3.0 ALTERNATIVES AND CUMULATIVE PROJECTS

The California Environmental Quality Act (CEQA) requires the California State Lands Commission (CSLC), as the CEQA Lead Agency, to analyze (1) alternatives to a proposed project that could feasibly achieve the objectives of the project while substantially reducing significant environmental effects and (2) cumulative impacts. This section describes the alternatives considered for the Amorco Marine Oil Terminal Lease Consideration Project (Project) and evaluates their environmental impacts in comparison to those from the proposed Project. The section concludes with an analysis of potential cumulative impacts, or "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental effects" (State CEQA Guidelines § 15355).

3.1 SELECTION OF ALTERNATIVES

3.1.1 Alternatives and Screening Development

An important aspect of the environmental review process is the identification and assessment of reasonable alternatives that have the potential to avoid or reduce the significant impacts of a proposed project to allow for a comparative analysis for consideration by decision-makers. The State CEQA Guidelines provide the following guidance for evaluating alternatives in Environmental Impact Reports (EIRs).

An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. An EIR is not required to consider alternatives which are infeasible. (§ 15126.6, subd. (a).)

- The discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. (§ 15126.6, subd. (b).)
- In selecting a range of potential reasonable alternatives to the proposed project, the Lead Agency shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. Among the factors that a Lead Agency may use to eliminate alternatives from detailed consideration are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts. (§ 15126.6, subd. (c).)
- The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. If an alternative would cause one or more significant effects in addition to those that

would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed. (§ 15126.6, subd. (d).)

CEQA also requires an EIR to evaluate a "no project" alternative. The purpose of describing and analyzing a no project alternative is to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the project. The analysis of the no project alternative must discuss the existing conditions at the time the Notice of Preparation is published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved.

3.1.2 Alternatives Screening Method

Alternatives to the proposed Project were selected based on input from the EIR study team, the Applicant (Tesoro Refining and Marketing Company LLC [Tesoro]), and the public and local and State jurisdictions during scoping and agency consultations. The alternatives screening process consisted of three steps:

Step 1: Define the alternatives to allow comparative evaluation.

Step 2: Evaluate each alternative in in the context of the following criteria:

- the extent to which the alternative would accomplish most of the basic goals and objectives of the Project;
- the extent to which the alternative would avoid or lessen one or more of the identified significant environmental effects of the Project;
- the potential feasibility of the alternative, taking into account site suitability, economic viability, availability of infrastructure, general plan consistency, and consistency with other applicable plans and regulatory limitations; and
- the requirement of the State CEQA Guidelines to consider a "no project" alternative and to identify, under specific criteria, an "environmentally superior" alternative in addition to the "no project" alternative. (State CEQA Guidelines § 15126.6, subd. (e).)

Step 3: Determine suitability of the proposed alternative for full analysis in the EIR. If the alternative is unsuitable, eliminate it, with appropriate justification, from further consideration. Feasible alternatives that did not clearly offer the potential to reduce significant environmental impacts and infeasible alternatives were removed from further analysis. In the final phase of the screening analysis, the environmental advantages and disadvantages of the remaining alternatives were carefully weighed with respect to potential for overall environmental advantage, technical feasibility, and consistency with the Project and public objectives.

If an alternative clearly does not provide any environmental advantages as compared to the proposed Project, it is eliminated from further consideration. At the screening stage, it is not possible to evaluate potential impacts of the alternatives or the proposed Project with absolute certainty. However, it is possible to identify elements of the proposed Project that are likely to be the sources of impact. A preliminary assessment of potential significant effects of the proposed Project resulted in identification of the following environmental resource areas for which potential Project-related impacts may occur:

- Operational Safety/Risk of Accidents
- Biological Resources
- Water Quality
- Air Quality
- Greenhouse Gas Emissions
- Geology, Sediments, and Seismicity
- Cultural Resources
- Land Use/Recreation (oil spill impacts)
- Noise
- Land-based Transportation
- Visual Resources, Light and Glare
- Commercial and Sport Fisheries
- Integrity of Amorco Terminal
- Environmental Justice

For the screening analysis, the technical and regulatory feasibility of various potential alternatives was assessed at a general level. Specific feasibility analyses are not needed for this purpose. The assessment of feasibility was directed toward reverse reason, that is, an attempt was made to identify anything about the alternative that would be infeasible on technical or regulatory grounds. CEQA does not require elimination of a potential alternative based on cost of construction and operation/maintenance. For the proposed Project, those issues relate to:

- engineering feasibility and feasibility of implementation;
- reasonableness when compared to other alternatives under consideration; and
- adequacy of the alternative to meet the Project's purpose and need.

Those alternatives that were found to be technically feasible and consistent with the Applicant's objectives were reviewed to determine if the alternative had the potential to reduce the environmental impacts of the proposed Project.

Table 3-1 summarizes the evaluation and selection of potential alternatives to be addressed in this EIR. Those listed in the first column have been eliminated from further consideration (see rationale in Section 3.2, Alternatives Eliminated from Full Consideration), and those in the second column are described in Section 3.3, Alternatives Evaluated in this EIR, and evaluated in detail in Section 4.0, Environmental Impact Analysis.

