4.5 LAND USE AND RECREATION

This section presents the existing conditions for land use and recreational resources, focusing on the shoreline of the Bay and the project area. Land uses near the Long Wharf and within the Bay, and then the recreational resources near the Long Wharf and within the Bay. Resources of the outer coast are also briefly presented. The section begins with a summary of the most pertinent land use planning and recreational resource management policies as they relate to general growth of the Bay Area, Bay conservation and development (including shoreline development) policies, and policies related to park and recreational uses and public access. Finally, the potential for impacts associated with the proposed Project, alternatives and cumulative projects are presented.

4.5.1 Environmental Setting

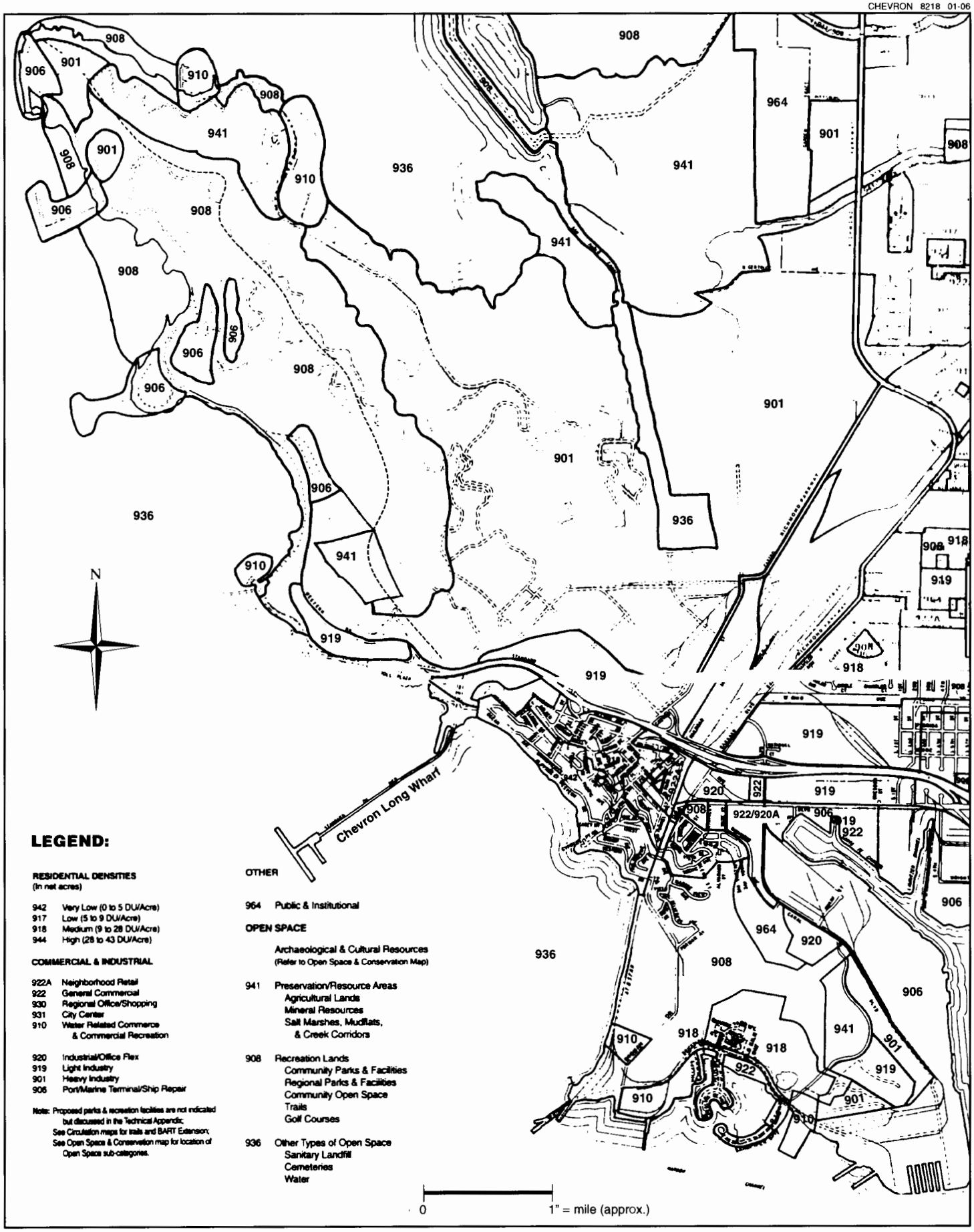
Land Uses Near the Long Wharf

The lease area is located at the north end of San Francisco Bay on the San Pablo Peninsula in Contra Costa County. The Long Wharf is in the southern portion of the City of Richmond, south of the Richmond-San Rafael Bridge and Castro Point, north of Cypress Point, and west of Point Richmond.

As per the City of Richmond General Plan, land uses of shoreline areas adjacent to the Long Wharf include industrial (Chevron Refinery), transportation (Richmond-San Rafael Bridge), housing (Point Richmond), and recreation (Keller Beach). The land use designation for the Long Wharf and Refinery is *Port/Marine Terminal Ship Repair.* Land use designations for shoreline areas adjacent to the Long Wharf are provided in the Richmond General Plan (City of Richmond 1994) and include *Light Industry, Heavy Industry, Very Low Density Residential Housing, Recreation Lands, and Water related Commerce and Recreational Activities,* as shown in Figure 4.5-1. Directly upland of the Long Wharf is the Refinery. The process areas and most of the tankfields at the Refinery are designated for *Heavy Industry* in the Richmond General Plan.

Consistent with the Richmond General Plan, the Contra Costa County General Plan shows the project area as HI, Heavy Industry (Contra Costa County 1996).

Pursuant to Section 66610 of the McAteer-Petris Act, the Long Wharf is within the San Francisco BCDCs "Bay" and "shoreline band" jurisdiction. The "Bay" includes all areas subject to tidal action, up to the mean high tide line, including all sloughs, marshland lying between the mean high tide and 5 feet above mean sea level, tidelands, and submerged lands. The "shoreline band" includes a 100-foot-wide area inland from and parallel to the mean high tide line, which includes roads, rail lines, and pipelines leading to the Long Wharf.



Chambers Group

Source: City of Richmond General Plan, 1994 Amended 1996

RICHMOND GENERAL PLAN
LAND USE MAP
Figure 4.5-1

San Francisco Bay Plan Map No. 4 designates the area of the Long Wharf and adjoining shoreline as a *Water-Related Industry Priority Use Area*, which is intended to preserve the area for industries requiring a waterfront location and access to deep water shipping (BCDC 1998).

General Shoreline Land Uses in San Francisco and San Pablo Bays

San Francisco and San Pablo Bays' shoreline characteristics include a range of land uses consisting of urbanized and industrial areas, occasional rural and open space areas, coastal wetlands, and salt evaporation pond areas. Most of the area's landform is hilly terrain. Where there is no development, this open area is generally covered with low vegetation.

Most of the coastline within San Francisco Bay is urbanized, except for the northern and southern ends. This includes the western shoreline from Palo Alto on the south to San Mateo and San Francisco on the north. From San Francisco north, there are the communities of Sausalito, the Tiburon Peninsula, and San Rafael. Park and marsh areas form along the western shoreline portion of San Pablo Bay. This area also includes Petaluma Point and the San Pablo National Wildlife Refuge.

Mare Island Naval Shipyard is along the northeast San Pablo Bay shoreline near Vallejo and the mouth of Carquinez Strait. Continuing south along the eastern shoreline of San Pablo Bay is Davis Point, the Phillips 66 Marine Terminal, the community of Rodeo, and the cities of Hercules and Pinole before Pinole Point. Pinole Point is within the city of Richmond. From Pinole Point south is a mix of industrial and open land to Point San Pablo. The property, owned by Chevron, generally takes up the greater portion of land from Point San Pablo southeast to the Long Wharf. The closed Point Molate U.S. Naval Fuel Depot is also located along this shoreline segment. Continuing south are the immediate project area, the Point Richmond community, Miller Knox Regional Shoreline, and Richmond Harbor. South of the city of Richmond, San Francisco Bay's eastern shoreline is also highly urbanized with the cities of Richmond, Berkeley, Alameda/Oakland, and San Leandro as far south as the central part of the Bay, with marshes and salt evaporation ponds shoreward of the cities of Hayward and Fremont. The San Francisco Bay National Wildlife Refuge is south of this shoreline along with more salt evaporation ponds.

The shoreline area along Carquinez Strait is a mix of industrial and urban uses interspersed with hilly undeveloped terrain. Farther east, within Suisun and Grizzly Bays, the shoreline is dominated by wetland areas, especially along the northern landform. The southern shoreline consists of wetlands as well as several small communities.

The major port areas are San Francisco, Redwood City, Oakland/Alameda, Richmond, San Pablo Bay, and Carquinez Strait.

Major preserves and shoreline parks of San Francisco Bay include Suisun Bay Marsh with duck hunting preserves; San Pablo Bay National Wildlife Refuge with mudflats, salt marsh, and open water that serve as a Pacific Flyway stop for birds; Tubbs Island, accessible by boat; and the Point Pinole Regional Shoreline. China Camp State Park, along the southwest shore of San Pablo Bay, preserves a historic fishing site; and Coyote Hills Regional Park and San Francisco Bay National Wildlife Refuge protect important wetland acreage in the South Bay for wintering waterfowl. Other sensitive natural areas of the Bay include Grizzly Island Wildlife Area, Lower Sherman Island Wildlife Area, Petaluma River and Marsh, and Napa River and Marsh. Bay ecology displays and educational programs are offered at the Audubon Wildlife Sanctuary in Richardson Bay, San Mateo County Coyote Point Park and Museum, the Palo Alto Baylands Interpretive Center, and the Environmental Education Center in Alviso.

