2

PROJECT DESCRIPTION

2.1 Introduction and Project Overview

2.1.2 Proposed Project Throughput Comparison

Table 2-1 identifies the existing CEQA Baseline (year 2004) throughput activities at the Pier 400 Marine Terminal and compares it to the throughput associated with the proposed Project in year 2010, 2015, 2025, and 2040, measuring throughput in barrels per day (bpd). NEPA Baseline throughput activities for years 2004, 2010, 2015, 2025, and 2040 are described in Section 2.5.2.1 (No Federal Action/No Project Alternative) since, as explained in Section 1.5.5.1 and Section 2.6, the NEPA Baseline is identical to the No Federal Action/No Project Alternative for this analysis. Throughput and vessel calls associated with the proposed Project are estimated based on demand projections from Baker & O'Brien (2007), customer commitments PLAMT has at this time, and the reasonably foreseeable capacity of the proposed Project to accommodate crude oil. NEPA Baseline conditions are described in Section 2.6.1 and Section 2.5.2.1. Appendix D1 provides details regarding the analyses supporting the throughput and vessel mix estimates used in this document.

Table 2-1. Project Throughput Comparison[1]

Element	*CEQA Baseline (2004)*	*Proposed Project (2010)*	*Proposed Project (2015)*	*Proposed Project (2025)*	*Proposed Project (2040)*
Marine Terminal Acreage	0	5.0 acres (2.0 ha)	5.0 acres (2.0 ha)	5.0 acres (2.0 ha)	5.0 acres (2.0 ha)
Total Tank Farm Acreage	0	48.8 ~~47.7~~ acres (19.7 ~~19.3~~ ha)	48.8 ~~47.7~~ acres (19.7 ~~19.3~~ ha)	48.8 ~~47.7~~ acres (19.7 ~~19.3~~ ha)	48.8 ~~47.7~~ acres (19.7 ~~19.3~~ ha)
New Pig Launching Facility (Site A)	0	1.2 acres (0.5 ha)	1.2 acres (0.5 ha)	1.2 acres (0.5 ha)	1.2 acres (0.5 ha)
Alternate Pig Launching Facility (Site B)	0	0.61 acres (0.25 ha)	0.61 acres (0.25 ha)	0.61 acres (0.25 ha)	0.61 acres (0.25 ha)
Total Project Acreage (depending on location of pig launching facility)	0	55.5 - 56.1 acres (22.5 - 22.7 ha)	55.5 - 56.1 acres (22.5 - 22.7 ha)	55.5 - 56.1 acres (22.5 - 22.7 ha)	55.5 - 56.1 acres (22.5 - 22.7 ha)
Tanker Calls	0	129 per year [2]	147 per year [2]	201 per year [2]	201 per year [2]
Average Crude Oil Throughput	0	350,000 bpd	500,000 bpd	677,000 bpd	677,000 bpd
Barge Calls	0	6	8	12	12
Crude Oil Storage Tanks	0	16	16	16	16
Crude Oil Tank Capacity	0	4.0 million bbl	4.0 million bbl	4.0 million bbl	4.0 million bbl
Employees	0	523 peak [3]	48 [4]	54 [4]	54 [4]

Notes:

bpd = barrels per day
bbl = barrels
ha = hectares

1. NEPA Baseline throughput activities for years 2004, 2010, 2015, 2025, and 2040 are described in Section 2.5.2.1 (No Federal Action/No Project Alternative) since, as explained in Section 1.5.5.1 and Section 2.6, the NEPA Baseline is identical to the No Federal Action/No Project Alternative for this analysis.
2. The number of tanker calls depends on crude oil supply sources and vessel availability; the estimate shown here is based upon projections of the world tanker fleet and terminal throughput from Baker & O'Brien (2007), and is the highest reasonably foreseeable number of tanker calls under the proposed Project. See Appendix D1 for detailed calculations used to derive the estimate. These highest reasonably foreseeable numbers are assumed in the impact analysis in this SEIS/SEIR in order to capture all potential impacts of the proposed Project. A higher proportion of large vessels carrying larger loads would mean fewer vessel calls per year. Note that an emissions cap would be imposed in the South Coast Air Quality Management District (SCAQMD) operating permit, as described in Section 3.2 Air Quality. The actual number of tanker calls per year would be limited to comply with the SCAQMD permit condition; however, this SEIS/SEIR does not incorporate this limitation (in order to capture all potential impacts of the proposed Project).
3. The peak number shown represents peak employment during the construction phase (taking into account that operations would start in 2010 while construction is ongoing); see Section 2.4.3.1 for details. This peak level would occur for only a brief time period, if at all, but is the highest reasonably foreseeable number.
4. The number of employees during operation of the proposed Project includes those employed or contracted by PLAMT as well as the estimated increase in tugboat and Port pilot crews due to increased vessel calls. Employment is higher in later years because of the higher number of vessel calls resulting in more tugboat and Port pilot crews, as well as the need for increased inspections and maintenance that start five to ten years after the start of operations.

2.1.3 Need for Additional Capacity

As described in Chapter 1 (Section 1.1.3), Californians require mobility to conduct their everyday lives and attend to their business needs (CEC 2007a~~b~~). Even with full implementation of the State Alternative Fuels Plan (CEC and CARB 2007), petroleum based fuels are and will continue to be a necessary part of California's energy portfolio. In the 2007 Integrated Energy Policy Report (IEPR), the California Energy Commission (CEC) found that "conventional petroleum fuels will be the main source of transportation energy for the foreseeable future… California must address its petroleum infrastructure problems and act prudently to secure transportation fuels to meet the needs of our growing population" (CEC 2007a~~b~~). CEC stated further that "This should be viewed as a strategy to allow time for the market and consumer behavior to adjust to alternative fuels and transportation choices. During this transition, California must be innovative and aggressive in finding more ways to make increased efficiency, greater renewable fuel use, and smart land use planning the most desirable consumer options" (CEC 2007a~~b~~). Thus, the proposed Project would help meet California's stated needs for transportation energy facilities by providing critical infrastructure called for in the CEC's Integrated Energy Policy Reports since 2003. In the 2007 IEPR the CEC recommends that California continue with improving critical petroleum product import infrastructure, particularly for crude oil, as well as related storage and onshore transportation facilities (CEC 2007a; CEC 2007b; CEC 2007c). The proposed Project directly addresses part of this stated need.

As reported in Section 1.1.3, since consumer demand for transportation fuels exceeds the capacity of refineries to produce them, the demand for marine crude oil deliveries to southern California is essentially a function of the estimated rate of refinery distillation capacity increase (including refinery capacity creep as well as infrastructure improvement projects to increase refinery distillation capacity) and the estimated decline in California crude oil production. Baker & O'Brien (2007), consulting for PLAMT, have forecasted southern California's demand for marine deliveries of crude oil as a function of these two factors. Baker & O'Brien (2007) estimate that by 2040, the demand for marine crude oil deliveries in southern California will increase by 677,000 bpd compared to 2004. See Section 1.1.3 and Appendix D1 for additional information about the Baker & O'Brien projection.

2.2 Existing Conditions

2.2.3 Project Sites and Surrounding Uses

2.2.3.2 Tank Farm Sites

Pier 400 Site (Tank Farm Site 1)

Tank Farm Site 1 would be located on the southern side (Face D) of Pier 400. Tank Farm Site 1 is 10.7 acres (4.2 ha.) and is currently vacant, unpaved, and ungraded. The site is owned by the LAHD and is adjacent to the APM Terminal to the north and west, a California Least Tern nesting preserve to the east, and the Los Angeles Harbor to the south and west.

Terminal Island Site (Tank Farm Site 2)

Tank Farm Site 2 would be located on approximately ~~37.0~~ 38.1 acres (15.4~~3~~ ha) south of Seaside Avenue and west of Terminal Way. In the late 1990s, the Los Angeles Export

Terminal, Inc. (LAXT) was constructed on the site as a dry bulk terminal, including structures for the handling and export of petroleum coke. However, LAHD now has full jurisdiction over the site, and LAXT no longer has any entitlement to the site. Under a separate project, the LAHD is in the process of demolishing all above and below ground structures within the existing rail tracks loop; the existing rail tracks will continue to operate. The future use of the site is expected to be for liquid bulk storage (either for the proposed Project or alternative or for some future, as yet unknown, project).

2.2.3.3 Pipeline Routes and Pigging Station Site

The general locations of each of the pipeline routes are shown in Figure 2-1. Detailed route descriptions for each pipeline, including additional figures, are provided in Section 2.4.2.3. In general, the pipelines would traverse land use areas of the Port that have been used for industrial, port-related activity or military activity. A few exceptions would occur where small portions of the pipeline routes cross private property on the Valero/Ultramar Wilmington Refinery site and a California Department of Transportation (CalTrans) right of way east of the refinery. Most of the pipelines would be located in existing rights-of-way such as roadway routes, and pipelines north of Mormon Island would primarily be directionally drilled at varying depths. The pipelines near Banning's Landing would be directionally drilled and would be approximately 80 feet underground at that location.