Table 3-1: Summary of Alternative Screening Results

Alternatives Eliminated from Consideration	Alternatives Evaluated in this EIR
• Consolidation Terminal • Deep-water Port Consolidation • Limitations of Terminal for Emergency Product Transfer Use Only • Alternative Lease Term with Phase Out • Trucking-Only Alternative	• No Project • Restricted Lease taking Amorco Out of Service for Oil Transport

This EIR alternatives analysis includes alternatives that potentially would result in greater environmental impacts to some issue areas, or would transfer a similar level of environmental impacts to other existing marine terminal facilities, as compared with the proposed Project. These alternatives are included for analysis to demonstrate that, regardless of lease renewal, similar levels of impacts may occur in meeting the refining needs of the San Francisco Bay Area (Bay Area) region by increased activities at other Bay Area marine oil terminals and associated refineries.

3.2 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FULL CONSIDERATION

3.2.1 Consolidation Terminal

A potential alternative to the proposed future use of the Amorco Terminal is a consolidated marine oil terminal where petroleum and product are offloaded and onloaded at a central facility and delivered to and from refineries, storage terminals, and other facilities in the Carquinez Strait and east Bay Area via smaller marine vessels or pipelines. The Draft EIR/Environmental Impact Statement (EIS) for the San Francisco to Stockton Phase III (John F. Baldwin) Navigation Channel Project (USACE 1997) presented the Richmond Marine-Link Pipeline System (RMLPS) as an alternative to channel deepening and continued dredging within San Pablo Bay and Carquinez Strait. This RMLPS proposal was withdrawn by its proponent, Wickland Pipelines LLC, in February 1999, due to a lack of potential user participation.

The RMLPS was proposed as a consolidated facility. The pipeline systems associated with the RMLPS were intended to provide flexibility in the areas of cargo handling and transportation cost control, reduce vessel-to-vessel lightering of crude oil at Anchorage 9, and reduce tanker traffic in the greater San Francisco Bay and Carquinez Strait. This would have been possible because the pipeline system would have allowed tankers of up to 300,000 dead weight, long tons to proceed at high tide (when ships drafting 48 to 49 feet can pass through the 45-foot-deep channel to Richmond) to the new RMLPS marine terminal and off-load in the natural 53- to 55-foot depths of the berth at a new deep-water wharf.

The west end of the RMLPS pipeline would have commenced within the Richmond city limits at a new deep-water wharf to be constructed at Point Molate, north of the Chevron Richmond Long Wharf. The pipeline would have connected to a new tank farm on the San Pablo peninsula, either at Point San Pablo or Point Orient, and continued along the shorelines of San Pablo Bay and Carquinez Strait, terminating in Pittsburg at the existing Pacific Gas and Electric Company power plant.

As compared to use of other existing Bay Area marine oil terminals for replacement of the Amorco Terminal, the RMLPS consolidated terminal, as a new facility, would have generated a greater number of environmental impacts in the Point Molate area. In comparison with the alternatives, potential impacts would be transferred from Amorco to that new location. Also, with both the RMLPS and Long Wharf operating in proximity to each other, consideration would need to have been given to the potential for increased risk of vessel collisions. Because the RMLPS is no longer a viable option for a new Bay Area terminal, and because there is a potential for a greater risk of significant environmental impacts, the RMLPS consolidated terminal has been eliminated from further consideration as a viable alternative.

3.2.2 Deep-water Port Consolidation

The concept of an offshore port located outside of San Francisco Bay was also considered. This would involve development of a port several miles off the California coastline to minimize the potential for spills that would impact San Francisco Bay shorelines, and to reduce the number of tankers entering United States ports and related risks of environmental damage. One such offshore terminal, the Louisiana Offshore Oil Port, operates in deep water 18 miles offshore. This facility became operational in 1982 (U.S. Department of Interior 1990). The port consists of three single-point mooring buoys used for the offloading of crude tankers and a marine terminal consisting of a two-level pumping platform and a three-level control platform.

While such concepts appear to have potential to reduce near-shore tanker accidents, significant questions remain unanswered as to the environmental and economic benefits of these facilities off the coast of California. As such, this concept was eliminated from further analysis as an alternative in this EIR.

3.2.3 Limitations of Amorco Terminal for Emergency Product Transfer Use Only

For consideration of emergency use only, the Amorco Terminal would not be used for day-to-day operations, but would be retained in a state of readiness with all equipment operational. Under emergency conditions, use of the Amorco Terminal would be restricted for use by any tanker or barge that would require unloading of its contents. While reduced use of the Amorco Terminal would decrease the risk of spills, it would not necessarily cause a proportionate decrease in vessel calls or throughput. The Amorco Terminal would still present a continuous potential for a pipeline spill release. In addition, the method used to replace the throughput (pipelines with connections to other terminals) could shift the risk to other terminals. It would also be difficult to maintain the existing level of training and experience of personnel now working at the Amorco Terminal, as well as raise questions as to who would maintain and operate such a facility. It is unlikely that the Amorco Terminal would be able to operate efficiently or economically, nor would there be any environmental benefit gained by limiting usage only to emergency oil transfer use; therefore, this alternative has been eliminated from further consideration as a viable alternative.