Recreational Opportunities Near the Long Wharf

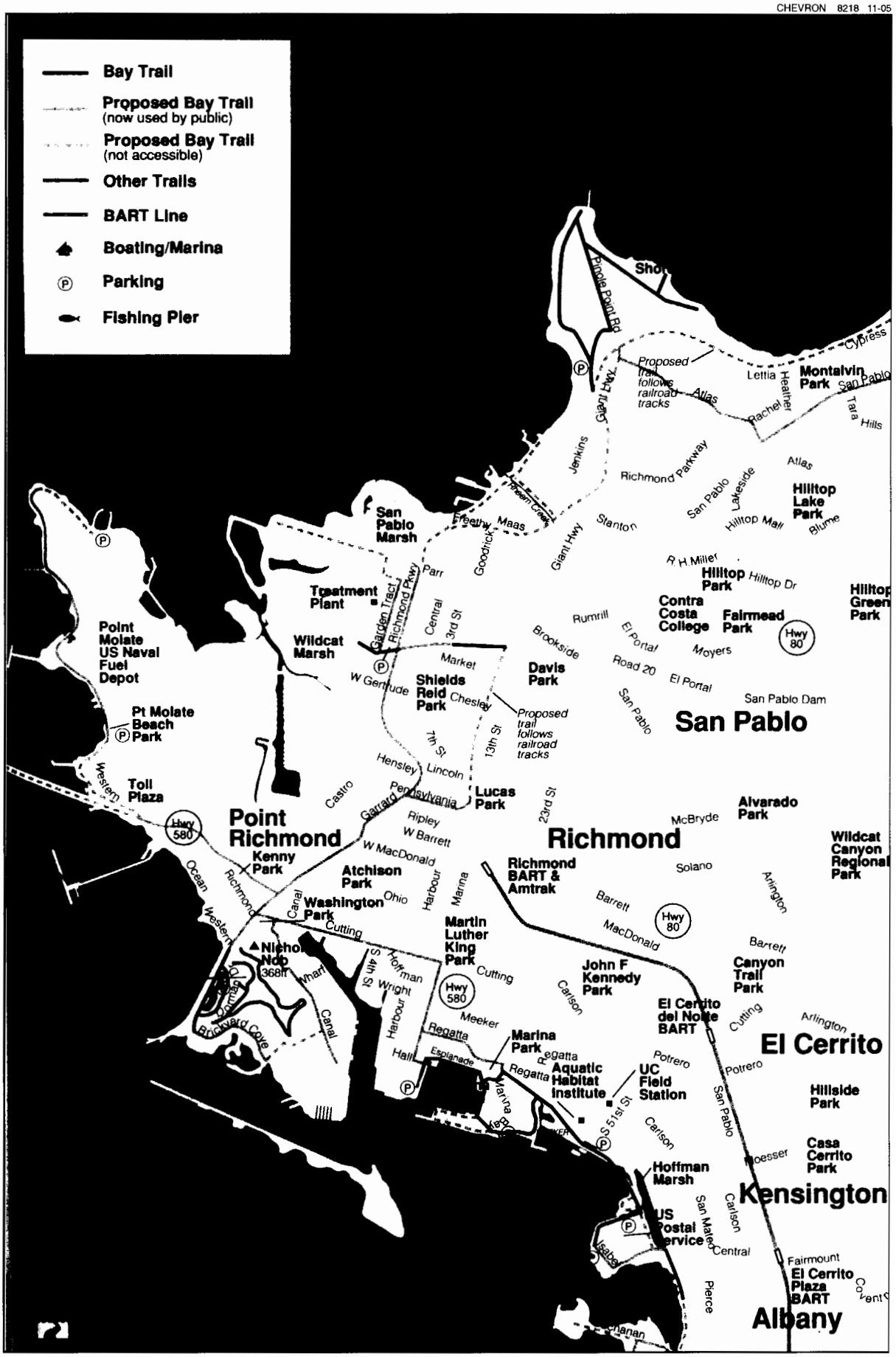
A variety of water and shoreline recreation uses exist from Point San Pablo (north of the Long Wharf) to Richmond Inner Harbor (south of the Long Wharf). Water contact recreation includes, but is not limited to, swimming, water skiing, skin and scuba diving, surfing, wind surfing, and fishing. Noncontact water recreation includes, but is not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, and marine life studies.

Shoreline access is restricted at the Refinery and where the Refinery meets the Long Wharf. The nearest public access to the shoreline southeast of the Long Wharf causeway is a public beach accessible from a point near Cliffside Court and Western Drive. This access point is approximately 2,600 feet (.49 miles) from the causeway as measured along the shoreline. The beach extends to within 400 feet of the causeway. The nearest public access to the shoreline northwest of the Long Wharf causeway is Molate Beach. This beach is between Castro Point and Point Molate and is approximately 5,200 feet (.98 miles) from the causeway as measured along the shoreline.

In the immediate area of the Refinery, a bike/pedestrian trail accesses I-580 between Marine Avenue and Western Drive. Between these two access ramps, the bikeway is designated by a white solid stripped line on the far right side of each side of the interstate. The trail continues north along Western Drive to about Castro Point, and south through the city of Richmond.

The project area is within EBRPD jurisdiction. Currently, there are three existing Regional Shorelines in the vicinity of the Long Wharf. The Point Pinole Regional Shoreline is to the north of Point San Pablo, and the Miller-Knox and Brooks Island and Point Isabel Regional Shorelines are to the south. These and other local recreational areas are shown in Figure 4.5-2 and described below:

- Point Pinole features a fishing pier, a trail system, playground, picnic area, and natural ecosystem. With 2,150 acres, it is one of the largest waterfront parks on the Bay.



Chambers Group

RECREATIONAL FEATURES NEAR CHEVRON LONG WHARF
Figure 4.5-2

- Wildcat Marsh includes a living marsh and trail system. The marsh was voluntarily restored following a plan prepared by the State Coastal Conservancy.

- Point San Pablo Yacht Harbor is a small craft harbor which is home to about two dozen pleasure boats and a few commercial and sportfishing boats.

- East and West Brothers Islands feature a historic lighthouse, which operates as a bed and breakfast.

- Castro Point originally provided ferry service, then converted a pier to a marina and fishing resort. Now closed, there are future plans to reopen the area to the public.

- Point Molate U.S. Naval Fuel Depot has a collection of historic photographs of the Winehaven Winery. The Depot is being closed under the Defense Base Closure and Realignment Act. Proposed future uses are recreation amenities including public use of the pier, a private marina, and trail system.

- Point Molate Beach Park, operated by the city of Richmond, includes BBQ stands and play stations; however, the park facilities have been neglected.

- The Point Richmond community includes specialty restaurants, historic structures, and scenic vistas.

- Miller/Knox Regional Shoreline features picnicking, kite flying, nature observation, access to Keller Beach, and fishing. Improvements to the area are proposed, including rehabilitation of a historic center, wetland enhancement, and trail enhancement.

- Ferry Point Ferries area, originally established for industrial navigation uses, is proposed to become part of the Miller/Knox Regional Shoreline. The site is proposed for recreational uses and as a historic district. Uses will include pier fishing, shoreline access, picnicking, a visitor center, and ferry service.

- Richmond Marina includes the marina, a playground, a picnic area, and a small sandy beach with fishing available.

- Brooks Island is a 375-acre preserve of the EBRPD with access by reservation only. The Preserve can be used for guided tours and special hunting trips.

- Point Isabel is a marsh area accessed via a trail which leads north to Shimada Friendship Park and Marina Bay. Point Isabel Marsh is operated by the EBRPD. The Marina Bay Reach contains a 700-slip marina, a restaurant, several parks, and a bike path along the north of the Bay. Fishing is also available from the harbor breakwater. Shimada Friendship Park, operated by the city of Richmond, contains picnic areas and manicured lawns.

Recreational Uses in San Francisco and San Pablo Bays

The San Francisco and San Pablo Bays contain a variety of shoreline-related recreational opportunities. Major recreational park areas and sensitive land uses (including wildlife reserves/refuges) in the San Francisco and San Pablo Bay areas are listed in Table 4.5-1. The information is derived from the San Francisco Bay Plan (San Francisco BCDC) and EBRPD's Master Plan (1997).

Table 4.5-1
Major Shoreline Recreational Areas, San Francisco and San Pablo Bays

Bay/Shoreline Parks	
China Camp State Park	Keil Cove-Bluff Point Park *
John F. McInnis County Park	Corte Madera Shoreline Park *
Point Pinole Regional Shoreline	Point San Quentin
Neils Island	Point San Pedro
Pinole-Hercules Shoreline Park	Point Isabel Regional Shoreline
Wilson Point Beach and Park	San Leandro Bay Regional Shoreline
Richmond Sanitary Landfill	Robert W. Crown Memorial State Beach
George Miller Jr. Regional Park	Oyster Bay Regional Shoreline *
Point San Pablo	San Bruno Mountain Regional Park *
Point Molate Beach	Brisbane Aquatic Park *
Miller-Knox Regional Shoreline	Bay View Park
Presidio	Candlestick Point Shoreline Park *
Golden Gate National Recreation Area	Coyote Point County Park
Angel Island State Park	Bayside Park
Refuges/Preserves/Wildlife Areas	
Rat Rock	Castro Rocks
Petaluma Marsh	Red Rock
Skaggs Island	Brooks Island Regional Preserve
Tubbs Island	Mount Tamalpais Waterfowl Refuge
San Pablo Bay National Wildlife Refuge	Marin Islands
The Brothers	The Sisters
Emeryville Crescent Wildlife Area *	San Francisco Bay National Wildlife Refuge
*** Proposed facility**	

Developed parks and recreational and sightseeing areas that provide access to the shoreline are found along the urbanized sections of San Francisco Bay, particularly along the waterfront areas of the San Francisco Peninsula. In addition, there are approximately 140 boat-launching ramps/marinas and associated facilities (including fishing piers) throughout the Bay (see Appendix C for a list of marina facilities and fishing piers in San Francisco Bay). Extensive private boating (both sail and power) occurs throughout the Bay and Delta.

Undeveloped marsh areas are located to the south. The San Francisco Bay National Wildlife Refuge and Coyote Hills Regional Park at the southern end of the Bay provide opportunities for hiking and biking in selected areas and near the shore.

The northern end of San Pablo Bay is not as urbanized. Most of the shoreline along north San Pablo Bay and across the Bay from the project area consists of the San Pablo National Wildlife Refuge, where hiking and hunting activities are allowed. There are only a few boat ramps and fishing piers in this area.

Land and Recreational Uses on the Outer Coast

The California outer coast consists of a broad mix of land uses including undeveloped open coastal areas, wetlands, unique shoreline and coastal resource areas, and areas of concentrated development and urban uses. The conditions of the various uses range from pristine, undisturbed land areas to degraded coastal zones affected by urban development and industrial pollution. Details on outer coast recreational uses are contained within the EIRs for the Unocal Marine Terminal (Chambers Group 1994) and the GTC Gaviota Marine Terminal Projects (Aspen Environmental Group 1992). Information about recreation areas and public access points along the California coastline is also available in the most current edition of the California Coastal Access Guide (CCC 1981, revised spring 1991), and the California Coastal Resource Guide (CCC 1987), a companion to the California Coastal Access Guide.