The proposed Project includes a new pig launching station ("pigs" are mechanical devices used to clean and inspect pipelines; a pig launching station is a point on a pipeline at which pigs can be inserted into and removed from the pipeline), called Site A, which encompasses about 1.2 acres (0.5 ha) and would be located directly west of Henry Ford Avenue, west of the Air Products facility. This site would be used as a transition point for connections to an existing 16-inch diameter pipeline owned by Plains that extends to the ConocoPhillips Carson Refinery (the connection to the existing Plains pipeline would be made via Proposed Pipeline Segment 5) and a new 24-inch diameter pipeline (Proposed Pipeline Segment 4) that extends to the Valero/Ultramar Wilmington Refinery and Valero Refineries, as well as connections to existing pipeline systems owned by Plains on the east side of the Terminal Island Freeway.

Site A could be unavailable at the time of proposed Project construction, as some of the site is included for potential development as an alternative in the Schuyler Heim Bridge Replacement and SR-47 Expressway Project (CalTrans 2007). Should Site A be unavailable, the new pigging station would be sited at ~~an alternative location, called~~ Site B. Site B would encompass approximately 0.61 acres (0.25 ha) and would be located directly east of Henry Ford Avenue, south of Anaheim Street, and west of the Air Products facility. If used instead of Site A, Site B would be used as a transition point for connections to the same set of new and existing pipelines as noted above for Site A. Section 2.4.2.3 provides more information about pipeline routes including how the routes would differ if Site B were used in lieu of Site A.

2.3 Project Purpose

2.4 Proposed Project

2.4.1 Project Elements

The three principal elements of the proposed Project are the marine terminal, the tank farms, and the pipelines. The two principal activities that would take place are: (1) construction of the Project and (2) operation of the Project. Elements common to all of the construction activities would include: testing and inspection, scheduling, labor force management, equipment and materials, staging and storage areas, equipment transportation, utility and services requirements, and demolition of existing structures.

Project operations would consist of four primary activities: tanker vessel operations, marine terminal operations, tank farm operations, and pipeline operations. Other elements of the Project specific to the operations phase would include: start-up procedures; emergency response procedures; and a number of common features such as site access and security, system control and safety features, storm water management, waste handling, lighting, and testing and inspection.

The capital cost of the proposed Project is estimated to be $400 million for the landside terminal elements, pipelines, and storage facilities. The wharf, utilities, and walkway would be designed and constructed by the Port; the total capital cost of those elements is estimated to be $50 to $55 million.

The application for the proposed Project includes commitments to several features that will help to reduce and offset air pollution emissions. In addition, the project includes the acquisition of a permit from the SCAQMD for operation that would include emissions caps and a requirement to purchase Emissions Reduction Credits (ERCs), as explained below. However, for analysis purposes in this document, the number of vessel calls and the throughput considered in this document are not constrained by emissions caps nor does the air quality analysis incorporate either caps or ERCs.

The features summarized below are taken into consideration in the environmental analysis (note, however, that implementation of some features is included as mitigation measures in order to provide tracking and enforcement mechanisms for their implementation). A full discussion of emissions reduction mitigation measures can be found in Section 3.2, Air Quality.

Mandatory Vessel Speed Reduction. All vessels would be required to slow to 12 knots at a distance of 40 nautical miles (nm) from the Port in order to reduce main engine emissions. This requirement would implement CAAP Measure OGV1 and is included as an enforceable mitigation measure.

Fuel Replacement. PLAMT proposes a fuel replacement strategy that would require use of marine diesel oil (MDO), a fuel with a worldwide average sulfur content of approximately 0.5 percent, rather than heavy fuel oil (HFO) (see Section 1.1.4) in the auxiliary engines and boilers when inbound to the Port starting at a point 40 nm from the berth. Upon arrival at the berth, the vessel would be refueled with a locally available MGO (a fuel with 0.05 percent sulfur content that is available in the local market). The resulting blended fuel would be a distillate with an estimated average sulfur content of 0.2 percent. While at berth and during transit away from the Port (to the 40 nm point), the vessel would use the 0.2 percent sulfur distillate blend in auxiliary engines and boilers. Using MDO inbound and a blended marine gas oil (MGO)/MDO distillate outbound in the auxiliary engines and boilers would reduce emissions of nitrogen oxides (NO_x), sulfur oxides (SO_x), and particulate matter (PM) compared to residual fuel (i.e., HFO). This project design feature assumes that low-sulfur MGO fuels would continue to be readily available at the start of project operation. MGO would be delivered to the 15,000-bbl tank at Tank Farm Site 1 by a barge that would originate from other liquid bulk terminals at the Port or the Port of Long Beach. This requirement would implement CAAP Measure OGV3 and OGV4 and is included as an enforceable mitigation measure.

Shore-Side Electric Pumps. Crude oil tankers typically offload their cargo using on-board boilers to provide power to pump the cargo out of the vessel and into shoreside tanks – in this case, potentially as far as Tank Farm 2. Consistent with CAAP Measure OGV2, the proposed Project would include electrical shore-side pumps to move the cargo inland from Tank Farm Site 1, and the vessel's boilers would only be used to off-load the cargo to the shore-side tanks at Tank Farm Site 1. This practice would greatly reduce emissions from the combustion of MGO in vessel boilers by reducing boiler load and the amount of fuel combusted. This was considered a design element of the project.

Dock-side Emissions Reductions~~Alternative Maritime Power (AMP) System~~. The CAAP focuses on reducing emissions from vessels docked at the Port by allowing vessels to "plug in" and utilize electricity generated by onshore sources rather than using onboard diesel-fueled generators. This practice, termed alternative marine power (AMP) at the Port, is described in Section 1.6.2.3. The Port would build the infrastructure (i.e., pile supported platform) necessary to support AMP as an element of the proposed Project. However, the implementation of AMP would be a mitigation measure. For more details of the AMP support infrastructure and construction and operations, see Section 2.4.2.1 and Section 3.2 of this document. This requirement would implement CAAP Measure OGV2 and is included as an enforceable mitigation measure.

Subject to the requirements summarized in Section 3.2 (Mitigation Measure (MM) AQ-15~~17~~ and MM AQ-20), another technology for emissions reduction may eventually be used as an alternative to AMP. One such technology is the Advanced Cleanup Technologies, Inc. (ACTI) new Advanced Maritime Emissions Control System (AMECS). The AMECS system involves a bonnet, which for the maritime version would be fitted over a ship's exhaust stack, and uses a series of scrubber processes to remove harmful compounds. To facilitate its eventual implementation should AMECS be determined to be usable at Berth 408, the proposed Project includes construction of the support infrastructure for AMECS (i.e., a pile-supported platform and approach). More details about the AMECS, its evaluation for inclusion in the proposed Project, and its potential for eventual use at Berth 408 are provided in Section 2.4.2.1 below. Installation of AMECS would require separate environmental analysis if added in the future.

Emission Reduction Credits. As a condition of obtaining SCAQMD permits to construct and operate the proposed Project, PLAMT would be required to purchase emission offsets at a ratio of 1.2 credits to 1 pound of calculated emissions in order to offset certain vessel emissions as well as certain land-based equipment, such as off-loading arms, tanks, and vapor destruction units. Section 2.4.4.5 describes the nature of the requirement and credits in more detail; however, the air quality analysis presented in Section 3.2 does not include any emission reductions from purchase of such credits.

2.4.2 Facility Design and Configuration

2.4.2.1 Marine Terminal

The Marine Terminal would be built on a 5-acre (2 ha) parcel located at Berth 408 on the southwest portion of Pier 400 (Figure 2-3). (Note that in the Final SEIS/SEIR, the Administration Building shown in Figure 2-3 of the Draft SEIS/SEIR has been moved to Tank Farm Site 2. Figure 1-10 in the Final SEIS/SEIR shows the new location of the Administration Building). Table 2-2 summarizes the facilities that would or might be constructed for the Pier 400 Marine Terminal.

Berth 408's current water depth of 81 ft (24.7 m) below MLLW would remain unchanged. Berth structures would be designed and constructed by the LAHD Engineering Division to accommodate VLCC tankers up to a length of 1,100 ft (335 m) and a beam of 200 ft (61 m). The berth would be designed to offload crude oil at up to 125,000 barrels per hour (bph).