3.2.4 Alternative Lease Term with Phase Out

An alternative lease option would involve granting a shorter-term lease to Tesoro, in the event that Tesoro would phase out its operation of the Amorco Terminal. The alternatives considered in this document are designed to focus on avoiding or substantially lessening significant effects of the Project, but to still meet Project objectives that allow the Golden Eagle Refinery (Refinery) to continue to operate. With a phase-out of operations of the Amorco Terminal, Tesoro would be required to find another means of receiving crude to maintain Refinery operations. This is similar to the No Project Alternative, except that Tesoro would be granted a specific phase-out period and conditions under lease, rather than having no lease (as with the No Project Alternative). The terms under which the CSLC would implement a phase-out of operations would need to be specifically developed for this facility; as such, discussion of a short-term lease is not considered further in this document.

3.2.5 Trucking-only Alternative

This alternative would involve using only trucks to import product to the Refinery. A minimal number of trucks currently deliver materials to the Amorco Refinery. However, the additional number of trucks likely needed under this Alternative would require construction of additional roadways and roadway improvements for transfer of product to the Refinery. Amorco Terminal throughput has ranged from to 16.9 to 26.8 million barrels per year (bpy) (between 46,301 and 73,425 barrels per day [bpd]) over the past 5 years. Since the average truck carries approximately 200 barrels per tandem tanker truck, as many as 367 tandem tanker trucks per day or approximately 134,000 trucks per year would be required to make up the difference in product for the Refinery without the Amorco Terminal. The installation of additional access gates and parking capacity to allow appropriate entering and exiting of the facility would be required. In addition, pumps and piping to transfer the contents of trucks would be needed. Due to the number of truck trips, this alternative is not economically practical, would exceed the capacity of the local roadway systems, have significant air quality impacts, and create a significant safety risk. As a result, this alternative was eliminated from further consideration.

3.3 ALTERNATIVES EVALUATED IN THIS EIR

3.3.1 No Project

Under the No Project Alternative, Tesoro's Amorco Terminal lease would not be renewed and the existing Amorco Terminal would be subsequently decommissioned with its components abandoned in place, removed, or a combination thereof. The decommissioning of the Amorco Terminal would be governed by an Abandonment and Restoration Plan, and an Abandonment Agreement, both of which would require CSLC review and approval. Decommissioning of the Amorco Terminal would include, but not be limited to, the following actions:

- magnetic survey of seafloor, multi-beam survey and/or side-scan sonar;
- abandon and/or remove all Amorco Terminal components above and below the seafloor, including pipelines;
- site Clean-up Verification using such means as side-scan sonar, remotely operated vehicles and video, and;
- completion of a Phase 1 Site Assessment (and more detailed assessment if needed). Based on the results, a Site Closure Plan would be prepared for approval by appropriate agencies.

Under the No Project Alternative, Tesoro might pursue transitioning the Avon Marine Oil Terminal (currently an export-only terminal) to absorb import operations from the Amorco Terminal, thereby increasing the throughput at the Avon Marine Oil Terminal to the Refinery to meet regional refining demands. Tesoro's Avon Marine Oil Terminal would only be capable of operating as both an import and export facility if the wharf was substantially upgraded and expanded to meet the current combined throughput capacities for both terminals. An additional CEQA evaluation would be required to analyze the impacts from expanding import/export operations at the Avon Terminal to accommodate Amorco Terminal's importing capacity.

In addition, Tesoro may consider alternative means of traditional crude oil transportation such as a pipeline and/or rail transportation to absorb import operations from the Amorco Terminal. Sources may include land-based transportation such as rail cars and trucks, and/or pipeline connections to other Bay Area terminals, or a combination thereof. Pipeline delivery may require construction of new pipelines and/or the purchase of existing pipeline capacity from other local petroleum refinery competitors. While the CSLC may have no jurisdiction over any of these land-based forms of transportation (except for pipeline or road- and railway construction underneath and/or across waterbodies under CSLC jurisdiction), construction and operation of facilities would be subject to substantial environmental review and permitting by other local and state agencies.

Land-based alternatives to the use of marine tankers at the Amorco Terminal include pipelines, railcars and trucks. There are two rail lines into the Refinery, which are currently used for shipment via railcar. If developed as part of the No Project Alternative, rail lines and associated handling facilities would require additional construction. As shown in Table 2-2 in Section 2.0, Project Description, the Amorco Terminal throughput has ranged from to 16.9 to 26.8 million bpy (between 46,301 and 73,425 bpd) over the past 5 years. Since the average railcar holds approximately 700 barrels, up to approximately 105 rail cars per day would be required to make up the difference without the Amorco Terminal (assuming no other non-marine sources were used in combination with rail transportation). Additional pumps and piping to transfer the contents of these railcars would also need to be installed. Note that the required number of railcars would need to be adjusted dynamically as Refinery throughput varies. This alternative would entail construction of additional rail and rail handling facilities at the Refinery associated with regional demand increases. Additional labor effort and logistics would likely be required for the unloading of fuel from individual railcars; as such, Tesoro would likely use rail transportation in combination with truck and pipeline delivery to meet existing regional refining demands.