Opportunities for recreation are available along California's 1,100 miles of shoreline. The coast contains a variety of features ranging from coastal bluffs and beaches to nearby mountains and forests offering a diversity of recreational opportunities for active and passive recreation. The more populated/urbanized areas tend to have more "developed" recreational opportunities, such as set trails with manicured vegetation, while the less urbanized areas and those in remote locations tend to have more natural settings with "undeveloped" recreational uses. Some of the more pristine areas have been designated as preserves or wilderness. Recreational activities include nature viewing, hiking, biking, and equestrian trails, with beaches providing a range of uses from picnicking, shore fishing, volleyball, windsurfing/ sailing, and surfing. All along the outer coast are fishing piers and berthing and launching facilities for recreational boats; however, the greatest concentrations of these facilities are found in the urbanized areas.

4.5.2 Regulatory Setting

Local Regulations and Policies

County Policies

The Contra Costa County General Plan (July 1996) presents the broad goals and policies, and implementation procedures to guide decisions on future growth, development, and County conservation of resources for the years 1995 to 2010. As per the Land Use Element of the General Plan, the project is located in the West County planning area. Within this area, the County Plan provides more specific guidance for unincorporated areas, including the future growth of the North Richmond/Hilltop area, El Sobrante area, and Rodeo area, leaving specific planning guidelines for the immediate project area up to the City of Richmond.

Other sections of this EIR reference other elements of the General Plan (such as visual resources and noise).

City of Richmond Planning Policies

The City of Richmond General Plan (August 1994) contains nine planning elements, which guide City development through 2010. The project area falls within the West Shoreline area of the General Plan in an area designated as Heavy Industry. The following land use and public use policies for industrial areas can be considered applicable to the Long Wharf:

- LU-0.2 – Encourage local industries to develop their own plans for improving the appearance of their facilities, where possible, and to integrate their properties into the City as a whole.
- LU-0.3 – Provide convenient access for the shipment of goods and the daily commute trips for all industrial firms.
- LU-0.5 – Use established standards to limit industrial activities which may be objectionable due to odors, noise, fumes, or other emissions.
- LU-0.6 – Use established standards to limit industrial activities that may endanger human health and may cause damage to the environment.
- LU-0.8 – Continue to explore ways of modernizing and renovating port and Long Wharf facilities.
- LU-0.9 – Actively encourage shipping firms to use local marine terminals as a starting point or destination for overland shipment of goods.
- PU-P.1 – Promote industrial development, which creates maximum job opportunities for area residents.

Regional Planning and Recreation Policies

San Francisco BCDC

Coastal issues, including land use policies around San Francisco Bay, are within the jurisdiction of the BCDC, established in 1965 (pursuant to the McAteer-Petris Act) to prepare an enforceable plan to guide the future protection and use of San Francisco Bay and its shoreline. The Commission members represent interests in the Bay, including Federal, State, regional, and local governments, and public representatives of the Bay Area. The San Francisco Bay Plan (1968), as amended, provides the basis for regulating development in the Bay and in tidal wetlands of the Bay Area and to ensure maximum feasible public access to the Bay. Nontidal wetlands are regulated by the Corps (CCC 1987).

The BCDC, pursuant to the McAteer-Petris Act of 1965, has responsibility for regulating fill in the Bay and providing access to the Bay. The McAteer-Petris Act gives the BCDC authority to issue or deny permit applications for projects within the first 100 feet inland from the Bay. The BCDC also is directed to prepare the San Francisco Bay Plan, which guides the future protection and use of the Bay and its shoreline. The San Francisco Bay Plan has policies regarding Water-Related Industry, and Navigational Safety and Oil Spill Prevention (BCDC 2002b).

Based on its extensive studies of the San Francisco Bay and preparation of the Bay Plan, the BCDC has created the following major policies relative to land use and recreational uses. The Bay is considered a single body of water that can be effectively managed only on a regional basis. The most important uses of the Bay are those that provide substantial public benefits as a body of water. Desirable, high-priority uses of the shoreline can also be accommodated without substantial loss of natural resource areas. Shoreline areas that are suitable for priority uses, including ports, water-related industry, airports, wildlife refuges, and water-related recreation, are limited and should be reserved for these purposes. In some cases, filling in the Bay may be allowed if it provides substantial public benefits.

The Bay Plan also limits Bay filling to the purposes previously listed because of the harmful effects that can result to the Bay, including destruction of habitats, water and air pollution, and diminished scenic quality.

Association of Bay Area Governments (ABAG)

The ABAG is a council of governments composed of elected city and county officials. They provide a forum for addressing regional problems in the Bay Area and for formulating and implementing regional development policies. Their regional growth projections provide the basis for Federal- and State-mandated regional plans (such as the County General Plan), and review of federally funded programs in the region. In 1967, ABAG produced a regional plan for the San Francisco Bay Area. Specifically, the Plan provides long-term regional goals, objectives, and policies on the topics of housing, economic development, environmental quality, safety, recreation, transportation, and health. In addition, the Plan provides policies for subregions, which determine what short-range actions are necessary to implement the regional policies. The project area is within the West subarea of Contra Costa County.

In 1987, Senate Bill 100 (known as Ring around the Bay) became law and ABAG adopted a plan and implementation program for what has become known as the Bay Trail Plan. The Bay Trail Plan is a 400-mile proposed network of multi-use pathways circling San Francisco and San Pablo Bays. It is planned to connect 9 Bay area counties, link 47 cities, and cross major toll bridges. More than 100 local, regional, State, and Federal agencies, as well as recreation organizations and environmental interests throughout the Bay Area, have been involved.

The Bay Trail would provide access to more than 90 parks and publicly accessible open spaces around San Francisco Bay and would pass through all nine Bay Area counties

and 42 of its shoreline cities. Bay Trail spine and spur segments would provide connections to 57,370 acres of publicly accessible open space and recreational facilities throughout the Bay Area. The Bay Trail offers access to commercial, industrial, and residential neighborhoods; points of historic, natural, and cultural interest; recreational areas including beaches, marinas, fishing piers, boat launches, and over 130 parks and wildlife preserves totaling 57,000 acres of open space.

East Bay Regional Park District (EBRPD)

Regional parklands in Alameda and Contra Costa County, including the project area, are within the planning area of the EBRPD. The regional park system has 59 parks and 29 regional interpark trails covering more than 91,000 acres in Alameda and Contra Costa Counties on the eastern side of the Bay. Parklands are classified into regional categories, including regional parks, preserves, open space, shoreline areas, wilderness, recreation areas, trails, and land banks. The purpose of the District is to acquire, preserve, protect, develop, and operate parklands in the two counties in perpetuity for public use. The 1997 Master Plan for the EBRPD was developed to achieve this purpose and contains appropriate policies, goals, and programs for current operations and long-range growth of EBRPD parklands.

Throughout the planning process, EBRPD coordinates with other agencies that provide facilities serving regional parkland needs. The District also takes a role in the preservation of nonpark open space through participation and cooperation with the development of open space plans at the Federal, State, regional, county, and city level. The EBRPD assists these agencies in implementing open space land acquisition plans and regulations. Long-range growth of the EBRPD is shown on the Master Plan Regional Parkland and Trail Map (EBRPD Master Plan 1988). The map includes the existing EBRPD parklands and indicates future or potential parkland and trail acquisition.

Ultimately, the District, county, city, and park agencies of the San Francisco Bay Area plan to join the region and communities on a grand scale with a proposed San Francisco Bay Trail and a Ridge Trail. The Bay Trail would follow the shoreline around the entire San Francisco Bay, and the Ridge Trail would wind through the hilltops above the Bay. When this trail system is complete, it will link Point Pinole to Wildcat Creek, Wildcat Creek to Miller-Knox, and Miller-Knox to Point Isabel. Over 1,000 miles of interconnecting trails would increase inland and shoreline access and maintain natural habitats (EBRPD, as amended, 1989).

Bay Trail Plan - Relationship to County and City Recreational Use Policy

The Open Space Element of the County General Plan addresses issues of parks and recreation land, as does the Open Space and Conservation Element of the City of Richmond General Plan. Both the County and City recognize the EBRPD efforts. The agencies work cooperatively to maintain existing and to acquire new park and recreational facilities. County goals include development of park and recreational

facilities to serve the needs of the County population, including the development of a system of interconnected hiking, riding, and bicycling trails and paths suitable for both active recreational use and for transportation/circulation.

Similar goals exist for the City. The City's Open Space and Recreational Element has a specific guideline for the West Shoreline to "Establish a public access trail from Point Richmond to Point San Pablo including a pedestrian trail from Keller Beach to the Richmond-San Rafael Bridge and a bicycling trail from I-580 along Western Drive to the tip of Point San Pablo."

The County and EBRPD have studied the feasibility for a trail connecting two EBRPD facilities: Lone Tree Point Regional Park in Rodeo and Carquinez Strait Regional Shoreline east of Crockett. A multi-use concept accommodating pedestrian/hiking, bicycle, and equestrian uses, where feasible, has been examined (The Planning Collaborative 1992). This trail would be part of the Bay Trail Plan.

Access Policies

San Francisco Bay

Public access required by the BCDC consists of pedestrian access to and along the shorelines and beaches of the Bay. These accessways may be improved by paving, landscaping, and street furniture, such as benches. Related recreational activities, such as bicycling, fishing, picnicking, and nature education, may also be allowed. Visual access to the Bay is also considered a part of public access. Although public access to the approximately 1,000-mile Bay shoreline has substantially increased since the adoption of the Bay Plan in 1968, only a limited amount of shoreline is open to the public. Similarly, there are still several shoreline areas with little or no visual access to the Bay. Additional information on visual access is presented in Section 4.9, Visual Resources/Light and Glare.

The Bay Plan policies state that, in addition to the access provided by recreational areas and facilities, maximum feasible access to and along the waterfront should be provided through new development in the Bay or on the shoreline (BCDC 1998). Development can include residential, industrial, port, public, or other uses, as long as there are no safety or significant use conflicts. When public access is provided as a condition of development, the access should be permanently guaranteed by appropriate means, such as dedication of title or easements. Because there are various Federal, State, regional, and local jurisdictions involved in the Bay Area, the BCDC is directed to cooperate with these agencies and special districts to provide new public access, and eventually link the series of parks and access areas, to the extent possible. This includes the Bay Trail Plan as previously discussed. Proposed projects should include provisions for public access consistent with the BCDCs requirements and guidelines.