Governing Codes and Standards. The engineering and design for the marine terminal at Berth 408 would be based primarily on the "Marine Oil Terminal Engineering and Maintenance Standards," (MOTEMS) Chapter 31F, Title 24, Part 2 California Code of Regulations, promulgated by the California State Lands Commission (CSLC) (CSLC 2004). These regulations were adopted by the CSLC and are the most advanced of their kind. The Port of Los Angeles Code for Seismic Design, Upgrade and Repair of Container Wharves (5/18/2004) would supersede MOTEMS, in case of conflict, only if proven to be more severe or restrictive. This is to ensure a conservative design approach compatible with both codes.

In addition to MOTEMS and the Port's code, the new facility would be designed in accordance with all other appropriate recognized engineering, safety, and seismic hazard design standards, including those listed below. The most severe or restrictive design code in effect at the time would apply. Details of the facility design, including general specifications, standards, and dimensions, are included in Appendix E.

Table 2-2. Operational Details and Physical Elements of the Berth 408 Marine Terminal

Component	*Description*
Parcel Size	5.0 acres (2.0 ha)
Berth Depth	81 ft (24.7 m) at MLLW
Berth Height	15 ft (4.6 m) above MLLW
Design Vessel Size	325,000 DWT, 1,100 ft (335 m) long, 200 ft (61 m) wide
Berth and Offshore Structures	Mooring dolphins with quick release hooks and powered capstans, breasting dolphins with unit fenders, firefighting system, unloading platform, north and south trestles, and walkways.
Offloading Arms	Four vessel offloading arms and one fuel loading and offloading arm.
Expected Offload Rate (Crude Oil)	50,000 to 125,000 barrels per hour (bph)
Expected Onload Rate (MGO)	3,500 bph
Pumping Equipment	Shore-side assist cargo offloading pumps and dock-side oil stripping pumps for vacating the offloading arms and dock piping.
Buildings	Terminal Security Office~~,~~ and Dock-Side Marine Terminal Control Building ~~and Administration Building~~
Fire-fighting System	Firewater main, foam storage tanks and mixing skids, fire monitors, hose reels, portable extinguishers, fire detection system, electric-driven firewater pump, diesel firewater pump, and seawater intake system
Lighting	Terminal lighting designed to minimize glare from the property and navigation lighting to define limits of the dock
Process oil recovery system	Sumps with sump pumps, piping, and controls
Oil Spill Containment System	Spill Boom Launch Boat, Spill Boom Reels, Remote spill recovery boom storage and launch facilities, and Concrete-curbed platforms and equipment foundations
Storm Water System	Storm Water Collection and Transportation to the site 1 tank farm for treatment and discharge
Parking	Near Berth ~~and Administration Building~~
Site Security	Perimeter security fence, 24-hour guard service, cameras with local or remote monitoring and control, perimeter security system
AMP Platform[1]	Pile-supported platform at the south end of the berth to accommodate the AMP electrical connection system.
AMECS Platform[1]	Pile-supported platform to support the AMECS crane, should this ~~the applicant eventually use this~~ alternative emissions control system eventually be used.

Note:

1. AMP is a mitigation measure and AMECS represents a potential future mitigation measure~~s~~; the piles to support the required infrastructure are part of the proposed Project. See Section 2.4.1 for additional information about the nature of these measures as components of the proposed Project.

In-Water Structures. The berth would include an unloading platform; breasting dolphin platforms; a mooring and fendering system; and north and south trestles with roadways, pipeways, walkways, a floating utility boat dock, and a gangway tower; a platform to support the AMP facilities and another to support the AMECS facility. The berth would also include six mooring dolphins with quick release hooks and power capstans, an electric motor-driven derrick cargo crane, a davit crane (boat lowering crane), 4,000 ft (1,219 m) of spill boom storage, a foam-based remotely operated firefighting system, low-impact area lighting systems, cathodic protection corrosion prevention systems, and navigational lighting systems.

Steel and concrete piles would be required to support in-water components of the berth platform, including mooring dolphins, breasting dolphins, the unloading platform, walkways, and other components. ~~At the current design stage it is not certain whether the mooring dolphins would require steel or pre-stressed concrete piles. If steel piles are used for the mooring dolphins, p~~Proposed Project components (including the AMP and AMECS platforms) would require approximately ~~150~~ 136 piles in water (~~110~~ 92 steel and ~~40~~ 44 concrete). ~~If concrete piles are used for the mooring dolphins, proposed Project components including the AMP and AMECS platforms would require approximately 258 piles in water (74 steel and 184 concrete).~~ The concrete piles would be 24-inch diameter, and the steel piles would be a combination of 48-inch and 54-inch diameter. (The proposed Project would also require 34 concrete piles to be driven on land in the marine terminal area.)

The berth structures would be designed to support piping for crude oil, MGO vessel fuel, potable water, firewater, instrument air, fuel, and storm water, as well as the conduit, cable trays, wiring, instrumentation and controls, grounding systems, and other facilities associated with the various dock-mounted systems. The deck and gangways would be contained by a six-inch-high berm; storm water would drain to a sump below the deck.

The connection between the ship and the terminal for transferring crude oil and vessel fuel would be a hard-pipe flexible system commonly referred to as an offloading arm. The dock structure would include four crude oil offloading arms and one vessel fuel loading and offloading arm, with the associated control equipment and electric motors. The arms, which are approximately 80 feet high, would be designed to rotate more than 180 degrees to allow for the movement of the vessel from both cargo operations and wave and current effects. A fixed control station for the offloading arms would be constructed in a strategic location for good visibility during connection and disconnection, and wireless handheld control stations would also be provided. The unloading arms would be equipped with Quick Connect/Disconnect Couplers (QC/QDs) at the manifold.

Lighting would be designed to local City of Los Angeles, LAHD, and USCG requirements. The unloading platform would have a variety of lights, including an 80-ft (24.4-m) high tower to sufficiently light the offloading arms and lower deck level lights to illuminate the equipment and piping in specific areas where additional light is required, or where equipment would shadow the tower lighting. The fixtures selected for this area and throughout the Project areas would have refractors and corresponding photometric light curves designed with the goal of minimizing the spillage of any light from the property or to the surface of the water. The tower would have from four to eight 400-watt fixtures, based on needs determined by lighting calculations. If an AMECS or other similar emission control facility is eventually installed, appropriate lighting would be required; however, such lighting is not part of the proposed Project.

Landside Structures. ~~Three~~ Two buildings are proposed for construction at the Marine Terminal. These will ~~all~~ both be certified in the Leadership in Energy and Environmental Design (LEED) standards established by the U.S. Green Building Council:

- *Terminal Control Building*: The Terminal Control building would be an approximately 6,000-square foot (sq ft) (557-square meter [sq m]), single or two-story building that would provide space for the terminal operator and company personnel associated with the operation of the Marine Terminal, the tank farm distribution system, and the terminal security system. The control building would also house the motor control centers for the offloading arms, restroom and locker facilities for the operators and visitors, and monitoring and control equipment for the offloading arms, stripping pumps, valves, fire detection and firefighting systems, and storm water management system.

- ~~*Administration Building*: The Administration Building would be an approximately 15,000-sq ft (1,394-sq m), two-story or three-story building that would provide offices, meeting spaces, restroom facilities, and a lunchroom.~~

(Please note: the administration building located at the marine terminal in the Draft SEIS/SEIR has been moved to Tank Farm 2.)

- *Security Building*: The Security Building would be single-story, and have a footprint of approximately 1,500 sq ft (140 sq m). The building would provide space for the terminal security personnel and site monitoring equipment.

Other landside elements of the Marine Terminal would include a fire-fighting system, pumping systems for oil and water, and the electrical system. The fire-fighting system would be designed to meet applicable fire codes. Two firewater pumps, one electric-powered and one diesel-powered, would be installed at the Marine Terminal to serve both the berth and Tank Farm Site 1. A seawater intake system would be provided at the berth as required by the Los Angeles Fire Department.

Two 125 gallon-per-minute (gpm) dockside stripping pumps for crude and two 50 gpm dockside stripping pumps for fuel, along with associated piping, would be provided to empty the offloading arms after each transfer. Two contact water pumps for drawing storm water from the sump under the deck would also be provided.

The proposed Marine Terminal would also include 34.5 kilovolt (kV) electrical transmission service, provided by Los Angeles Department of Water and Power (LADWP), electrical switch gear and motor control centers; power and control conduits and cables; terminal and building lighting systems; terminal grounding system; and miscellaneous associated electrical equipment. This equipment would be necessary to power the electric shore side pumps, provide general facility load, and to accommodate potential future electrical loads associated with the AMP system.

The structural elements of the Marine Terminal would be designed for a service life of 50 years, with no significant maintenance to structural elements due to deterioration during the first 25 years. Equipment such as unloading arms, pumps, and generators would be designed for a service life of at least 30 years, consistent with the term of the proposed lease. However, routine maintenance activities, cathodic protection systems, and a thorough inspection and repair program would be expected to extend the actual service life well beyond the design life.