The Refinery can also currently ship refined (lighter) products, such as gasoline components or intermediates, via pipeline to the Plains All America Martinez Terminal (Plains Terminal). There may be some ability to increase storage capacity at the Plains Terminal for eventual transfer of product to the Refinery. Currently, the Plains Terminal Pipeline can transfer a maximum of 10,000 barrels per hour (bph) (240,000 bpd) of light crude oil products. If used for heavier, more viscous, crude oil products (as would be needed for the No Project Alternative), capacity would need to be reduced. In addition, Tesoro currently uses a nearby Kinder Morgan Pipeline in which it leases capacity for transfers from other Bay Area refineries. As a partial solution, if the Amorco Terminal was decommissioned, the Refinery may be able to increase use of this pipeline, expand existing storage capacity at other refineries, or increase pipeline capacity.[1] Currently, the maximum transfer capacities of the Kinder Morgan Pipeline on the north and south ends of the Amorco Terminal are 4,000 bph (96,000 bpd) and 5,000 bph (120,000 bpd), respectively. However, again, these lines are currently used for transferring lighter crude oil products and would likely require a reduction in capacity to pump and transfer heavier crude oils to the Refinery. Pipeline transfer rates would have to meet a capacity of 3,750 bph (90,000 bpd) to meet existing regional refining demands.

[1] According to Tesoro Refining and Marketing Company LLC, there are currently no known domestic or international crude oil sources that are currently accessible by pipeline for Tesoro's Refinery. This premises that replacement of regional demand from land-based sources via pipeline would still require the use of waterborne crude oils, but would be transported to the Refinery via pipeline from other marine oil terminals. Therefore, the No Project Alternative assumes that impacts associated with the transport of oil would be removed from the local setting, but may not be removed from the regional setting.

Construction of new or modified pipelines and additional storage tanks would be required to meet regional refining demands for the Refinery by pipeline delivery. Pipelines capable of handling this capacity may be viable from an environmental perspective. However, prior to construction and use of any new pipelines, lengthy and complex regulatory processes, land availability evaluations, and acquisition of easements or rights-of-way would be required. In general, any modifications to other Bay Area marine oil terminals would require substantial environmental review and local permitting. Since specific modifications are assumed on a general basis, brief analyses are presented in Section 4.0 of this EIR.

For the purposes of this EIR, it is assumed that the No Project Alternative would result in a decommissioning schedule for the Amorco Terminal. The potential implementation of one or more future crude oil or product transportation alternatives to the Golden Eagle Refinery would be the subject of a subsequent application to other agencies having jurisdiction pertinent to the proposed alternative. Decommissioning, abandonment, and/or deconstruction of the Amorco Terminal or any other proposed reuse of the Amorco Terminal would require a separate CEQA review by the CSLC. Since details associated with decommissioning, abandonment, and/or deconstruction would need to be developed if they were to occur, for the purposes of this EIR, impacts are discussed herein only generally.

3.3.2 Restricted Lease Taking Amorco Terminal Out of Service for Oil Transport

Under this alternative, Tesoro's Amorco Terminal lease would be renewed with modification to restrict its allowed use such that the existing Terminal would be left in place, taken out of service and placed into caretaker status for any petroleum product transfer, and not decommissioned or demolished. No environmental impacts would be associated with these activities. Because the structure of the terminal would remain in place, Tesoro would retain the option to apply to bring it back into service for oil transport at some time in the future, should the need arise. Any future change in use of the Amorco Terminal would require a lease action and potential separate CEQA review by the CSLC. Alternative uses for the Amorco Terminal could include:

- use of the Amorco Terminal as a staging area for dredging operations, maintenance and upgrades to other terminals, or training exercises;
- the option for Tesoro to bring the Amorco Terminal back into service as a fully operational petroleum product transfer facility, or;
- sale of the Amorco Terminal to another entity for the above, or for other uses.

As with the No Project Alternative, Tesoro might absorb import operations from the Amorco Terminal by transitioning the Avon Marine Oil Terminal to import and export operations or consider alternative means of traditional crude oil transportation such as a pipeline and/or rail transportation, or use some combination of the these sources.

3.3.3 Environmentally Superior Alternative (Summary)

State CEQA Guidelines section 15126.6, subdivision (e)(2) states:

> *The "no project" analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives*." (Emphasis added.)

The EIR's Environmentally Superior Alternative is discussed in Section 5.0, Other Required CEQA Sections, after the analyses of potential significant environmental effects associated with the proposed Project have been addressed (see Sections 4.0 through 4.12).

3.4 CUMULATIVE RELATED PROJECTS

This discussion provides a listing and map identifying other related past, present, and future projects near the location of the proposed Project and alternatives. State CEQA Guidelines section 15355 requires that an EIR consider cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as identified in section 15065, subdivision (c). Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable. As defined in State CEQA Guidelines section 15355, a cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.

