, CA 90802 (562) 570-6676
Overweight Vehicle Permit	City of Seal Beach	Department of Public Works 211 8th Street Seal Beach, CA 90740 (562) 431-2527

5.12.7 Permits and Permit Schedule

Table 5.12-17 lists the permits related to traffic and transportation and the permit schedule. The vehicles used to transport heavy equipment and construction materials will require transportation permits when they exceed the size, weight, width, or length thresholds set forth in Section 35780 of the CVC, Sections 117 and 660-711 of the S&HC, and Sections 1411.1 to 1411.6 of the CCR. Affected vehicles will be required to obtain transportation permits from Caltrans, Los Angeles County, the City of Long Beach, City of Seal Beach, and any other affected agency.

TABLE 5.12-17
Permits and Permit Schedule for Traffic and Transportation

Permit	Agency Contact	Schedule
Single/annual-trip transportation permit for oversized loads and oversized vehicles	Eric Gunn Caltrans Transportation Permits Office 1823 14th Street Sacramento, CA 95811 (916) 322-4116	Obtain when necessary, 2-day processing time (single trip) to 2 weeks (annual trip).
Hazardous Materials Transportation License	Liz Silva California Highway Patrol Hazardous Material Licensing Program (916) 843-3445	Obtain when necessary, approximately 2-week processing time.
Transportation Permit	Los Angeles County Public Works Transportation Permitting Desk (626) 458-3126	Obtain when necessary, approximately 2-week processing time.
Oversize Vehicle and Haul Route Permits	Wing Ma City of Long Beach Department of Public Works, Traffic and Transportation Bureau 333 West Ocean Boulevard, 10th floor Long Beach, CA 90802 (562) 570-6676	Obtain when necessary, approximately 1-week processing time.
Oversize Vehicle Permit	City of Seal Beach Department of Public Works 211 8th Street Seal Beach, CA 90740 (562) 431-2527	Obtain when necessary, approximately 2-week processing time.

Transport route arrangements would be required with Caltrans and CHP officials for permitting and escort, as applicable. Transportation of hazardous materials to and from AEC will be conducted in accordance with CVC Section 31303.

5.12.8 References

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