Prior to the start of construction, the terminal operator would submit for Port review and approval a landscape plan for areas within the terminal and adjacent to the Tank Farm Sites where it is feasible and appropriate to install vegetation as an amenity, as well as a color scheme for the terminal and tank farm structures, with the design objective being to choose hues that would add visual interest to the terminal and tank farm and that are also compatible with the landscape plan. The landscape plan would conform to applicable City of Los Angeles guidelines, including features to minimize GHG production and water consumption.

Dockside Emissions Control~~Alternative Maritime Power (AMP)~~. The Marine Terminal would be equipped with the Alternative Maritime Power (AMP) system, which is a system developed by the Port to reduce dockside air emissions. The AMP system would allow vessels to "plug in" and utilize electricity generated by onshore sources rather than using onboard diesel-fueled generators to produce the electricity needed for vessel hoteling and auxiliary engine operations during vessel unloading. The use of AMP would constitute an air quality mitigation measure (see Section 3.2) rather than a feature of the proposed Project. However, the construction of the platform ~~the platform~~ on the berthing structure that would support AMP as well as conduits, utility connections, and general infrastructure needed for operation of an AMP system would be installed as part of the proposed Project during construction of the Marine Terminal.

The power substation and dockside cable handling gear would be constructed separately, in order that the tenant would comply in a timely manner with Mitigation Measure AQ-15, which would require phased-in control of dockside emissions. Compliance with Mitigation Measure AQ-15, like other mitigation measures identified in this document, would be mandated under the terms of the lease for the proposed Project~~as soon as tankers become available that could utilize the AMP system~~. These elements, therefore~~,~~ ~~are~~, are considered part of the AMP implementation and thus ~~considered~~ part of the dockside emission control ~~AMP~~ mitigation measure, rather than part of the proposed Project. (Section 1.6.2 of the Draft SEIS/SEIR has additional information about AMP implementation at the Port.)

However, a~~A~~ccording to the CAAP Technical Report, AMP is best suited for vessels that make multiple calls per year, require a significant demand at berth, and will continue to call at the same berth for multiple years. Implementing AMP requires extensive infrastructure improvements onboard vessels that would use the system as well as on the terminal side for supplying the appropriate level of conditioned electrical power supply (LAHD and Port of Long Beach 2006). Most of the tankers that would call at Berth 408 would not make multiple calls per year and may not call at the berth for several years at a time. In addition, retrofitted tankers would use AMP to replace only auxiliary engine emissions (not boiler emissions) due to engineering constraints. For these reasons, AMP may not be the most cost-effective strategy for complying with the dockside emissions control mitigation measure~~controlling air emissions from tankers at Berth 408~~. This conclusion was also reached in the CAAP Technical Report, which noted that AMP would not necessarily be the best control approach for tankers (LAHD and Port of Long Beach 2006). Accordingly, PLAMT has committed to evaluating AMECS and considering its application to the proposed Project.

PLAMT has indicated that it anticipates that AMECS technology may eventually prove feasible and cost-effective as an alternative to AMP for some or all vessels calling at the proposed Project to comply with dockside emissions control mitigation. Parts of an AMECS system have been tested as part of a pilot project at the Port of Long Beach that is focused on vessels carrying dry bulk, break bulk, and roll-on/roll-off cargo (Port of Long Beach 2006). However, at this time, the full system has not been tested on any vessel. In addition, the application of AMECS to crude oil tankers raises more technical challenges than those associated with container vessels and bulk vessels, which do not use boilers in the off-loading of their cargo. The boilers on board tankers that are used for cargo offloading are quite large, and the addition of boiler combustion stack gases into the AMECS collection and treatment system will increase the volume of gas handled by 4-8 times, resulting in significant scale-up challenges both in gas handling (e.g., ducts and fans) and gas treatment (e.g., scrubbers, selective catalytic reduction systems, and heat exchangers).

Accordingly, the lead agencies cannot at this time conclude that AMECS provides a feasible means of achieving required dockside emissions control mitigation. Nevertheless, Mitigation Measure AQ-15 has been revised to provide that the Port of Los Angeles may permit the tenant to install and implement an AMECS system as an alternative means of complying with dockside emissions control mitigation requirements, either in combination with or in place of AMP, providing that the Port first finds, based on environmental review, that AMECS would feasibly control dockside emissions at least as effectively as AMP.

~~Accordingly, PLAMT has committed to evaluating AMECS and considering its application to the proposed Project. In addition, the proposed Project~~ To allow for this potential future approval of AMECS as an alternative means of complying with the dockside emissions control mitigation measure, the proposed Project also includes the construction of a platform that could support an AMECS vessel emission control system. However, aside from the AMECS support platform, no other infrastructure for the AMECS is included as part of the proposed Project. ~~Parts of the AMECS system have been tested as part of a pilot project at the Port of Long Beach that is focused on vessels carrying dry bulk, break bulk, and roll-on/roll-off cargo (Port of Long Beach 2006). However, at this time, the full system has not been tested on any vessel. In addition, the application of AMECS to crude oil tankers raises more technical challenges than those associated with container vessels and bulk vessels, which do not use boilers in the off-loading of their cargo. The boilers on board tankers that are used for cargo offloading are quite large, and the addition of boiler combustion stack gases into the AMECS collection and treatment system will increase the volume of gas handled by 4-8 times, resulting in significant scale-up challenges both in gas handling (e.g., ducts and fans) and gas treatment (e.g., scrubbers, selective catalytic reduction systems, and heat exchangers).~~

~~If AMECS is demonstrated to be feasible for tankers, PLAMT may request approval from the Port to use the AMECS technology as an alternative to AMP for some or all vessel calls. In addition, if AMECS is demonstrated to be feasible for tankers, the Port could require PLAMT to construct and implement the system under the provisions of air quality mitigation measure MM AQ-20 (Periodic Review of New Technology and Regulations); see Section 3.2 for details. In either scenario (either PLAMT's application to use AMECS or the Port's direction to PLAMT to use AMECS under the provisions of MM AQ-20), the Port would need to approve the use of AMECS as an alternative to AMP (see Section 3.2, and especially the discussion of MM AQ-17, Equivalent Measures). In addition, the construction and operation of AMECS, if it occurs in the future, would require a separate environmental assessment satisfying the requirements of CEQA and, if a USACE permit would be required, the requirements of NEPA.~~

Inspection and Maintenance Considerations. The structural elements of the Marine Terminal would be designed such that all components would be accessible, to the extent practical, for normal inspection and maintenance and for inspection and repair following a significant loading event such as a vessel impact or earthquake. Structural elements that would be avoided include buried tie-back anchors and buried piles. In addition, equipment installed on the various structures would be positioned to allow for ease of access to facilitate inspection.

2.4.2.2 Tank Farms

The detailed layout for Tank Farm Site 1 is shown in Figure 2-4, and for Tank Farm Site 2 is shown in Figure 2-5. (Note that the Administration Building, which was to be located at the Marine Terminal in the Draft SEIS/SEIR, would be located at Tank Farm Site 2 as noted in the Final SEIS/SEIR. Figure 1-10 in the Final SEIS/SEIR shows the new location of the Administration Building and the new layout for Tank Farm Site 2.) Table 2-3 also contains characteristics of each tank farm site. The two tank farms would have a total tankage of 4.0 million bbl of storage capacity, in addition to a 50,000 bbl surge tank and a 15,000 MGO tank that would provide MGO to vessels using the marine terminal. Both tank farms would include sound walls and manifolds; most piping within the tank farms would be belowground. Note that storm water management at the tank farm sites is described in Section 2.4.4.5.

Shore-Side Electric Pumps. Electric pumps would be installed at Tank Farm Site 1 for pumping cargo inland from Tank Farm Site 1. Because of the use of shore-side electric pumps, the vessel's boiler-fired pumps would pump oil only from the cargo holds over the rail to Tank Farm Site 1. The shore side electric pumps would move the oil from that point inland.

Tankage. The proposed Tank Farm Site 1 would include two 250,000-bbl internal floating roof tanks, one internal floating roof 50,000-bbl working capacity offload/back-flush tank (surge tank), and one 15,000-bbl storage tank MGO. The 50,000-bbl tank (and both 250,000-bbl tanks) would be designed to receive direct offloads of crude oil from vessels at maximum offload rates, thereby allowing for smooth operation of the shore-side pumps. The tanks at proposed Tank Farm Site 2 would all be internal-floating-roof 250,000-bbl tanks for temporary storage and transfer of crude oil and partially refined crude oil.

All tanks would utilize Best Available Control Technology (BACT) and be BACT-compliant as required by the SCAQMD. BACT is the most stringent emission limitation or control technique that has been achieved in practice or is considered to be technologically feasible (SCAQMD Rule 1302 (h)). Each tank would have a fixed roof in addition to the internal floating roof. The floating roofs control emissions by covering the crude oil, thus preventing vapors from forming. As required by SCAQMD rules, the internal floating roofs would be equipped with primary and secondary seals around their perimeters.