3.4.1 Boundary of Cumulative Projects Study Area

The study area for the proposed Project includes the San Francisco Bay to San Pablo Bay regions, Carquinez Strait, and the outer coast of California (see Section 1.0, Introduction). Because the geographical region that could be affected by the Project is the same, the cumulative projects study area coincides with the Project study area, and is comprised of the following components presented in Section 3.4.2:

- foreseeable projects in the general vicinity of the Amorco Terminal; and
- projects in or near the shipping lanes used by other carriers for transport of petroleum or other goods and materials within the Carquinez Strait, San Pablo Bay, and San Francisco Bay.

Most vessel traffic in the study area is not the responsibility of Tesoro. However, these vessels could have an accidental spill/release of oil in the San Francisco Bay, San Pablo Bay, or outer coast en route to the Amorco Terminal. A general overview of cumulative impacts is presented in Sections 4.1 through 4.10, including a description of the existing environment and impact analysis within each environmental discipline. A description of the regional characteristics of transport in the San Francisco Bay and San Pablo Bay regions and outer coast is presented in Section 3.4.3.

3.4.2 Description of Cumulative Impacts

Projects in Vicinity

<u>Shell Martinez Marine Oil Terminal (Shell Terminal)</u>

The Shell Terminal has operated at its current location offshore of the city of Martinez, Contra Costa County, since 1915. The Shell Terminal is a tanker and barge petroleum loading/unloading facility used to receive raw materials for the Shell Martinez Refinery and for exports of its refined products. In 2011, the CSLC, as CEQA lead agency, certified a Final EIR (State Clearinghouse [SCH] No. 2004072114) in conjunction with its approval of a new 30-year lease of approximately 20 acres of California sovereign land on which the Shell Terminal is located.

The Shell Terminal falls under the Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS), which and are codified in the California Code of Regulations, Title 24, Chapter 31F – Marine Oil Terminals (Cal. Code Regs., tit. 24, § 3101F et seq.). MOTEMS requires that all marine oil terminals be audited and inspected every 3 years to determine compliance with the most recent standards. As a result of the inspections and audits, deficiencies that require repair, rehabilitation or retrofit are identified and plans prepared, required permits are obtained, and corrections are implemented. Shell completed an initial audit in 2008 and a subsequent audit in 2011. As a result of these audits, several deficiencies were identified requiring repair, rehabilitation, or retrofit. Many of these deficiencies have been completed. Projects remaining to be addressed include an ongoing project to perform minor seismic upgrades to some pile-to-pile cap connections on the timber approach trestle and two long-term capital projects in the planning and design phase that involve a seismic upgrade of the loading platforms and an increase in fender systems at the main berths.

The Shell Terminal docking facility has four berths—Berths #1 and #2 located on the north side (channel side) and Berths #3 and #4 south side (inland side). The north side of the Shell Terminal normally maintains a minimum draft of 38 feet Mean Lower Low Water (MLLW), and has not been historically dredged. The southern berths are normally used for barges and are not currently in use due to the accumulation of silt. These berths were dredged to -20 feet MLLW in 1989 and Shell currently has no plans for dredging them.

Should dredging be required during the lease period, Shell would pursue the appropriate plans and permits.

Martinez Marina

The Martinez Marina and Yacht Club are located immediately west of the Amorco Terminal. The Martinez Marina has been in operation since the 1950s. In 1993, the city of Martinez adopted a Marina Master Plan that called for upgrades including: installation of a new boat launch ramp; deepening of existing water channels for boats; and installation of a new bait shop, additional boat storage, and a new waterfront restaurant. Marina progress to date includes: removal of the old ferry pier, construction of Ferry Point Plaza, installation of the new boat launch, initial dredging of the marina entrance, and removal of underground storage tanks. The next phase will include more dredging, break-water wall repair, and entrance reconfiguration. This is a multi-phase project that will take place over the next several years and is contingent upon the availability of public and private funding. In addition, the Yacht Club offers a variety of amenities and services to its members, including a store, kitchen, outdoor seating and barbeque area, showers, dance floor, bar, television and wireless internet media, and views of the Carquinez Strait.

San Francisco Bay to Stockton Phase III – John F. Baldwin Navigation Channel Project

This project involves the assessment of the feasibility of deepening a 65-mile-long, 35-foot-deep draft navigation channel, extending from the San Francisco Bay entrance to the Port of Stockton (through San Francisco, Marin, Contra Costa, Solano, Sacramento, and San Joaquin counties). In July 2002, the U.S. Army Corps of Engineers (USACE) and Port of Stockton executed a Pre-construction, Engineering and Design (PED) Agreement, initiating the first phase of the channel-deepening assessment, which focused on potential saltwater-intrusion issues and project economics. As a result of this first phase, the Port of Stockton and USACE found sufficient evidence to support the continuation of the study and the initiation of a General Reevaluation Report, and executed a revised PED Agreement in April 2004.