Outer Coast

Proposition 20 (1972), the California Coastal Act (1976), and the State Coastal Conservancy Act (1976) were the major legislative acts that established strong access policies and programs. The California Coast Commission (CCC) implements these policies by requiring public shoreline access as a condition of certain coastal development permits. Local governments are required to include provisions in their Local Coastal Programs (LCPs) for acquiring, improving, and managing access areas. In addition, the Coastal Conservancy provides funding and technical assistance to local governments and citizen groups to acquire, develop, operate, and manage new accessways (CCC 1991). In 1979, additional legislation was enacted that directed the CCC and State Coastal Conservancy to establish a comprehensive program to maximize public coastal access and coordinate all local, State, and Federal efforts to implement the program. As part of the program, the CCC was mandated to prepare a Coastal Access Guide for the public.

Article 10, Section 4.0 of the State constitution guarantees the public's right to access to the State's navigable waters along the California coast. Approximately 42 percent of the State's shoreline is publicly owned and accessible, with the remaining 58 percent either privately owned or held by Federal, State, and local governments, and not open to the public. The public's right of access to or along the State's tidelands can be obtained by (1) purchase of shoreline lands for public use by Federal, State, or local governments or private organizations, (2) deed restrictions or dedications by the landowner that grant the public the right to cross private property, or (3) through legal doctrines of "implied dedication" and "prescriptive rights."

State and Federal Policies

The State of California owns tide and submerged lands waterward of the ordinary high watermark. State law gives primary responsibility for determination of the precise boundary between these public tidelands and private lands, and administrative responsibility over State tidelands, to the CSLC. Access and use of State shoreline areas can be obtained through purchase or lease agreements. The project area is currently operated in holdover status under agreement with the CSLC. The preparation of this EIR is in partial fulfillment of the State's consideration for a new long-term lease.

Other State agencies having control over land use in Contra Costa County include the California Department of Parks and Recreation, the CDFG, Caltrans, and the BAAQMD.

Federal agencies having regulatory authority that affect county land use and growth issues include the EPA, the Corps, and the USFWS.

4.5.3 Significance Criteria

Land use impacts were considered significant if the Long Wharf operations would result in the following:

- Conflicts with existing or future planned area-wide or local policy issues or plans;
- Incompatible adjacent land uses as defined by planning documentation; and/or
- Residual impacts on sensitive shoreline lands, and/or water and non-water recreation due to a release of oil. Because of the time factor involved in oil dispersion, impacts were considered to be significant (Class I) if first response efforts would not contain or cleanup the spill, resulting in residual impacts to shoreline and recreational uses. If a spill occurs that could be contained and cleaned up during first response, that spill would be considered a significant adverse impact (Class II).

4.5.4 Impacts Analysis and Mitigation Measures

4.5.4.1 Long Wharf Routine Operations and Potential for Accident Conditions

Impact LU-1: Conflicts with Existing or Future Planned Area-Wide or Local Policy Issues or Plans

The proposed Project would not conflict with any existing or future planned policy issues or plans. Proposed Project impacts with regard to policy inconsistency would be less than significant (Class III).

Land Use, Zoning, and Adjacent Uses

The proposed Project would not result in conflicts with the existing land use and zoning designation. Because the Long Wharf is in-place and the shoreline uses include the Refinery, no conflicts with adjacent land use or zoning would result. Even if Berth No. 4 were modified, there would be no physical changes at the Long Wharf that would result in changes in land use or zoning designations. No significant land use impacts (Class III) would result.

Water Recreation

Routine operation of the Long Wharf could result in conflicts with recreational boaters as the vessels bound to/from the Long Wharf transit the Bay. However, because there are established vessel traffic lanes used by tankers and other large ships that routinely travel from the Golden Gate up to and through San Pablo Bay, the vessels bound for the Long Wharf do not add substantial risk to recreational boaters in the Bay. Along the outer coast these tankers also stay in established shipping lanes, as presented in Section 4.1, Operational Safety/Risk of Accidents, and no planning/policy impacts would result. This impact is considered to be adverse but less than significant (Class III).

Near the Long Wharf a variety of water recreational uses exist from Point San Pablo (north of the Long Wharf) to Richmond Inner Harbor (south of the Long Wharf), as presented in Section 4.5.2, Regulatory Setting. Shoreline access is restricted at the Refinery and where the Refinery meets the Long Wharf. Immediately south of the Long Wharf there is beach access in the community of Point Richmond. The water area approximately 1 mile offshore of the beach is routinely transited by tankers in route to the Long Wharf as well as tankers and other large vessels who use the established Southampton Shoal Channel, Richmond Harbor Entrance Channel, Point Potrero Reach, and the Long Wharf Maneuvering Area, which are channels dredged to accommodate large vessels. No changes to the shoreline access or vessel maneuvering would occur over the term of the proposed lease. No plans or policies would be affected. The impact on recreational uses near the Long Wharf is considered to be less than significant (Class III).

LU-1: No mitigation is required.

Impact LU-2: Incompatible Recreational Land Uses

Issues related to land use associated with the Refinery and planned trail segments are not within the jurisdiction of the CSLC. Proposed Project land use impacts would be less than significant (Class III).

Bay Trail Planning

As presented in Section 4.5.2, Regulatory Setting, EBRPD and ABAG (Bay Trail Project) are responsible for implementing portions of the San Francisco Bay Trail, which was authorized by the State Legislature (SB100) in 1987. Alignment for the trail is shown in ABAG's Bay Trail Plan, the EBRPD's Master Plan, and the City of Richmond General Plan. Efforts are underway to implement trail segments connecting the Miller Knox Regional Shoreline in Point Richmond with Point Molate, north of the Richmond San Rafael Bridge. Point Molate is in caretaker status as disposal and reuse of the property from the U.S. Navy to the City under the Base Conversion and Redevelopment Act continues.

Much of the shoreline immediately north and just south of the bridge is privately owned by Chevron. The new lease would encompass the same leasehold area as the current lease. The proposed lease contains the CSLC jurisdictional area that includes an area surrounding all the berthing wharves and the causeway to near the shoreline. Granting a new lease for Long Wharf operations offers the opportunity to examine the potential for any adverse impacts to public access opportunities along this section of shoreline and any conflicts with agency plans to promote a Bay Trail segment linking Point Richmond with Point Molate. In addition, if the lease were denied, the shoreline facilities supporting the Long Wharf could be removed. With this area open, a trail could go through the area with no direct conflicting land uses, and the land itself could serve as a safety buffer between the trail and the Refinery. It should be noted, however, that Chevron is under no obligation to give up its upland properties for use as a Bay Trail.

To evaluate the trail potential, the city of Richmond commissioned a feasibility study of Bay Trail routes to Point Molate (Questa Engineering Corp. 2001a). The study, together with an addendum letter (Questa Engineering Corp. 2001b), address the engineering feasibility and cost for potential Bay Trail routes linking the Richmond area to Point Molate and the San Pablo Peninsula. The report and addendum, recommend three options for further study:

- Office Hill Trail: This option would connect Tewksbury Street in the vicinity of Marine Street through Chevron property on Office Hill to the Highway 580/Schofield undercrossing area, where it would either join a widened Highway 580 section or a separate, new elevated structure that would be constructed parallel to the highway. This is the preferred alternative.

- Flyway: This option would entail construction of an approximately 1,000-foot long elevated pedestrian and bicycle structure to comment with the summit of Old Western Avenue overlooking Chevron's Long Wharf, crossing over Chevron's pipe system and following the shoreline area west of Chevron's tanks to connect with Highway 580 and along Caltrans ROW to the Toll Plaza undercrossing.

- Trail Segment: This trail segment provides a Class I, separated trail between the terminus of Tewksbury and the Castro Street bus stop. This could be an extension of the Office Hill or Flyway options to complete the trail route to Point Richmond.

The study incorporated concerns and interests of Chevron regarding ROW and safety and security, BCDC on bay fill aspects of design options, ABAG on construction costs and interests of disabled persons, Caltrans on ROW and engineering issues, Trails for Richmond Action Committee (TRAC) on impacts on local neighborhoods, and the CLSC on how this project relates to the Long Wharf project.

Refinery property and associated operations are separate from Long Wharf operations, are not part of the proposed lease, and are not under jurisdiction of the CSLC. Therefore, issues related to land use associated with the Refinery and planned trail segments are not within the jurisdiction of the CSLC. The next step in the planning for a trail route is for Chevron, the City, and local interests to formulate a plan to take this trail forward to the next step for funding consideration and local CEQA review. Since the trail segments are not within CSLC jurisdiction, the CSLC will remain active among the interested agencies and community groups and will continue to participate in this process.

<u>LU-2: No mitigation is required</u>.

Impact LU-3: Accidental Releases At or Near the Long Wharf

A number of recreational facilities (designated parks, wildlife preserves, open space, etc.) and recreational uses (nature viewing, boating, fishing, surfing, etc.) are within the potential area that could be impacted by the spread of oil. Shoreline and water-related uses would be disrupted by oil on the shoreline and in the water and could result in significant adverse (Class I and II) impacts.

Impacts from oil releases could degrade the environment and preclude the use of shoreline land and associated recreational activities at the site of the release and the areas affected by the spread of the oil. The degree of impact, however, is influenced by many factors including, but not limited to, spill location, spill size, type of material spilled, prevailing wind and current conditions, the vulnerability and sensitivity of the resource, and response capability.

Spill risk is also presented in Section 4.1, Operational Safety/Risk of Accidents. The greater risk of spills occurs at the Long Wharf, where small spills could occur during normal operations as well as from leaks at pipefittings and valves. There is less chance of a spill occurring from a tankering accident; however, such an event generally can result in a much larger and more severe spill. The oil spill modeling conducted for this project and presented in Section 4.0, Existing Environment and Impacts Analysis, and Appendix B was used to determine the potential consequences from accidental releases of oil. Applicable information from that modeling focuses on the tankering routes from the Golden Gate into the Central Bay Area near Richmond.

Crude oil and refined products would be shipped to/from the Long Wharf. Light product spills generally volatize relatively rapidly, and little remains within 24 to 48 hours after a spill. Heavy crude oil may disappear over a period of several days, with remaining heavy fractions lasting from several weeks to several months floating at or near the surface in the form of mousse, tarballs, or mats.

Affected areas on the East Bay north of the Long Wharf may include, but not be limited to, Castro Point, Point San Pablo Yacht Harbor, Point Pinole and the Point Pinole Regional Shoreline, Pinole Bayfront Park, San Pablo Bay Regional Park, and shoreline amenities heading into the mouth of Carquinez Strait. Affected areas south of the Long Wharf may include the Point Richmond shoreline, Keller Beach, Ferry Point, Brickyard Cove, Brooks Island Regional Preserve, Richmond Marina Bay, Marina Green, Point Isabel Regional Shoreline, and Point Isabel. Areas potentially affected on the West Bay shoreline across San Pablo Bay include Kiel Cove, Bluff Point, Tiburon Cove, Paradise Beach County Park, Paradise Cove, Corte Madera State Ecological Reserve, Point San Pedro, and McNears Beach. Additional analysis of impacts on sensitive shoreline biological resources is presented in Section 4.3, Biological Resources.