Table 2-3. Tank Farm Site Descriptions

Component	*Tank Farm Site 1 (Pier 400 Tank Farm Site)*	*Tank Farm Site 2 (Terminal Island Tank Farm Site)*
Parcel size	10.7 acres (4.3 ha)	~~37.0~~ 38.1 acres (15.~~4~~0 ha)
Crude oil tanks	Two 250,000-bbl tanks (internal floating roof)	Fourteen 250,000-bbl tanks (internal floating roof)
Other liquid tanks	One 50,000-bbl crude oil surge tank (internal floating roof) One 15,000-bbl MGO storage tank	None
Tank vapor recovery	Both Sites: Vapor holding tank, vapor blower, and thermal oxidizer	
Pumping equipment	Crude oil transfer pumps, variable frequency drives, mixing pumps, and sump pumps	Crude oil transfer pumps, tank proportioning pumps, and sump pumps
Pipeline pigging facilities	~~Both~~ Either site (Site A or Site B)~~s~~: Pipeline scraper traps	
Buildings	Motor Control Building	Two buildings: one Administration Building, and one building to house Motor Control Center, Tank Farm Operator Office, and Control ~~Building~~Center
Parking	For operator office/control building	For control building, tank farm operations, and security and maintenance vehicles
Fire-fighting system	Firewater main, foam storage tanks and proportioning skids, fire monitors, electric motor-driven firewater pump, diesel firewater pump and back-up sea water pumps	Firewater main, foam storage tanks and proportioning skids, fire monitors, electric motor-driven firewater pump, diesel firewater pump
Sanitary sewer connection	Both sites: Existing LA Department of Sanitation sewer system	
Site security	Perimeter Security Fence, 24-hour Guard Service, Cameras with local or remote monitoring and control, and Perimeter Security System with remote monitoring and alarm notification	Perimeter Security Fence, Cameras with local or remote monitoring and control, and Perimeter Security System
Site lighting	Both sites: As required for safe operation, in accordance with City of Los Angeles Building Codes and USCG requirements (described in detail in Section 3.1 Aesthetics).	
Storm water system	Both sites: storm water collection, treatment, and discharge system	

Tank farms would be equipped with a tank vapor collection system to collect emissions generated during tank filling operations when the tank roofs are being floated. The floating roof, with the primary and secondary seals, would be used to control emissions at all other times. Each system would consist of vapor collection pipe headers, a vapor blower, vapor bladder tank, vapor discharge headers, and associated controls. The collection systems would transport the vapors to incineration systems. The floating roof, primary and secondary seals, and vapor collection and control are considered to be BACT for crude oil storage tanks and meet the requirements of the SCAQMD for such tanks.

Thermal oxidizers would be installed at Tank Farm Sites 1 and 2 to incinerate all vapors collected in the vapor holding tanks. Each of the tank vapor collection and incineration systems would be designed for automatic control from a local control system and would be monitored remotely from the Marine Terminal Control Building.

Each tank would be equipped with secondary leak detection systems, overfill protection, and instrumentation to monitor temperature as well as to monitor and control tank level in order to prevent releases to soil or groundwater. Each tank would be designed to allow for monitoring and control from the Marine Terminal Control Building.

Each tank area would be enclosed by a dike wall with the capacity to provide for full containment of the entire volume of the largest tank in the diked area, plus the volume equal to the 24-hour rainfall associated with a 25-year rain event, in the event of a spill or tank breach, in accordance with state and local codes and guidelines. Additionally, intermediate dikes designed to contain 10 percent of the tank volume would be constructed around individual tanks.

Fire-Fighting System. The fire-fighting systems for each area of the proposed Project would be designed in accordance with applicable City of Los Angeles fire codes. Each tank farm would be protected by a firewater loop line and equipped with a foam storage tank and proportioning skid. The crude oil tanks would be equipped with a foam ring and foam chambers. The fire-fighting system for Tank Farm Site 1 would be part of the same system as previously described for the Marine Terminal. Firewater for Tank Farm Site 2 would be provided through a connection to the LADWP water main. Two pumps would be installed in each tank farm: the primary pump would be driven by an electric motor and the secondary pump would be driven by a diesel engine equipped with its own diesel fuel storage tank

Electrical Power. Electrical power at Tank Farm Site 1 would be provided by the same system that would service the Marine Terminal, as previously described. Tank Farm Site 2 would be served by a 34.5-kV electrical transmission service provided by the LADWP. The service would include the extension of the existing 34.5-kV transmission line, a substation, and associated metering.

The proposed electrical facilities would include associated electrical switchgear, step-down transformers, motor control centers, ground systems, conduit, wire, lighting, and associated electrical equipment.

Utilities. Potable water and sanitary sewer service would be provided to both tank farm sites by the Port. Connection locations would depend on final site configurations.

Buildings. An approximately 4,800-sq ft (446-sq m), single or two-story motor control center building would be installed at Tank Farm Site 1. This building would contain the electrical switchgear, low voltage step down transformers, and the motor control center that would service all electrical equipment. Tank Farm Site 2 would include one 15,000-sq ft (1,394-sq m) two-story building to house a motor control center and an office/control center. In addition, Tank Farm Site 2 would include the Administration Building (described as located at the Marine Terminal in the Draft SEIS/SEIR), which would be an approximately 15,000-sq ft (1,394-sq m), two-story or three-story building that would provide offices, meeting spaces, restroom facilities, and a lunchroom. The Administration Building would be certified in the LEED standards established by the U.S. Green Building Council.

2.4.2.3 Pipelines

The general locations of each of the pipeline routes are shown in Figure 2-1, and the characteristics of the pipelines are summarized in Tables 2-4, 2-5, and 2-6. Figures 2-6, 2-7, 2-8, and 2-9 provide close-up detail about the routes of the various pipeline segments. The proposed Project pipeline route would start with a 42-inch diameter pipeline (Segment 1; Figure 2-6) that would run from the Marine Terminal to the northern boundary of Tank Farm Site 1, and then along the southern edge of Pier 400 and on the Pier 400 Causeway to Tank Farm Site 2. Two 36-inch diameter pipelines (Segments 2a and 2b; Figure 2-6) would connect Tank Farm Site 2 to the existing network of pipelines at Ferry Street. In addition, another 36-inch diameter spur (Segment 2c; Figure 2-6) would run from the existing network at Ferry Street into the ExxonMobil Southwest Terminal.

Table 2-4. Pipeline Segment 1

Component	*Description*
Route	From Marine Terminal to Tank Farm Site 1, then to Tank Farm Site 2
Inside diameter	42 inches
Approximate Length	23,010 linear feet (7,013 m)~~20,650 feet~~
Length on LAHD property	23,010 linear feet (7,013 m)~~20,650 feet~~
Nominal Flow Rate[1]	100,000 bbl/hr
Buried	Yes (except at causeway bridge on Navy Way)
Approximate Depth	4 feet (except 4-8 feet at origin at Marine Terminal)
Primary Construction Method	Open cut (trench)
Method for Street Crossings	Primary: Slick bore; Alternative: Directional Drill or Open Cut
Method for Railroad Crossings	Primary: Slick bore; Alternative: Directional Drill
Method for Water Crossings	Primary: installation on existing bridge or trestle; Alternative: Slick Bore or Directional Drill
External Coating	Yes
Cathodic Protection	Yes
Number of Mainline Valves	2
Pipeline Pigging Facilities	One 42" Pipeline Pig Receiver (Terminal)
Pipeline Leak Detection System	Meters, instrumentation, computer hardware and software

Note:
1. Nominal Flow Rate based on Basra Light crude oil. Rates would vary depending on crude type and delivery constraints.