A Draft Supplemental EIS/Subsequent EIR for the Sacramento River Deepwater Shipping Channel, Contra Costa, Solano, and Yolo Counties, California, February 2011 (CEQ 20110055) was prepared by the USACE. The U.S. Environmental Protection Agency (USEPA) had some comments primarily related to the use and disposal of the generated dredge spoils from the project and water quality impacts. The Central Valley Regional Water Quality Control Board (RWQCB) has placed severe restrictions on all dredging activities occurring within the Delta; restrictions that, if unchanged, will make the project very difficult to construct, including required operations and maintenance on the existing channel.

San Francisco Water Emergency Transit Authority (WETA) Ferry Expansion (Antioch to San Francisco)

The WETA was established by Senate Bill (SB) 976 to replace the existing Water Transit Authority. SB 1093 was later passed to further detail the mandate of WETA. WETA is tasked to provide emergency response during times of disaster by providing improved infrastructure through the use of water-based response. WETA's main priorities were the creation of an Emergency Water Transportation System Management Plan for the Bay Area. Part of its focus is on developing a more comprehensive ferry system, which includes adding 7 new routes and up to 31 new ferries. One of the new routes will go between San Francisco, Martinez, and Antioch (refer to Figure 2-1 in Section 2.0, Project Description).

Plains All American (Plains) Martinez Marine Oil Terminal 20-year Lease

The Plains Martinez Marine Oil Terminal is a 225-acre site located at 2801 Waterfront Road in the city of Martinez near the south shore of the Carquinez Strait. Originally, Urich Oil leased the parcel location in 1973 and operations began in 1974. Since 1974 the lease has been amended several times as ownership has changed. Most recently, the terminal was acquired by Plains. In 2005, the CSLC, as CEQA lead agency, certified a Final EIR (SCH No. 2001042022) in conjunction with its approval of a new 20-year lease of approximately 5 acres of California sovereign land on which the Terminal is located. The Plains Terminal's upland property contains storage tanks, an inactive truck loading rack, inactive rail spur, pumps and associated pipelines, vapor collection and combustion systems, and an office building. The wharf is a single-vessel docking facility with associated pumps, pipelines, electrical utilities, and other mechanical equipment. Cargo pumps for vessel unloading are located in the upland portion of the facility, about 1 mile from the wharf (CSLC 2011a).

Tesoro Avon Marine Terminal

Tesoro is seeking approval for a new 30-year lease from the CSLC for its existing Avon Marine Oil Terminal operations located approximately 2 miles east of the Amorco Terminal (refer to Item 13 on Figure 2-1). In addition to seeking a new lease, Tesoro must conduct substantial maintenance work for the existing terminal to meet MOTEMS.

Military Ocean Terminal Concord (MOTCO)

MOTCO, which is located approximately 4.5 miles east of the Amorco Terminal (refer to Item 14 on Figure 2-1), was formerly a part of the Naval Weapons Station Seal Beach Detachment Concord. Prior to that, it was known as Concord Naval Weapons Station. MOTCO consists of an approximately 115-acre inland area and an approximately 6,526-acre tidal area, which includes 2,045 acres of offshore islands. The inland area is within the boundaries of the city of Concord and neighbors the unincorporated community of

Clyde. The tidal area is part of unincorporated Contra Costa County and adjacent to the city of Pittsburg and the unincorporated community of Bay Point. Five of MOTCO's seven offshore islands are located within Solano County. The inland and tidal areas are connected by a stretch of Port Chicago Highway. The tidal area contains approximately 5 miles of shoreline and facilities for reception, staging, and loading of ammunition; railroad and truck classification yards; and three ocean terminal piers. Its purpose is to allow the Department of Defense operations plan for the Pacific Rim.

MOTCO operates three ocean terminal piers and a U.S. Army-owned rail system that connects with two major public rail lines. The long-term vision for MOTCO is to transform the facility into a versatile, modern, and efficient seaport capable of receiving, staging, and onward-moving of ammunition and general cargo as necessary to meet Department of Defense requirements.

<u>San Francisco Bay and Delta Sand Mining Project</u>

In 2005, the CSLC, as CEQA lead agency, certified a Final EIR (SCH No. 2007072036) in conjunction with its renewal of existing 10-year sand-mining leases for construction-grade sands from three main areas, including the Central Bay Lease, located primarily west of Angel Island and Alcatraz Island; the Suisun Bay/Delta Lease, located north of Bay Point and extending east toward Antioch; and the Middle Ground Shoal Lease, located offshore of the former Concord Naval Weapons Station. Sands are mined using a trailing-arm hydraulic suction dredge and barge. Sands are then typically transported and offloaded at one of several sites located throughout San Francisco Bay, San Pablo Bay, and the Delta. A total of up to approximately 2 million cubic yards (Mcy) of sand are proposed to be mined each year.