Shoreline and water-related uses would be disrupted by oil on the shoreline and in the water. For a spill at the Long Wharf, tankering would be stopped and operations at the Long Wharf would be slowed or stopped for a period of time depending on the amount of oil present and the amount of cleanup required.

Because it is impossible to predict with any certainty the potential consequences of spills, impacts are considered to be adverse and significant (Class I or II), because severe spills could have residual impacts that could affect shoreline and/or recreational uses. Any residual impacts remaining after first response efforts would be considered to be significant adverse impacts (Class I).

Mitigation Measures for LU-3:

LU-3. Mitigation measures for spills at the Long Wharf would be the responsibility of Chevron operations. Specific measures are those presented in Operational Safety/Risk of Upset; Water Quality; Biological Resources; and Commercial and Sport Fisheries.

Rationale for Mitigation: Those measures presented in other sections provide improved oil spill capabilities, oil spill containment measures and protection of resources. With implementation of those measures the risk to shoreline and recreational resources can be reduced to less than significant for small spills.

Residual Impacts: Even with implementation of mitigation for oil spill impacts, land- and water-related recreational uses may be impacted from large spills and impacts would remain significant (Class I).

4.5.4.2 Oil Spills From Vessels In Transit In Bay Or Along Outer Coast

Impact LU-4: Land Use/Recreational Impacts of Oil Spills from Vessels in Transit

Spills that beach along sensitive land use areas or heavily used areas including recreational areas would limit or preclude such uses and result in significant adverse (Class I or II) impacts, depending on the various characteristics of a spill and its residual effects.

Accidents Within the Bay

Oil spill modeling for five scenarios conducted for this project show that 1,000-bbl spills originating at the Long Wharf could affect the shoreline at or near the Long Wharf in the East Bay and along the west shoreline of the Bay given various wind and tide conditions. Section 4.0, Existing Environment and Impacts Analysis, describes the scenarios and presents figures depicting the shoreline areas oiled. These scenarios are representative and do not reflect the exact consequences that could result from other spill scenarios.

For these five scenarios, the number of piers, marinas, and shoreline recreational areas that would be affected by oiling are presented in Table 4.5-2. The length of shoreline that would be affected by beached oil is also presented. Beached oil on the shoreline would potentially affect all uses within the area of impact.

Table 4.5-2
Number of Piers, Marinas, and Shoreline Recreational Areas Affected Based on Oil Spill Scenarios

Scenario	Piers	Marinas	Shoreline Recreation Areas	Length of Shoreline Affected (miles)
Berkeley/Emeryville No. 33	4	19	13	28.08
Brooks Island/Richmond No. 73	7	27	24	38.92
Southeast San Pablo Bay No. 93	3	7	9	19.26
West-Central Bay No. 68	5	10	11	22.70
West San Pablo Bay No. 91	3	10	11	22.03

Affected areas on the East Bay north of the Long Wharf may include, but not be limited to, Castro Point, Point San Pablo Yacht Harbor, Point Pinole and the Point Pinole Regional Shoreline, Pinole Bayfront Park, San Pablo Bay Regional Park, and shoreline amenities heading into the mouth of Carquinez Strait. Affected areas south of the Long Wharf may include the Point Richmond shoreline, Keller Beach, Ferry Point, Brickyard Cove, Brooks Island Regional Preserve, Richmond Marina Bay, Marina Green, Point Isabel Regional Shoreline, and Point Isabel. Areas potentially affected on the West Bay shoreline across San Pablo Bay include Kiel Cove, Bluff Point, Tiburon Cove, Paradise Beach County Park, Paradise Cove, Corte Madera State Ecological Reserve, Point San Pedro, and McNears Beach. Additional analysis of impacts on sensitive shoreline biological resources is presented in Section 4.3, Biological Resources.

Other areas may also be contacted by oil given the right wind and current conditions, and the origin of the spill. For example, oil spill modeling conducted for the Unocal (now Conoco/Phillips) Marine Terminal (Chambers Group 1994) shows that a large spill (100,000 bbls) in the shipping lanes near Alcatraz Island could cause oil to spread and beach at almost all shoreline points within the Central Bay and San Pablo Bay areas, as well as affect portions of the South Bay and Carquinez Strait (Bay Scenarios No. 9 and No. 10, 100,000-bbl crude oil spills). Shoreline and water-related uses would be disrupted by oil on the shoreline and in the water. The shoreline areas affected under these scenarios are shown in Figures 4.0-4 through 4.0-8.

A spill within the shipping lanes, depending on size and location, could affect tankering and other boating in the vicinity of the spill and its area of spread. In either case, depending on wind and current conditions and size of the spill, shoreline and land and water-recreation uses could be affected. Shoreline uses affected by a spill not only include marinas and park and recreation uses as discussed earlier, but also other

marine terminals and port and harbor operations. Examples include passenger and cargo vessels, commercial fishing vessels, and others that may have to slow, reroute, or halt operations during cleanup and containment. Nearshore uses may also be affected because they may be temporarily closed during cleanup operations for public safety purposes. Land access to coastal areas may also be affected by cleanup operations.

The capability to immediately respond and deploy appropriate containment booming would also influence the extent of affected shoreline. Response capability is analyzed in Section 4.1, Operational Safety/Risk of Accidents.

Because it is impossible to predict with any certainty the potential consequences of spills, impacts are considered to be adverse and significant (Class I or II), because severe spills could have residual impacts that could affect shoreline and/or recreational uses.

Accidents Along the Outer Coast

Compared to the Bay, existing land uses and recreational areas along the outer coast are more diverse, ranging from heavily used areas to areas that are undeveloped and fairly inaccessible, especially along the northern coast. Spills that beach along heavily used areas and recreational points would limit or preclude such uses and result in significant (Class I or II) impacts, depending on the various characteristics of a spill and its residual effects. Oil that spreads to beaches, sand dunes, tidepools, shoreline reserves, harbors, marinas, and other recreational boating and fishing facilities would limit access to these areas where there is oil, containment equipment, or cleanup activities. Spills that reach the more remote portions of the shoreline may not necessarily decrease the availability of recreational uses because use may be minimal, but would result in other impacts to biological resources and water quality as discussed in other sections of this EIR. Portions of coastline would also be visually affected by spills as discussed in Section 4.9, Visual Resources/Light and Glare.

Over the life of the proposed new lease, as more areas of the coastline are developed or made accessible to the public, the likelihood that an established land use or recreational amenity may be affected by a spill would also increase.

Because it is impossible to predict with any certainty the potential consequences of spills, impacts are considered to be adverse and significant (Class I or II), because severe spills could have residual impacts that could affect shoreline and/or recreational uses. Any residual impacts remaining after first response efforts would be considered to be significant adverse impacts (Class I).

<u>Mitigation Measures for LU-4</u>:

LU-4. Mitigation measures for accidents in the shipping lanes would not be Chevron's responsibility, but would fall to the vessel operator/owner, unless the vessels are owned by Chevron. Chevron shall implement measures OS-7a and OS-7b in Operational Safety/Risk of Upset.

Rationale for Mitigation: Response capability for containment and cleanup of land areas oiled is not the responsibility of Chevron for spills in the shipping lanes. However, Chevron's participation in VTS upgrade evaluations, and Chevron's response actions for spills near the Long Wharf help to reduce potential impacts to shoreline and recreational areas. Impacts to these areas near the Long Wharf may be able to be reduced to less than significant.

Residual Impacts: Even with implementation of mitigation for oil spill impacts, land- and water-related recreational impacts would potentially remain significant (Class I).

4.5.5 Impacts of Alternatives

LU-5: No Project Alternative

With no project, there would be no potential for spills that could impact land use or recreational resources (Class IV). During decommissioning, impacts are considered less than significant (Class III) to land use and recreation.

Under the No Project Alternative, Chevron's lease would not be renewed and the existing Long Wharf would be subsequently decommissioned with its components abandoned in place, removed, or a combination thereof. The decommissioning of the Long Wharf would follow an Abandonment and Restoration Plan as described in Section 3.3.1, No Project Alternative.

Under the No Project Alternative, alternative means of crude oil / product transportation would need to be in place prior to decommissioning of the Long Wharf, or the operation of the Chevron Refinery would cease production, at least temporarily. It is more likely, however, that under the No Project Alternative, Chevron would pursue alternative means of traditional crude oil transportation, such as a pipeline transportation, or use of a different marine terminal. Accordingly, this EIR describes and analyzes the potential environmental impacts of these alternatives. For the purposes of this EIR, it has been assumed that the No Project Alternative would result in a decommissioning schedule that would consider implementation of one of the described transportation alternatives. Any future crude oil or product transportation alternative would be the subject of a subsequent application to the CSLC and other agencies having jurisdiction, depending on the proposed alternative.

Decommissioning and potential dismantling of the Long Wharf would likely take place from the water with removal via barges. The shoreline facilities supporting the Long Wharf could be removed without direct effects on Refinery operations. As discussed in existing conditions for Bay Trail Planning, with this area open, a trail could go through the area. However, as with the proposed Project, the action would be subject to a separate CEQA review and is outside the jurisdiction of the CSLC. After decommissioning, Long Wharf operations would be transferred to other Bay area marine terminals, and similar impacts as those described for the proposed Project would occur at those terminals.

LU-5: No mitigation is required.

Impact LU-6: Full Throughput via Pipeline Alternative

In order for the refinery to operate, pipelines alignments would need to be identified and easements obtained. It is possible that direct or indirect impacts on land and/or recreation use could occur from conversion of lands in highly developed urban areas. Easements required for construction of a large pipeline through an urban area could result in a loss of use or conversion of that use. This may result in significant (Class I or Class II) impacts.

With this alternative, use of the Long Wharf would cease and the required Refinery operational levels of crude intake and product export would be maintained by pipelines. Further study through the local jurisdiction (city of Richmond) in cooperation with Chevron, Caltrans, and public interest groups, would address any potential for conflicting land uses, safety, and related issues.