Table 2-5. Pipeline Segments 2a, 2b, and 2c

Component	*Segment 2a*	*Segment 2b*	*Segment 2c*
Route	From Tank Farm Site 2 to Existing 36” Line	From Tank Farm Site 2 to Existing 36” Line	From Existing 36” Line to ExxonMobil Southwest Facility
Inside diameter	36 inches	36 inches	36 inches
Approximate Length	2,025 linear feet (617 m)~~1,800 feet~~	1,900 linear feet (607 m)~~1,800 feet~~	100 linear feet (30 m)~~100 feet~~
Length on LAHD property	2,025 linear feet (617 m)~~1,800 feet~~	1,900 linear feet (607 m)~~1,800 feet~~	0 linear feet (0 m)
Nominal Flow Rate	45,000 BPH	85,000 BPH	85,000 BPH
Buried	Yes	Yes	Yes
Approximate Depth	4 feet	4 feet	4 feet
Primary Construction Method	Open cut (trench)	Open cut (trench)	Open cut (trench)
Method for Street Crossings	Both segments: Primary: Slick bore; Alternative: Directional Drill or Open Cut		N/A
Method for Railroad Crossings	Both segments: Bore (across RR tracks at west edge of Tank Farm Site 2)		N/A
Method for Water Crossings	N/A	N/A	N/A
External Coating	Yes	Yes	Yes
Cathodic Protection	Yes	Yes	Yes
Number of Mainline Valves	1	1	1
Pipeline Pigging Facilities	One 36” Pipeline Pig Launcher (Origin)	One 36” Pipeline Pig Launcher (Origin)	One 36” Pipeline Pig Receiver (Terminus)
Pipeline Leak Detection System	Meters, instrumentation, computer hardware and software		

Table 2-6. Existing 36-Inch Diameter Pipelines

Component	*Mormon Island*	*ExxonMobil Southwest Terminal*
Route	Connect Proposed Pipeline Segment 2a to Proposed Pipeline Segment 3	Connect Proposed Pipeline Segment 2b to ExxonMobil Terminal and Proposed Pipeline Segment 2c
Inside diameter	36 inches	36 inches
Approximate Length	3,900 linear feet (1,189 m)	2,200 linear feet (671 m)~~2,300 feet~~
Length on LAHD property	3,900 linear feet (1,189 m)	2,200 linear feet (671 m)~~2,300 feet~~
Nominal Flow Rate	45,000 BPH	85,000 BPH
Buried	Yes	Yes
Approximate Depth	4 feet	4 feet
Primary Construction Method	N/A (no construction as part of proposed Project)	
Method for Street Crossings	N/A (no construction as part of proposed Project)	
Method for Railroad Crossings	N/A (no construction as part of proposed Project)	
Method for Water Crossings	N/A (no construction as part of proposed Project)	
External Coating	Yes	Yes
Cathodic Protection	Yes	Yes
Number of Mainline Valves	1	0
Pipeline Pigging Facilities	Included with other facilities	One 36” Pipeline Pig Launcher (Terminus)
Pipeline Leak Detection System	Included with other facilities	One meter, instrumentation, computer hardware and software

The applicant has acquired entitlements to use the existing 36-inch diameter pipelines shown on Figure 2-6 from near Seaside Avenue on Terminal Island to the area of Berth

174 on Mormon Island. A new, directionally-drilled, 36-inch diameter pipeline (Segment 3; Figure 2-7) would run from Berth 174 to the northern end of Mormon Island and from there to Site A at Henry Ford Street, where a pig launching facility would be located. A new 24-inch diameter pipeline (Segment 4; Figure 2-8 and Figure 2-9) would extend to the Dominguez Channel and onto the existing Valero Refinery and to existing pipeline systems nearby, and a new 16-inch diameter pipeline (Segment 5; Figure 2-8) would extend from the pig launching station northward to another existing Plains All American pipeline (located near the Air Products process plant at the corner of Alameda and Henry Ford Avenue).

All pipelines would be installed belowground, with the exception of the water crossings at the Pier 400 causeway bridge, at the pig receiving and launching station, at the Valero pipe bridge that crosses the Dominguez Channel west of the Ultramar/Valero Refinery, and within parts of the Marine Terminal and Tank Farm Sites. It should be noted that the line sizes and routings detailed in the text and tables are preliminary and subject to change during the detailed engineering process. Slight route modifications may be made to accommodate other uses within the Port. Any changes however, would be analyzed to ensure consistency with the environmental analysis presented in the SEIS/SEIR. The design specifications of the pipelines, piping, and related facilities are presented in Appendix E.

Proposed Pipeline Segment 1. Pipeline Segment 1, a 42-inch pipeline (Figure 2-6, Table 2-4), would transport crude oil from the Berth 408 unloading operations to the tank farms with an approximate total length of 23,010 feet (7,013 m). Pipeline Segment 1 would originate at the Marine Terminal approximately 4 to 8 feet (1.2 to 2.4 m) underground on the southwestern side of Pier 400 (Face 'C'). The pipeline would run south and then east along the Marine Terminal access road for approximately 2,400 feet (731 m) to Tank Farm Site 1 on Face D of Pier 400. From the pump and meter area at Tank Farm Site 1 the pipeline would run east and along Navy Way to the east end of Face F where the Navy Way roadway is elevated.

At that point the pipeline would leave Navy Way and run north in the unimproved area to the east of Navy Way, paralleling the elevated roadway on the east to an aboveground crossing of the causeway bridge. After crossing the bridge, the line would return below ground and continue north in the unimproved area east of Navy Way until entering the northeastern corner of Tank Farm Site 2. In the underground area, this line would be installed (via trench or bore) approximately 3-4 feet below ground (except in its origin at the Marine Terminal, where it could be 4-8 feet underground). Figure 2-6 illustrates approximately where the pipeline would be bored, trenched, and aboveground.

The applicant anticipates installing remotely operated mainline block valves at the beginning and end of the 42-inch pipeline, along with the connections to the tank farm sites. Each valve would be monitored and controlled from a yet-to-be-determined, project-related building.

Proposed Pipeline Segments 2a, 2b, and 2c. Segments 2a and 2b would be 36-inch diameter pipelines running from Tank Farm Site 2 to an existing 36-inch diameter pipeline located in Ferry Street (Table 2-5 and Figure 2-6). Both segments would originate from a manifold on the west side of Tank Farm Site 2 and connect to existing 36-inch pipelines west of the U.S. Customs House on Terminal Island. Pipeline segment 2a would be approximately 2,025 feet (617 m) while segment 2b would be approximately 1,900 feet (607 m) in length. ~~Each of segments 2a and 2b would be approximately 1,800 ft (549 m) in length.~~ Pipeline segments 2a and 2b would both be buried about 3-4 feet below ground, by trenching and boring (see Figure 2-6).

The proposed alignment of Pipeline Segments 2a and 2b would originate on the west side of Tank Farm Site 2, cross through the U.S. Customs House parking lot via a trench, and cross Ferry Street north of the U.S. Customs House via a bore. At this point, Pipeline Segment 2a would turn north to intersect an existing 36-inch diameter pipeline that crosses the Cerritos Channel to a tank farm at Berth 174 on Mormon Island (and then connect to another new pipeline segment, Segment 3, described below). Pipeline Segment 2b would follow the same route as Segment 2a to the existing pipeline, but product routed through Segment 2b, once it entered the existing pipeline, would travel south and tie in to an existing pipeline that runs south down Ferry Street to Pilchard Street near the ExxonMobil Southwest Terminal.

An alternate alignment for segments 2a and 2b could be employed depending upon the ultimate location and configuration of the proposed Joint Container Inspection Facility. A possible location of that facility is the U.S. Customs House property, and if that proves to be the case, segments 2a and 2b would be re-routed to the south of the current U.S. Customs House property and would connect to the existing 36-inch pipelines at the intersection of Ferry Street and Pilchard Street (Figure 2-6).

Pipeline Segment 2c would be a short tie-in connecting the existing Plains pipeline to the ExxonMobil Southwest terminal, north of Pilchard Street near Earle Street. This segment would be trenched and would be located almost entirely on land owned by ExxonMobil (Figure 2-6).

Each of these pipelines would have remotely operated mainline block valves at the beginning and end (i.e., including at the connections to the tank farm sites). Each valve would be monitored and controlled from the Marine Terminal Control Building.

36-Inch Existing Pipeline. The existing 36-inch pipeline would be used to transport crude oil transferred from Tank Farm Site 2 through Pipeline Segment 2a to the ExxonMobil Southwest Terminal (approximately 2,200 linear feet [671 m]), and through Pipeline Segment 2b to Pipeline Segment 3 (approximately 3,900 linear feet [1,189 m]). Table 2-6 summarizes key characteristics of this pipeline.

Proposed Pipeline Segments 3, 4, and 5. These proposed pipelines would connect the existing 36" pipeline described above to the Ultramar/Valero Refinery and to other pipeline connections. The proposed 36-inch pipeline (Segment 3; Figure 2-7) would proceed north about 3,500 feet (1,067 m) ~~2,800 ft (853 m)~~ to Alameda Street and then northeast another 7,700 feet (2,347 m) ~~11,200 ft (3,412 m)~~ roughly along Alameda Street to Site A. Table 2-7 shows key characteristics of all three segments.

From Site A, a new proposed 24-inch pipeline (Segment 4; Figure 2-8 and Figure 2-9) would connect to the Ultramar/Valero Refinery with an approximate length of 6,420 linear feet (1,957 m). This pipeline route would traverse north to a bored crossing of the railroad tracks, turn east to a cut or bored crossing of Henry Ford Avenue, near the Air Products facility's southern driveway, then leave LAHD property. It would continue northeast in the Air Products driveway and plant area, then turn east to connect to a pipe tunnel under the railroad tracks, and run along a trestle over the Dominguez Channel.