Projects In or Near Bay Area Shipping Lanes

<u>Long-term Management Strategy (LTMS) Program</u>

The LTMS program is designed to provide a regional plan for the disposal of dredged material from the San Francisco Bay over the next 50 years. The LTMS program began in January 1990 as a federal/State partnership among the four agencies that have regulatory authority for dredged material in the San Francisco Bay: the USACE, USEPA, San Francisco Bay RWQCB, and San Francisco Bay Conservation and Development Commission. These four lead agencies share responsibility for managing the various components of the LTMS. The LTMS Final EIR/EIS indicates that approximately 6 Mcy of sediments must be dredged and disposed each year from shipping channels and related navigational facilities in the Bay Area. The estimated total volume of dredged material that would require disposal over the 50-year LTMS planning horizon is approximately 300 Mcy. The policy alternatives involve different volumes of dredged sediment being disposed at in-Bay, ocean, and upland/wetland reuse sites. Under current regulatory conditions, 80 percent or more of the dredged material would continue to be disposed at designated sites in the Bay, with only a small percentage of material disposed outside the estuary at the new offshore ocean site or used in “beneficial reuse” applications, such as wetlands restoration.

Delta Dredged Sediment LTMS Program

In late 2004, local sponsors of Delta dredging projects and the USACE met to explore the feasibility of developing an LTMS for dredging and dredged materials placement or reuse in the Delta. A similar process was used to successfully develop a collaborative, coordinated approach to dredging and sediment management in San Francisco Bay. In 2007 the USACE, California Bay-Delta Authority, USEPA, California Department of Water Resources (DWR), State Water Resources Control Board, Delta Protection Commission, and Central Valley RWQCB signed the charter to develop and implement a long-term plan.

The Delta is the source of California’s two largest water-distribution systems: The Central Valley Water Project, operated by the United States Bureau of Reclamation, and the State Water Project operated by the DWR. Maintaining high-quality water in the Delta is critical for drinking-water supplies, agricultural irrigation, and ecosystem function. The Sacramento and San Joaquin river channels also provide important shipping access to the ports of Sacramento and Stockton.

In recent years, conflicts about levee rehabilitation, dredging, and placement of dredged sediments have been increasing. There is an ongoing need to dredge Delta channels for navigation, water conveyance, flood control, and levee maintenance. At the same time, there are increasing regulatory concerns about the potential impacts to water quality and the ecosystem from levee work, dredging activities, and dredge materials placement and reuse. In the last several years, agencies, political leaders, and the public have become increasingly concerned about the urgent need for levee rehabilitation in the Delta. One possible contributor to Delta levee rehabilitation is sediment management and reuse from dredging activities. At the same time, the Delta environment is showing signs of major stress and dysfunction, as evidenced by the rapid decline of pelagic species in recent years. Concerns about the complex and sensitive environment in the Delta have resulted in stringent regulatory requirements for dredging and sediment reuse and placement in the Delta. These two apparently conflicting objectives, protection of the Delta environment and increased dredging and sediment reuse and placement, highlight the need for better coordination and management of Delta dredging and sediment management and reuse requirements.

Chevron Richmond Refinery Long Wharf Terminal

In 2007, the CSLC, as CEQA lead agency, certified a Final EIR (SCH No. 98112080) and approved a 30-year lease for the Chevron Richmond Long Wharf Marine Terminal (refer to Item 5 on Figure 2-1). The project was to maintain the current operation and viability of the Chevron Richmond Refinery by continuing current Chevron Richmond Long Wharf Marine Terminal operations through which the Chevron Richmond Refinery both receives its raw materials and exports its refined products. The Chevron Richmond Refinery uses the Richmond Long Wharf to receive all its crude oil, and some intermediate feed and blending stocks from across the Richmond Long Wharf. In addition, the Chevron Richmond Refinery uses the Richmond Long Wharf to ship products and intermediate stocks to domestic and foreign markets.

The Richmond Long Wharf was originally constructed in 1902 as a wooden structure supported on timber piles, but was modified in 1946 with the construction of a concrete wharf and causeway structure supported on deeper, concrete piles. Three buildings and a concrete-repaired Richmond Long Wharf were also built in 1946. In 1974, the Richmond Long Wharf was modified to accommodate larger vessels: Berth # 1 was expanded and Berth #4 was extensively modified. Over the years, improvements have continued. Recent improvements include a southern capstan platform added to Berth #4 in 1986, a breasting dolphin at Berth #3 in 1990, and a voice-communication system installed in 1991. In 2000, a major structural upgrade program was completed that will enable the structure to withstand a 475-year return period seismic event resulting in minor, repairable damage with no oil spills. In November 2004, the Richmond Long Wharf completed a comprehensive electrical infrastructure upgrade project.

<u>Mare Island Reuse Project (formerly Naval Shipyard Mare Island)</u>

Mare Island was the nation’s first naval shipyard on the West Coast, established in 1854 and ultimately closed in 1996. Mare Island is located on the western edge of the city of Vallejo in southwestern Solano County. Mare Island is approximately 3.5 miles long and 1 mile wide, and occupies approximately 5,460 acres, of which 1,650 acres are developed uplands. Tidal and non-tidal wetlands comprise the remaining acreage. The Mare Island naval facility was transferred to the city of Vallejo in May 2002. Conversion of the Naval Shipyard Mare Island and related properties from military to civilian use continues under the direction of the city’s economic development division. Today, the Island is home to more than 85 businesses, nearly 2,000 jobs, and approximately 3.5 million square feet (ft^2) of occupied commercial space. Additionally, Touro University educates over 900 full-time students at its campus. Lennar Mare Island has entitlements for over 7 million ft^2 of industrial/office product (with a workable inventory of approximately 5.5 million ft^2. Mare Island has approximately 960 buildings that comprise about 10.5 million ft^2 of industrial, office, residential, commercial, and recreational facilities.