Pipeline alignments would need to be identified and easements obtained. Conversion of some lands in highly developed urban areas could either directly or indirectly affect land use, including recreational use. Easements required for construction of a large pipeline through an urban area could result in a loss of use or conversion of that use. This may result in significant (Class I or Class II) impacts. Class I impacts would occur in areas where property may be taken. If this impact can be mitigated by monetary means or land trades, then it may be wholly or partially mitigated. Incompatible land uses with adjacent property may also result in Class I or Class II impacts. Temporary Class I impacts also may occur during construction, affecting the ability to use the land. Once the pipeline is covered, no residual impact would remain. There is less likelihood of such impacts occurring in rural areas, where pipelines may run through already established easements.

Mitigation Measures for LU-6:

LU-6. Mitigation for loss of property may include fair price purchase of property, a land trade, relocation of structures and/or people, or other means.

Rationale for Mitigation: The goal of this mitigation is to minimize the loss of property or loss of a particular land use due to a "take" of property or a conversion of use.

Residual Impacts: An unmitigable (Class I) impact may result where land is deeded to an easement and taken out of public use, such as a public park, if that loss contributes to a decrease in park space with no means for replacement.

Impact LU-7: Conceptual Consolidation Terminal Alternative

Two terminals would operate simultaneously with no adverse impacts. However, the alternative would require new pipelines, the construction of which could result in significant (Class I or II) impacts.

No land use or recreation impacts (Class III) are expected from both terminals operating simultaneously. It is expected that the new terminal would be properly zoned with proper land use designations as part of the planning process. In addition, because there would be sufficient distance between the two terminals, no impacts to water-based recreation are expected. A project-specific environmental analysis would be required to examine the potential impacts of the new terminal. As with the No Project Alternative, pipelines could result in Class I or II land use impacts.

Mitigation Measures for LU-7:

LU-7. Adherence to MM LU-6.

Rationale for Mitigation: The goal of this mitigation is to minimize the loss of property or loss of a particular land use due to a "take" of property or a conversion of use.

Residual Impacts: An unmitigable (Class I) impact may result where land is deeded to an easement and taken out of public use, such as a public park, if that loss contributes to a decrease in park space with no means for replacement.

4.5.6 Cumulative Projects Impacts Analysis

Impact CUM-LU-1: Oil Spills from Vessels in Transit in Bay or along Outer Coast

Impacts to sensitive shoreline lands, and/or water and non-water recreation due to a release of oil would result in potentially significant adverse (Class I or II) impacts. When the cumulative environment is considered, the contribution from the Long Wharf is small, but still a spill could be significant (Class I or II).

The cumulative environment throughout the Bay includes a mix of shoreline land uses including other oil terminals, port and harbor facilities, and heavy industrial uses that are water-dependent. The existing pattern of land use and County land use designations reflect the presence of such uses. The cumulative projects identified in Section 3.2, Alternatives Eliminated from Full Elevation, also include a mix of navigation improvement projects (dredging), bridge improvement projects, and new ferry service, several of which are located near the Long Wharf. The lease for the Long Wharf, if approved, would occur over 30 years; therefore, currently identified projects and future projects not yet identified must be considered in the cumulative environment.

If one or more dredging projects occur simultaneously and in proximity to each other, there is the possibility that marine vessel traffic in the Bay could be constrained, resulting in potential impacts to water-based recreational use. Such use may be rerouted, delayed, or completely restricted, as in the case of blockage of access to/from a marina. It is unlikely that bridge improvement projects would result in impacts unless vessels working on bridge supports from the water, combined with other cumulative projects, result in transit delays that affect recreational use. Except for modifications to Berth No. 4, Long Wharf operations would not involve construction; therefore, they would not contribute to cumulative impacts to water-based recreation. Berth No. 4 construction, if conducted simultaneously with other projects in the immediate vicinity, may result in impacts (Class II) to water-based recreation. These projects include the Southampton Shoal Channel Deepening Project, the southern portion of the LTMS Program, the San Francisco to Stockton Navigation Project, or the Richmond-San Rafael Bridge improvement project, or other future unidentified projects in the immediate vicinity.

Mitigation Measures for CUM-LU-1:

CUM-LU-1. Berth No. 4 construction shall be scheduled so as not to coincide with dredging or other construction activity in the Southampton Channel or at the Richmond-San Rafael Bridge that could constrain waterborne transportation.

Rationale for Mitigation: If Southampton Channel dredging maintenance and/or San Rafael Bridge improvements occur simultaneously with Long Wharf improvements, all the activity might result in delays or rerouting of ship traffic. The goal of this measure is to minimize disruption to waterborne transportation, including recreational boaters, in the area near the Long Wharf.

Residual Impacts: With this mitigation, no impacts would occur to recreational boaters and other vessel traffic passing near the Long Wharf.

Table 4.5-3 summarizes Land Use and Recreation impacts and mitigation measures.

Table 4.5-3
Summary of Land Use and Recreation Impacts and Mitigation Measures

Impact	Mitigation Measures
LU-1: Conflicts with Existing or Future Planned Area-Wide or Local Policy Issues or Plans	**LU-1:** No mitigation required
LU-2: Incompatible Recreational Land Uses	**LU-2:** No mitigation required.
LU-3: Accidental Releases at or Near the Long Wharf	**LU-3:** Spills at Long Wharf will be the responsibility of Chevron.
LU-4: Land Use/Recreational Impacts of Oil Spills from Vessels in Transit	**LU-4:** Accidents in shipping lanes are not Chevron's responsibility, unless vessels are owned by Chevron. Implement MM OS-7a and MM OS-7b.
LU-5: No Project Alternative	**LU-5:** No mitigation required.
LU-6: Full Throughput via Pipeline Alternative	**LU-6:** Property loss mitigation may include fair price purchase of property, land trade, relocation of structures and/or people, or other means.
LU-7: Conceptual Consolidation Terminal Alternative	**LU-7:** Adherence to MM LU-6.
CUM-LU-1: Oil Spills from Vessels in Transit in Bay or along Outer Coast	**CUM-LU-1:** Berth No. 4 construction scheduled so as to not coincide with dredging or other construction activity that could constrain waterborne transportation.

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4.6 AIR QUALITY

CEQA requires an EIR to include a description of the environment in the vicinity of the Project as it exists before the commencement of the Project from both a local and regional perspective. With respect to air quality, this description includes those factors that influence the spread of pollutants, such as climatology and topographic effects, as well as the locations of proximate sensitive receptors that would most likely be affected by any air quality impacts. The regulatory background, including the health effects of various pollutants, on which significance criteria are predicated is also discussed, and the existing level of pollutants within the Project area are disclosed. Unlike most projects that are still in the planning stage, the Long Wharf has been in operation since 1902. The Long Wharf's emissions are a part of the ambient air quality in the local and regional area and have been included in the Bay Area regional air quality planning process. Therefore, this section also includes a discussion of these emissions in association with the Long Wharf's permitting process. Finally, the impacts associated with continued operations under the proposed 30-year lease period are analyzed.

4.6.1 Environmental Setting

Local Climatology

The climate of the San Francisco Bay Area is characterized as maritime, where extreme variations in ambient temperatures are rare. The climate is strongly influenced by the proximity of the Pacific Ocean and the irregularities in the inland topography.

During the warmer months, the high-pressure system over the Pacific Ocean off the California coast results in negligible precipitation and northwest wind flows over the Bay Area. These northwesterly flows across the Pacific result in ocean surface movement off the California coast and promote the upwelling of cold water near the San Francisco coastline. As cool, moisture-laden air approaches the coast, further cooling occurs as it flows across this cold band. This cooling is often sufficient enough to result in condensation and the formation of fog and clouds in the region during the warmer months.

In winter, when the high-pressure system in the Pacific weakens, high westerly winds aloft allow frequent weather systems to move inland across northern California. With the formation of a persistent high-pressure system over the mountainous regions of northeast California, winter winds in the Bay Area are from the east and northeast.

A majority of the Bay Area's precipitation occurs from November through April. Average annual rainfall for the city of Richmond is 21.8 inches. During this period, inversions are either nonexistent or very weak. Stagnant conditions are rare due to the frequent replacement of air masses with each storm.

Weather patterns influence the dispersion of pollutants. Stagnant periods which inhibit the dispersion of pollutants in the lower atmosphere result from abnormally high temperatures and relatively stable conditions. On warmer days when the land-sea

temperature differential is high, turbulence results from the passage of westerly winds over the irregular topography, improving the dispersion of pollutants.

Site Setting and Sensitive Receptors

The topography at the site and surrounding area is characterized by steep hills which rise rapidly from sea level adjacent to San Pablo Bay located to the immediate north. The hills are cut by numerous drainage channels and streams. Elevations in excess of 900 feet are reached in the rugged hills of the Franklin Ridge area, located to the north near Carquinez Strait and the city of Martinez.

Regional topography to the west is dominated by the mountainous Marin Peninsula approximately 7 miles to the west. Mount Diablo, approximately 25 miles to the east, is also a major regional topographic feature with an elevation of over 3,800 feet (.72 miles).

The Project area is located in the San Francisco Bay southeast of the San Rafael-Richmond Bridge. Ships call on the facility dock at the end of the Long Wharf, which is about 1 mile from shore. The nearest sensitive land uses are the residential units located on shore to the immediate east of the point where the Long Wharf meets the shoreline. This places them approximately 1 mile from the bulk of Long Wharf operations.

Air Monitoring Data Near the Long Wharf

Industrial facilities monitor their sources of emissions and/or calculate emissions for the purpose of tracking compliance with BAAQMD permits and to assist in achieving compliance with the local CAP. Sources of emissions over which the facility has control are considered direct emissions whereas emissions relating to vehicle traffic to and from the facility are considered indirect emissions. Vehicle traffic includes trucks, barges, tankers, and tugboats. Indirect emissions are most likely to be mobile source emissions.

The BAAQMD maintains and operates a regional air-monitoring network for determination of compliance with air quality standards. The network is made up of 14 monitoring stations used to measure the ambient concentrations of pollutants for which air quality standards have been established. Each station monitors a combination of gaseous and/or particulate pollutants either on a continuous or every 6-day basis. These data are used to describe the air quality within the surrounding community and to determine the attainment status of the air basin.

The air monitoring station located closest to the Project site with the most current data is located in San Pablo on Rumrill Road. A 3-year summary of the ambient air quality data collected at this station is presented in Table 4.6-1. Note that the State PM_{10} standard was exceeded three times in 2002 and once in 2004. Additionally, the ozone standard was violated once in 2004. No other standards have been exceeded at the San Pablo Rumrill station in the last 3 years' worth of data.