On the east side of the channel the pipeline would enter the Ultramar/Valero Refinery and connect to other pipeline systems nearby.

Also from Site A, a new proposed 16-inch pipeline (Segment 5; Figure 2-8) would extend about 990 linear feet (302 m) ~~1,000 ft (303 m)~~ north to an existing Plains All American pipeline located in Henry Ford Avenue near the corner of Alameda and Henry Ford Avenue. This existing pipeline extends north to the ConocoPhillips refinery in Carson.

Table 2-7. Proposed Pipeline Segments 3, 4, and 5

Component	*Proposed Pipeline Segment 3*	*Proposed Pipeline Segment 4*	*Proposed Pipeline Segment 5*
Route	From Existing 36" pipeline on Mormon Island to Site A	Connect proposed Pipeline Segment 3 at Site A to Ultramar/Valero Refinery and other Plains All American Pipeline pipelines and other customer pipelines located east of the Terminal Island Freeway.	From Site A to Existing 16-inch Plains Pipeline
Inside Diameter	36 inches	24 inches	16 inches
Approximate Length	11,200 linear feet (3,414 m)~~14,000 ft~~	6,420 linear feet (1,957 m)~~7,200 ft~~	990 linear feet (302 m)~~1,000 ft~~
Length on LAHD property	11,200 linear feet (3,414 m)~~14,000 ft~~	1,000 linear feet (305 m)~~320 ft~~	990 linear feet (302 m)~~970 ft~~
Nominal Flow Rate[1]	45,000 bbl/hr	45,000 bbl/hr	20,000 bbl/hr
Buried	Yes	Yes, except at Dominguez Channel Crossing	Yes
Approximate Depth	4 to 170 feet	4 feet	4 feet
Main Construction Method	Primary: HDD Alternative: Slick bore or open cut	Open cut	Open cut
Method for Street Crossings	Primary: HDD Alternative: slick bore or open cut	Primary: slick bore Alternative: directional drill or open cut	Primary: slick bore Alternative: directional drill or open cut
Method for Railroad Crossings	Primary: HDD Alternative: Slick bore	Primary: slick bore Alternative: HDD	Primary: slick bore Alternative: HDD
Method for Water Crossings	N/A	Installation on existing trestle (owned by Valero)	N/A
External Coating	Yes	Yes	Yes
Cathodic Protection	Yes	Yes	Yes
Number Mainline Valves	Two	Two	Two
Pipeline Pigging Facilities	One 36" Pipeline Pig Receiver at Site A	One Pipeline Pig launcher and one Pipeline Pig Receiver~~Two pigging facilities (origin and terminus)~~	One Pig Launcher/Receiver at Site A (tie-in to Pipeline Segment 3)
Pipeline Leak Detection System	Yes	One meter, instrumentation, computer hardware and software	Included with other systems

As discussed in Section 2.2.3.3, Site A could be unavailable at the time of proposed Project construction, as some of the site is included for potential development as an alternative in the Schuyler Heim Bridge Replacement and SR-47 Expressway Project (CalTrans, 2007). Should Site A be unavailable, the new pigging station would be sited at an alternative location, called Site B (shown on Figure 2-10). In this option, Pipeline Segment 3 would run approximately 12,350 feet (3,764 m) ~~8,850 feet~~ from Berth 174 to Site B. Site B would be used as a transition point for connecting to the ConocoPhillips Carson Refinery (via Pipeline Segment 5) and the Ultramar/Valero Refinery (via Pipeline Segment 4). Pipeline Segment 5 would run approximately 230 linear feet (70 m) from Site B to the existing 16-inch diameter Plains pipeline that extends to the ConocoPhillips Carson Refinery. Pipeline Segment 4 would run 6,555 feet (1,998 m) in total. It would leave Site B and run south along Henry Ford Avenue and turn then turn east to connect to a pipe tunnel under the railroad tracks, and run along a trestle over the Dominguez Channel. On the east side of the channel the pipeline would enter the Ultramar/Valero Refinery and connect to other Plains pipeline systems nearby.

All pipelines would be installed belowground, with the exception of the water crossings at the Pier 400 causeway bridge, at the Valero pipe bridge that crosses the Dominguez Channel west of the Ultramar/Valero Refinery, and within parts of the Marine Terminal and Tank Farm Sites. The design specifications of the pipelines, piping, and related facilities are presented in Appendix E.

2.5 Alternatives

2.5.2 Alternatives Evaluated in this ~~Draft~~ SEIS/SEIR

2.5.2.2 Reduced Project Alternative

As described in Section 1.5.7, CEQA and NEPA require the lead agency to analyze a reasonable range of alternatives to the proposed Project that would avoid or lessen the environmental impacts while still attaining most of the objectives of the proposed project. One potential means for achieving that goal is to define an alternative that is smaller than the proposed Project, which can reduce impacts by having a smaller footprint or lower activity levels than the proposed Project. In the case of a crude oil terminal at Pier 400, building a facility with smaller footprint would not reduce impacts to any significant degree as there is a minimum size of berth and number of tanks necessary to support the importation of large quantities of crude oil. Accordingly, this document examines an alternative with a reduced activity level, defined as a lower throughput of crude oil.

The Reduced Project Alternative would be identical to the proposed Project in terms of the design, construction, and operation of the Marine Terminal, Tank Farm Sites 1 and 2, Pipeline Segments 1, 2a, 2b, 2c, 3, 4, and 5, and the new pigging station site (either Site A or, if Site A is unavailable, the alternate Site B). However, this alternative involves a lease condition imposed by LAHD that would cap permitted throughput of crude oil received at Berth 408. The lease would allow PLAMT to receive up to 127.75 million bbl in 2010 (average of 350,000 bpd) and up to 164.25 million bbl in 2015 through 2040 (average of 450,000 bpd). For intermediate years (2011-2014), the lease stipulation would allow an amount of throughput based on linear interpolation between the benchmark years.

Although the Reduced Project Alternative would entail a lower throughput volume than the proposed Project, the same amount of new tank storage is needed for several reasons. First is the size of the ships: Berth 408 in the Reduced Project Alternative would still accommodate VLCCs that can carry up to 2.3 million bbl of oil. Second, the variance in vessel arrival times would be similar to the proposed Project; vessels would arrive from a variety of producing regions, and uncertainty in transit time would require a certain amount of storage capacity. Third, the variety of types of crude oil that are being offloaded would be the same as in the proposed Project, again necessitating a number of different storage tanks in order to accommodate different crude types. Finally, just as for the proposed Project, the applicant would need the flexibility of multiple tanks for the same type of crude, even when tank capacities are not fully utilized, in order to track ownership by volume and maintain accurate crude oil custody records for its various customers.

Table 2-12 shows the throughput that would be allowed under the Reduced Project Alternative in various years and other key operating characteristics.

Table 2-12. Reduced Project Alternative Throughput Comparison

Element	*Baseline (2004)*	*Reduced Project Alternative (2010)*	*Reduced Project Alternative (2015)*	*Reduced Project Alternative (2025)*	*Reduced Project Alternative (2040)*
Marine Terminal Acreage	0	5.0 acres (2.0 ha)	5.0 acres (2.0 ha)	5.0 acres (2.0 ha)	5.0 acres (2.0 ha)
Total Tank Farm Acreage	0	48.8 acres (19.7 ha) ~~47.7 acres (19.3 ha)~~	48.8 acres (19.7 ha) ~~47.7 acres (19.3 ha)~~	48.8 acres (19.7 ha) ~~47.7 acres (19.3 ha)~~	48.8 acres (19.7 ha) ~~47.7 acres (19.3 ha)~~
New Pig Launching Facility (Site A)	0	1.2 acres (0.5 ha)	1.2 acres (0.5 ha)	1.2 acres (0.5 ha)	1.2 acres (0.5 ha)
Alternate Pig Launching Facility (Site B)	0	0.61 acres (0.25 ha)	0.61 acres (0.25 ha)	0.61 acres (0.25 ha)	0.61 acres (0.25 ha)
Total Project Acreage (depending on location of pig launching facility)	0	55.5 - 56.1 acres (22.5 - 22.7 ha)	55.5 - 56.1 acres (22.5 - 22.7 ha)	55.5 - 56.1 acres (22.5 - 22.7 ha)	55.5 - 56.1 acres (22.5 - 22.7 ha)
Tanker Calls at Berth 408	0	129 per year[1]	132 per year[1]	132 per year[1]	132 per year[1]
Average Crude Oil Throughput at Berth 408	0	350,000 bpd	450,000 bpd	450,000 bpd	450,000 bpd
Barge Calls at Berth 408	0	6	8	8	8
Crude Oil Storage Tanks	0	16	16	16	16
Crude Oil Tank Capacity	0	4.0 million bbl	4.0 million bbl	4.0 million bbl	4.0 million bbl
Employees	0	523 peak [2]	48 [3]	60 [3]	61 [3]