3.4.3 Regional Characteristics of Crude/Product in the San Francisco Bay and Along Coastal Shipping Lanes off Northern California

Many types of marine vessels call at terminals in the greater Bay Area, including passenger vessels, cargo vessels, tankers, tow/tug vessels, dry cargo barges, and tank barges. The USACE, Marine Exchange, CSLC, and U.S. Coast Guard track vessel transits into the San Francisco Bay; however, data tracked are generally limited to inbound/arrival information from outside to inside the San Francisco Bay and do not include vessel transit information for transits originating in the San Francisco Bay.

Table 3-2 presents information on only inbound vessel transits through the Golden Gate during 2008 and 2011 from USACE data. The number of outbound transits would be expected to be the same. During 2008, 40,284 vessels transited to Bay Area harbors, and in 2011 the number increased to 169,953. In 2008, 3,285 vessels paid calls in the Carquinez Strait, and in 2011 the number increased to 3,435. The Carquinez Strait includes the general area of Tesoro's Amorco Terminal.

Table 3-2: Inbound Vessel Traffic in San Francisco Bay (2008 and 2011)

Location	Self-Propelled Vessels			Non-Self Propelled Vessels		Total Number of Vessels
	Dry Cargo	Tankers	Towboat	Dry Cargo	Tank Barge	
2008						
San Francisco Bay Entrance	2,561	810	286	19	320	**3,996**
San Francisco Harbor	9,564	409	1,434	481	358	**12,246**
Redwood City Harbor	36	0	165	15	0	**216**
Oakland Harbor	10,734	2	1,607	156	747	**13,246**
Richmond Harbor	113	431	4,847	143	1,092	**6,627**
San Pedro Bay and Mare Island Strait	382	268	9	2	7	**668**
Carquinez Strait	957	392	1,362	282	292	**3,285**
Totals	**24,347**	**2,312**	**12,110**	**1,098**	**2,816**	**40,284**
2011						
San Francisco Bay Entrance	2,658	757	284	9	257	**3,965**
San Francisco Harbor	45,282	3	937	152	67	**46,441**
Oakland Harbor	10,734	2	1,607	156	747	**13,246**
Redwood City Harbor	20	0	91	13	0	**124**
Richmond Harbor	91	410	4,353	44	1,126	**6,024**
San Pedro Bay and Mare Island Strait	10,062	375	1,074	383	236	**12,131**
Carquinez Strait	1,524	342	1,086	251	232	**3,435**
Totals	**70,371**	**10,532**	**35,271**	**7,223**	**12,316**	**169,953**

Sources: USACE 2008; USACE 2011

Of six anchorages located in the Bay, Anchorage 9, located south of the Bay Bridge between San Francisco and Oakland, had the majority (439 of the total 612) of arrivals. Some tankers bound for the Amorco Terminal occasionally transfer oil, or conduct lighterage operations, from one vessel to another at Anchorage 9, to reduce the draft of the vessel prior to its destination.

Vessels entering and leaving the Golden Gate entrance to San Francisco Bay do so through the Traffic Separation Scheme, which consists of a circular Precautionary Area with three traffic lanes (northern, main or western, and southern) exiting the Precautionary Area. A detailed description of the regulated navigation areas is included in Section 4.1, Operational Safety/Risk of Accidents.

The CSLC Marine Facilities Division in Hercules also tracks ship and barge calls to those marine oil terminals for which they have jurisdiction. Table 3-3 summarizes USACE and CSLC data for 2008 and 2012. The 2012 data indicate a decrease of 18 vessels over 2008 in vessel traffic to Tesoro's Amorco Wharf. The anticipated vessel traffic over a 30-year lease term ranges from 50 to 200 vessels per year, as analyzed in this EIR.

Table 3-3: Vessel Calls to Marine Oil Terminals in San Francisco Bay (2008 and 2012)

Marine Oil Terminals	Tankers 2008	Barges 2008	Total 2008	Tankers 2012	Barges 2012	Total 2012
Shell Martinez	67	130	197	69	96	165
Tesoro Amorco	82	3	85	67	0	67
Tesoro Avon	30	80	110	51	25	76
Phillips 66 Rodeo	77	179	256	48	100	148
Plains All American Martinez	87	119	206	33	73	106
Shore Selby Terminal	34	24	58	50	24	74
Plains All American Richmond	10	333	343	15	307	322
Chevron Richmond Long Wharf	410	370	780	380	247	627
BP West Coast Richmond	22	8	30	24	11	35
BP Lubricants Richmond	0	12	12	0	11	11
Valero Benicia	134	22	156	116	91	207
IMTT Richmond	5	443	448	3	382	385
Phillips 66 Richmond	0	177	177	0	127	127
Kinder Morgan Richmond	5	0	5	13	0	13
Total	**961**	**1,340**	**2,301**	**886**	**1,543**	**2,429**