Table 4.6-1
Air Quality Monitoring Summary for the San Pablo Rumrill Road Monitoring Station[1] (Number of Days Standards were Exceeded and Maximum Levels During Such Violations[2])

State and Federal Pollutant/Standard	2002	2003	2004
Ozone (O_3)			
State 1-hour > 0.09	0	0	1
Federal 1-hour > 0.12 ppm	0	0	0
Federal 8-hour > 0.08 ppm	0	0	0
Max. 1-hour conc. (ppm)	0.069	0.091	0.105
Max. 8-hour conc. (ppm)	0.047	0.068	0.069
Carbon Monoxide (CO)			
State 8-hour ≥ 9.1 ppm	0	0	0
Federal 8-hour ≥ 9.5 ppm	0	0	0
Max. 8-hour conc. (ppm)	1.81	1.78	1.83
Nitrogen Dioxide (NO_2)			
State 1-hour > 0.25 ppm	0	0	0
Max. 1-hour conc. (ppm)	0.054	0.070	0.055
Sulfur Dioxide (SO_2)			
State 1-hour > 0.25 ppm	0	0	0
Max. 1-hour conc. (ppm)	0.005	0.006	0.005
Inhalable Particulates (PM_{10})[3]			
State 24-hour > 50 μg/m^3	3	0	1
Federal 24-hour > 150 (μg/m^3)	0	0	0
Max. 24-hour conc. (μg/m^3)	67.0	47.9	62.0

Source: California Air Quality Data. CARB Web-site, 10/14/05
[1] All pollutants are as monitored at the San Pablo Rumrill Road station.
[2] With the exception of inhalable particulates (PM_{10}), all values are based on 365 days per year.

Existing Conditions at the Long Wharf

Under CEQA, most projects undergo environmental review in the planning stages prior to their actual implementation. In this respect, the proposed Project is somewhat unusual in that it consists of consideration of a new lease, which, if granted, would allow for the Long Wharf to continue operations. As such, the Project already has its necessary air quality permits in place and has been included in the BAAQMD inventory of emissions. This section presents existing emissions associated with Long Wharf operations that are set and limited by the permit conditions, emissions reported to

BAAQMD under the facility's Annual Update that are not reported under the BAAQMD Permit to Operate conditions, and other data on related Long Wharf operations vehicle travel. This volume of emissions would be removed from the air basin if the Long Wharf was not in operation.

Permit Conditions and Emissions Inventory Reporting

The Long Wharf operates under a Permit to Operate granted by the BAAQMD. The BAAQMD has set emissions limitations which govern the maximum volume Long Wharf- and Refinery-related of emissions on a yearly basis. These emissions limitations include on-wharf operations including the operation of the thermal oxidizer, as well as those operations related to ships and tugs which call on the Long Wharf. The Permit to Operate does not consider those emissions associated with the use of "on-road" motor vehicles. Based on the Permit to Operate, the Long Wharf and Refinery can produce as much as 773.5 tons of CO, 6,151.0 tons of NO_x, 391.1 tons of ROG, 918.0 tons of SO_x, and 326.0 tons of particulate on a yearly basis. Of these values, Refinery operations are limited to 723.5 tons of CO, 5,772.0 tons of NO_x, 326.3 tons of ROG, 392.0 tons of SO_x, and 281.1 tons of particulate. Based on the Refinery operating at its allowable maximum values, the Long Wharf (including ship and tug operations) can produce as much as 50 tons of CO, 379 tons of NO_x, 64.8 tons of ROG, 526 tons of SO_x, and 44.9 tons of particulate on a yearly basis. The ROG limitation may be exceeded only to the extent that lightering emissions may exceed 24.1 tons per year. In the event that lightering emissions do exceed 24.1 tons per year, the presented value for ROG (i.e., 64.8 tons per year shall be increased by 1 ton per year for each ton of lightering emissions in excess of 24.1 tons per year. However, in no case shall the total combined ROG emissions for both the Long Wharf and Refinery increase by more that 5.7 tons per year. While the values presented for the Refinery are not to be exceeded, values for the Long Wharf operations may be exceeded to the extent that corresponding reductions are made in Refinery emissions.

Chevron data reported monthly to BAAQMD for Long Wharf operations, ship and barge activity for the period January 2000 through March of 2002 were averaged to determine the daily emissions associated with these operations and are presented in Table 4.6-2.

Leak Detection and Repair

Like all facilities that deal with the movement of liquid materials, the Long Wharf includes a large number of pumps, valves, flanges, and pressure relief devices. If ignored, these fittings can develop small leaks that ultimately release ROG emissions into the air. As required under BAAQMD Regulation 8-18, Chevron operates a Leak Detection and Repair (LDAR) program with an ongoing repair/replacement policy. This regulation outlines monitoring and repair procedures and sets up reporting requirements. The results of this program are reported to the BAAQMD in the facility's Annual Update. (These emissions are not reported under the BAAQMD Permit to Operate conditions.) Data submitted by Chevron indicate that in the Year 2001, 10,523 pounds of ROG were released due to the use valves, compressors, pumps, and flanges

associated with the Long Wharf. Of this value, 2,454 pounds were from valves, 4 pounds from compressors, 1,213 pounds were associated with the use of pumps, and 6,852 pounds were from flanges. Converted to a daily emission rate, these ROG emissions are included in the ROG total shown in Table 4.6-2.

Table 4.6-2
Existing Daily Emissions (Pounds per Day)

Source	CO	NO_x	ROG	SO_x	PM_{10}
Thermal Oxidixer[1,2]	---	---	244.4	---	---
Ship Combustion	250.4	1,796.2	134.4	3,328.1	263.1
Barge Combustion	45.4	439.9	19.4	163.3	25.6
Lightering	---	---	5.2	---	---
Fugitive ROG Emissions	---	---	28.8	---	---
Worker Commutes[3]	6.0	0.6	0.6	0.0	0.0
Haul Trucks[4]	37.9	58.2	5.3	0.6	2.4
Onsite Vans[5]	0.8	0.1	0.1	0.0	0.0
Total Daily Emissions	340.5	2,295.0	438.2	3,492.0	291.1

[1] Only ROG is reported.
[2] Chevron data reported to BAAQMD in the facility's Annual Update. Includes emissions for values, compressors, pumps, and flanges.
[3] Based on 25 automobiles traveling 375 miles per day.
[4] Based on 60 heavy diesel trucks traveling 1,536 miles per day.
[5] Based on 20 medium duty trucks traveling 40 miles per day.

Annual Dredging Program

In addition to direct Long Wharf and ship/barge emissions, Chevron conducts regular, yearly dredging for Long Wharf maintenance performed under a CSLC permit. The CSLC Dredging Lease for Chevron, dated June 14, 1999, finds that the dredging activity is exempt from the requirements of CEQA pursuant to Title 14, California Code of Regulations, Section 15061 as a Categorically Exempt Project, Class 4, "Minor Alterations to Land." CEQA Section 15304(g) exempts "Maintenance dredging where the spoil is deposited in a spoil area authorized by all applicable State and Federal regulatory agencies." Dredging operations are subject to BAAQMD stationary source regulation and require that the operator possess a valid permit to operate for the on-board, stationary engine(s) actually used in the dredging operation. For the purposes of this analysis emissions associated with dredging have been included for full disclosure of air emissions. The Long Wharf dredging permit allows for a maximum of 350,000 cubic yards of material to be removed to maintain a navigable depth, and safe operating depths during all tidal conditions. Spoils are to be disposed of at the United States Army Corps of Engineers approved Alcatraz Disposal Sites (SF-11).

Dredging activities are performed for a period of approximately 10 days each year using a clamshell dredge. Chevron reports (Richard Harris, personal communication) that the dredge uses diesel engines totaling 900 horsepower (hp) and has a 500 hp diesel generator that is used on a continual basis.

Removed sediments are loaded onto a scow for disposal at the Alcatraz disposal site. Two scows are used with one on route while one is loaded. The scows are moved by tugboat. The tug operates continuously, 24-hours a day. Of this time, approximately 14 hours are spent in transit and 10 hours are spent at idle during the loading operations. The tug also has an on-board generator rated at 75 hp that is used on a continual basis. Support staff includes three crews totally 13 people.

Tugboats can be powered by engines ranging in size from a few hundred hp to as much as 3,600 hp. This analysis assumes the use of an average value (i.e., 1,800 hp) in ascertaining vessel emissions. To derive tugboat emissions fuel consumption must first be ascertained. Presented below are the specifics for marine vessel fuel consumption:

Fuel Type	Diesel
Sulfur Content, Percent	0.0321
Fuel Density, lb/gal	7.12
Specific Fuel Consumption, lb/hp/hr	0.40
Idle Load Factor	0.20
Maneuver Load Factor	0.50
Cruise Load Factor	0.80

As noted, these operations are estimated to occur 24 hours per day and the tugboat, is assumed to operate at idle for 10 hours and at cruise for 14 hours. Because emissions for marine vessels vary widely and AP-42, does not present emissions for either SO_x or PM_{10} for marine vessels, emissions factors for heavy construction equipment engines were utilized for these two pollutant species.

Based on a rating of 1,800 hp, the tugboat would consume approximately 20 gallons per hour at idle and 81 gallons per hour at cruise. Therefore, based on the noted hours of operation, the tugboat could consume approximately 1,334 gallons per day. Table 4.6-3 outlines the projected emissions associated with yearly dredging activities.

Vehicular Emissions Associated with Operations

In addition to those emissions permitted by the BAAQMD, emissions are also produced by site workers in their daily commutes as well as vehicles that service the Long Wharf facilities. Based on information provided by Chevron, the facility operates with a *minimum* of seven operators at all times, 24 hours per day. Assuming three shifts, this would be 21 workers per day. For the purposes of this analysis, it was assumed that 25 workers commute to the site daily. Chevron has also indicated that approximately 60 trucks are associated with routine operation and maintenance activities and

20 van-trips carry passengers onto the Long Wharf daily. Chevron did not specify if these trucks include those that visit the Long Wharf from offsite locations and/or emanate from the Refinery, thus trip lengths and emissions for these trips were based on the both the Guidelines and the BURBEN2002 module of the EMFAC2002 computer model distributed by CARB. In accordance with the Guidelines, in the year 2005 the average trip in Contra Costa County is approximately 7.5 miles. The BURDEN2002 model indicates that heavy trucks travel an average of 12.8 miles per trip and this value was used for all trucking activities. Finally, each van-trip is assumed at an average distance of 1 mile along the Long Wharf. Emissions for these vehicles were calculated using the BURDEN2002 model and emissions are included in Table 4.6-3.