Table 2-12. Reduced Project Alternative Throughput Comparison (continued)

Element	*Baseline (2004)*	*Reduced Project Alternative (2010)*	*Reduced Project Alternative (2015)*	*Reduced Project Alternative (2025)*	*Reduced Project Alternative (2040)*
New Tanker Calls at Existing Terminals in the San Pedro Bay Ports	0	0	0	209 per year[4]	240 per year[4]
Average New Crude Oil Throughput at Existing Terminals in the San Pedro Bay Ports	0	0	0	198,000 bpd	227,000 bpd

Notes:

bpd = barrels per day

bbl = barrels

1. The number of tanker calls at Berth 408 depends on crude oil supply sources and vessel availability; the estimate shown here is based upon projections of the world tanker fleet and terminal throughput from Baker & O'Brien (2007), and is the highest reasonably foreseeable number of tanker calls under the Reduced Project Alternative. See Appendix D1 for detailed calculations used to derive the estimate. These highest reasonably foreseeable numbers for the Reduced Project Alternative are assumed in the impact analysis in this SEIS/SEIR in order to capture all potential impacts of the Reduced Project Alternative. A higher proportion of large vessels carrying larger loads would mean fewer vessel calls per year. Note that an emissions cap would be imposed in the South Coast Air Quality Management District (SCAQMD) operating permit, as described in Section 3.2 Air Quality. The actual number of tanker calls per year would be limited to comply with the SCAQMD permit condition; however, this SEIS/SEIR does not incorporate this limitation (in order to capture all potential impacts of the Reduced Project Alternative).
2. The peak number shown represents peak employment during the construction phase (taking into account that operations would start in 2010 while construction is ongoing); see Section 2.4.3.1 for details. This peak level would occur for only a brief time period, if at all, but is the highest reasonably foreseeable number.
3. The number of employees during operation includes those employed or contracted by PLAMT as well as the estimated increase in tugboat and Port pilot crews due to increased vessel calls (including increased vessel calls at existing berths in the San Pedro Bay Ports). Employment is higher in later years because of higher number of vessel calls to the existing berths, which results in more tugboat and Port pilot crews, as well as the need for increased inspections and maintenance of the Reduced Project Alternative sites that starts five to ten years after the start of operations.
4. The number of tanker calls at existing terminals is an estimate based upon projections of the world tanker fleet and excess capacity at other existing terminals. See Appendix D1 for detailed calculations used to derive the estimate.

For analysis purposes, the number of vessel calls is based on prorating the number of vessel calls according to the reduced throughput that would be allowed by the lease (Table 2-13). As with the proposed Project, the actual number of vessel calls (as well as throughput) at Berth 408 could be lower than that used in the analysis.

Table 2-13. Vessel Mix and Terminal Throughput Under the Reduced Project Alternative

Vessel Type	*2010*	*2015*	*2025*	*2040*
VESSEL CALLS AND THROUGHPUT AT BERTH 408				
Panamax (350,000 bbl)	26	10	10	10
Aframax (700,000 bbl)	32	24	24	24
Suezmax (1,000,000 bbl)	45	52	52	52
VLCC (2,000,000 bbl)	26	46	46	46
Total tanker vessel calls	129	132	132	132
Total barge calls	6	8	8	8
Total crude oil throughput (bpd)	350,000	450,000	450,000	450,000

Table 2-13. Vessel Mix and Terminal Throughput Under the Reduced Project Alternative (continued)

Vessel Type	*2010*	*2015*	*2025*	*2040*
VESSEL CALLS AND THROUGHPUT AT EXISTING BERTHS IN THE SAN PEDRO BAY PORTS				
Panamax (light loaded – 300,000 bbl) to LAHD Berths 238-240	0	0	114	131
Aframax (light loaded – 400,000 bbl) to Port of Long Beach Berths 76-78	0	0	27	31
Aframax (light loaded – 400,000 bbl) to Port of Long Beach Berths 84-87	0	0	68	78
Total vessel calls	0	0	209	240
Total throughput (bpd)	0	0	198,000	227,000

Notes:

bpd = barrels per day

bbl = barrels

The number of tanker calls depends on crude oil supply sources and vessel availability; the estimate shown here is based upon projections of the world tanker fleet and terminal throughput from Baker & O'Brien (2007), and is the highest reasonably foreseeable number of tanker calls under the Reduced Project Alternative. See Appendix D1 for detailed calculations used to derive the estimate. These highest reasonably foreseeable numbers are assumed in the impact analysis in this SEIS/SEIR in order to capture all potential impacts of the proposed Project. A higher proportion of large vessels carrying larger loads would mean fewer vessel calls per year. Note that an emissions cap would be imposed in the South Coast Air Quality Management District (SCAQMD) operating permit, as described in Section 3.2 Air Quality. The actual number of tanker calls per year would be limited to comply with the SCAQMD permit condition as well as the lease stipulation imposed as a condition of the Reduced Project Alternative. (Note that this SEIS/SEIR does not incorporate the limitation imposed by the SCAQMD permit condition, so as to capture all potential impacts of the Reduced Project Alternative).

For analysis purposes, the Reduced Project Alternative also includes receipt of petroleum crude at other existing berths in the San Pedro Bay Ports with existing capacity. This assumption allows an analysis consistent with that of the proposed Project, which assumes that crude oil demand in the Los Angeles Basin will exceed the 450,000 bpd that would be permitted at Berth 408 under the lease cap associated with the Reduced Project Alternative. Since the analysis of the proposed Project assumes demand of 677,000 bpd in 2040, and the Port has no authority within the scope of this project to prohibit the import of crude oil through other berths in the San Pedro Bay Ports, it is reasonable to assume that demand in excess of 450,000 bpd in 2040 would arrive at other existing terminals to the extent those terminals have remaining capacity. In the intermediate years prior to 2040, the amount of crude oil assumed to be received at other existing terminals is estimated as the difference between the demand forecast from Baker & O'Brien (2007), incremental over 2004, and the permitted amount of throughput at Berth 408. For instance, in 2025 Baker & O'Brien (2007) predicts demand of 648,000 bpd, but the lease cap would permit only 450,000 bpd at Berth 408; the difference, 198,000 bpd, is assumed to arrive at existing terminals. In addition to the throughput that would be allowed at Berth 408, Table 2-13 shows the amounts that are assumed to arrive at other existing terminals in 2010, 2015, 2025, and 2040. Appendix D1 shows the throughput that would be allowed for each year between 2010 and 2040 at Berth 408 and at existing terminals, and describes in detail how those figures were arrived at.

Under the Reduced Project Alternative, operation of the currently existing marine terminals, tank farms, and pipelines at the San Pedro Bay Ports would be the same as under current conditions except that, as described above and summarized in Table 2-13, more vessels would arrive at some existing terminals in the future. Tanker operations would be similar to the procedures described in Section 1.1.4 and Section 2.4.4.1. However, none of the currently existing terminals, with the exception of Port of Long Beach Berth 121, currently uses the same emissions control technologies as the proposed Project. In addition, none of the existing terminals complies with the MOTEMS. Note that the CSLC has characterized LAHD Berths 238-240, in particular among the currently existing crude oil berths at the San Pedro Bay Ports, as having components that do not meet current design standards or are aging and potentially deficient (CSLC 2007).

It is reasonably foreseeable that the currently existing terminals would eventually comply with the MOTEMS, that the LAHD and the Port of Long Beach would renew the operating leases for existing marine terminals, and that existing terminals would comply with CAAP measures as of the time of lease renewal (i.e., 2008 for Port of Long Beach Berths 84-87, 2015 for LAHD Berths 238-240, and 2023 for Port of Long Beach Berths 76-78). With respect to CAAP, the implementation of AMP at the currently existing berths would require construction similar to that described in Section 2.4.2.1 for the proposed Project. For MOTEMS, landside and in-water construction would likely be required to comply with seismic and safety standards. In both cases, the environmental impacts of this construction would vary based on the conditions at each existing terminal at the time that improvements are made. (However, note that of all the existing crude oil terminals at the San Pedro Bay Ports, only Port of Long Beach Berth 121 (and, if built, Berth 408) is required by SCAQMD to purchase ERCs as described in Section 2.4.4.5; other terminals are grandfathered until they require a Permit To Construct.)

Because the site-specific physical and design parameters of implementing the various CAAP and MOTEMS measures, including type, location, extent, and design of any improvements, is not known at this time, a detailed analysis of the construction impacts at existing terminals would be speculative and has not been conducted in this document. In addition, the projected increases in throughput for currently existing terminals under the Reduced Project Alternative are based on the current maximum physical and operational capacities of the respective existing marine terminals and associated infrastructure.

2.6 Project Baselines

2.7 Relationship to Existing Statutes, Plans, Policies, and Other Regulatory Requirements

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