Table 4.6-3
Daily and Yearly Emissions for Dredging Activities
(Pounds per Day Unless Otherwise Noted)

Emission Source	CO	NO_x	ROG	SO_x	PM_{10}
Clamshell Dredge[1]	118.8	518.4	15.2	5.6	15.1
Generators[2]	92.2	427.8	34.7	28.3	30.4
Tugboat[3]	136.4	429.7	69.2	41.5	40.2
Worker Commutes[4]	3.1	0.3	0.3	0.0	0.0
Total Daily Emissions	350.5	1,376.2	119.4	75.4	85.7
Total Yearly Emissions (tons)[5]	1.8	6.9	0.6	0.4	0.4

[1] Based on a 900 hp diesel engine operating 24 hours per day. Emission factors are as per AP-42, 1995, Table 3.4-1.
[2] Based on a 575 hp diesel engine (including 500 hp for dredge and 75 hp for tug) operating 24 hours per day. Emission factors are as per AP-42 1995, Table 3.3-1.
[3] Based on one 1,800 hp diesel vessel operating 10 hours per day at idle and 14 hours per day at cruise. Emission factors for CO, NO_x, and ROG are as per AP-42 1985, Table II-3.3. Emission factors for SO_x and PM_{10} are as per AP-42 1985, Table II-7.1 for a miscellaneous piece of diesel-powered, heavy-duty construction equipment.
[4] Based on 13 automobiles traveling 195 miles per day.
[5] Based on 10 days of operation per year.

4.6.2 Regulatory Setting

Air Quality Standards

Federal Regulations/Standards

The Federal Clean Air Act (CAA) required the EPA to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for the six "criteria" air pollutants including ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), suspended particulate matter (PM_{10}, $PM_{2.5}$), and lead (Pb), so-called because the standards were based on a health criteria document. The NAAQS are summarized in Table 4.6-4.

Table 4.6-4
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	0.08 ppm (157 µg/m^3)[8]	Same as Primary Std.	Ethylene Chemiluminescence
	8 Hour	0.070 ppm (137 µg/m^3)---				
Carbon Monoxide	8 Hour	9.0 ppm (10 mg/m^3)	Nondispersive Infrared Spectroscopy (NDIR)	9 ppm (10 mg/m^3)	None	Non-dispersive Infrared Spectroscopy (NDIR)
	1 Hour	>20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
Nitrogen Dioxide	Annual Arithmetic Mean	---	Gas Phase Chemiluminescence	>0.053 ppm (100 µg/m^3)	Same as Primary Std.	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m^3)		---		
Sulfur Dioxide	Annual Arithmetic Mean	---	Fluorescence	0.030 ppm (80 µg/m^3)	---	Pararosaniline
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)	---	
	3 Hour	---		---	0.5 ppm (1,300 µg/m^3)	
	1 Hour	0.25 ppm 655 µg/m^3		---	---	
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	Gravimetric or Beta Attenuation	50 µg/m^3	Same as Primary Stds.	Inertial Separation and Gravimetric Analysis
	24 Hour	>50 µg/m^3		150 µg/m^3		
Respirable Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3	Same as Primary Stds.	Inertial Separation and Gravimetric Analysis
	24 Hour	No Separate State Standard		65 µg/m^3		
Visibility Reducing Particulates	8 Hour (10 a.m. to 6 p.m., PST	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer-visibility of 10 miles or more due to particulates when the relative humidity is less than 70 percent.		No Federal Standards		
Sulfates	24 Hour	25 µg/m^3	Turbidimetric Barium Sulfate	No Federal Standards		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3	Cadmium Hydroxide STRactan	No Federal Standards		

Table 4.6-4 (continued)
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Lead	30-Day Average	1.5 µg/m^3	Atomic Absorption	---	---	High Volume Sampler and Atomic Absorption
	Calendar Quarter	---		1.5 µg/m^3	Same as Primary Std.	

[1] California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM_{10}, $PM_{2.5}$, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
[2] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
[4] Any equivalent procedure which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.
[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
[7] Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
[8] New Federal 8-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18,1997.

Air basins, or portions thereof, are classified under the CAA as either "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the NAAQS have been achieved. The 1990 CAA Amendments gave the EPA new authority to define the boundaries of nonattainment areas. O_3 nonattainment areas have been categorized as "severe," "serious," "moderate," or "marginal." The CO and PM_{10} nonattainment regions have been divided into "serious" and "moderate" classifications. In June 2004, the San Francisco Bay Area Air Basin was categorized as marginal non-attainment for the national 8-hour ozone standard. (The national 1-hour ozone standard was revoked by the USEPA on June 15, 2005.) The Basin is unclassified for the 24-hour PM_{10} standard, but does attain all other national particulate and gaseous emissions standards.

Marginal nonattainment areas must meet the national 8-hour ozone standard by June 15, 2007. Specific planning requirements for 8-hour marginal nonattainment areas are not yet fully established, as the EPA has not issued Phase 2 of the 8-hour implementation rule and certain elements of the Phase 1 are subject to legal challenge. It is not currently anticipated that marginal areas will be required to prepare attainment

demonstrations for the 8-hour standard. Other planning elements may be required. As 8-hour planning requirements become clear, the Bay Area will address the requirements in subsequent documents. In addition, in anticipation of the implementation rule, the Air District is working in collaboration with the California Air Resources Board (CARB) and other Northern California air districts through the Northern California Agencies SIP/Transport Working Group to address 8-hour planning requirements for other regions in Northern California.

State Regulations/Standards

California began setting air quality standards in 1969 with the passage of the Mulford-Carrell Act, before NAAQS were established. Because of unique meteorological problems in the State and the differences of opinion from medical panels established by the CARB and the EPA regarding pollutant levels that protect susceptible members of the population from adverse health impacts with an adequate degree of safety (Table 4.6-1), in some cases, there are considerable differences between State and Federal standards currently in effect in California. In addition to its more stringent ambient air quality standards, California uses more stringent regulations than the Federal government for vehicle emissions, under a program administered by CARB.

These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those "sensitive receptors" most susceptible to respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. A description of each pollutant type and its effects is presented below.

Ozone (O_3) – O_3 is one of a number of substances called photochemical oxidants that are formed when reactive organic gases (ROG) and NO_x, both byproducts of the internal combustion engine, react in the presence of ultraviolet sunlight. O_3 is present in relatively high concentrations in the air basin, and the damaging effects of photochemical smog are generally related to the concentrations of O_3. O_3 may pose its worst health threat to those who already suffer from respiratory diseases. This health problem is particularly acute in sensitive receptors such as the sick, the elderly, and young children. O_3 levels peak during the summer and early fall months.

Carbon Monoxide (CO) – CO is a colorless, odorless, toxic gas which is produced by incomplete combustion of carbonous substances (e.g., gasoline or diesel fuel). The primary adverse health effect associated with CO is the interference of normal oxygen transfer to the blood which may result in tissue oxygen deprivation.

Fine Particulate Matter – Fine particulate matter consists of finely divided solids or liquids such as soot, dust, aerosols, fumes and mists. Two forms of fine particulate are now recognized. Course particles, or PM_{10}, include that portion of the particulate matter with an aerodynamic diameter of 10 microns (i.e., ten one-millionths of a meter or 0.0004 inch) or less. Fine particles, or $PM_{2.5}$, have an aerodynamic diameter of

2.5 microns (i.e., 2.5 one-millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction and transportation activities. However, wind action on the arid landscape also contributes substantially to the local particulate loading. Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in those people who are naturally sensitive or susceptible to breathing problems.

Nitrogen Dioxide (NO_2) – NO_2 is a byproduct of fuel combustion. The principle form of NO_2 produced by combustion is nitric oxide (NO), but NO reacts quickly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (2 and 3 years old) has also been observed at concentrations below 0.3 parts per million (ppm). NO_2 absorbs blue light, the result of which is a brownish-red cast to the atmosphere and reduced visibility. NO_2 also contributes to the formation of PM_{10}.

Sulfur Dioxide (SO_2) – SO_2 is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. Fuel combustion is the primary source of SO_2. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue.

Lead (Pb) – Pb in the atmosphere occurs as particulate matter. In the past the combustion of leaded gasoline was the primary source of lead emissions. Other sources of lead include the manufacturing of batteries, paint, ink, ceramics, and ammunition, and secondary lead smelters. With the phase-out of leaded gasoline, secondary lead smelters and battery recycling and manufacturing facilities are becoming lead emission sources of greater concern. Prolonged exposure to atmospheric lead poses a serious threat to human health.

Reactive Organic Gases – ROGs are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicles is the major source of hydrocarbons. Adverse effects on human health are not caused directly by ROG, but rather by reactions of ROG to form secondary air pollutants including O_3. Note that for the purposes of this analysis, ROG, reactive organic compounds (ROC), volatile organic compounds (VOC), and non-methane hydrocarbons (NMHC), are used synonymously.

Fugitive Dust – Fugitive dust poses primarily two public health and safety concerns. The first concern is that of respiratory problems attributable to the suspended particulates in the air. The second concern is that of motor vehicle accidents caused by reduced visibility during severe wind conditions. Fugitive dust may also cause significant property damage during strong wind storms by acting as an abrasive material agent (much like sandblasting activities).

The California Clean Air Act (CCAA), which became effective on January 1, 1989, provides a planning framework for attainment of the California Ambient Air Quality Standards (CAAQS). Nonattainment areas in the State were required to prepare plans for attaining the CAAQS. The CCAA provided for the classification of regions within the State into four classes: "moderate," "serious," "severe," and "extreme." Regional classifications are determined by monitoring data taken during the 1989-1991 baseline period, as follows:

Ozone

Classification	Highest 1-Hour Level
Moderate	0.09 ppm to 0.12 ppm
Serious	0.13 ppm to 0.15 ppm
Severe	0.16 ppm to 0.20 ppm
Extreme	> 0.20 ppm

Carbon Monoxide

Classification	Highest 8-Hour Level
Moderate	9.0 ppm to 12.7 ppm
Serious	> 12.7 ppm

The Basin is currently classified as "serious" nonattainment of the State ozone standards, but is in attainment of the CO standards. For regions in any class, attainment plans are required to demonstrate a five percent per year reduction in the emissions of nonattainment pollutants or their precursors, unless all feasible measures are being employed.

The 1990 CAA Amendments represent a major revision of the original statute. They specify new strategies for attaining Federal air quality standards, including mandatory three percent annual reductions of air pollutant emissions in areas exceeding Federal standards, new offset requirements for new stationary sources of air pollutants, the scheduled introduction of low-emitting cars and trucks into the motor vehicle fleet, and the development of alternatives to the private automobile as the primary means of transportation.

BAAQMD, the Clean Air Plan (CAP) and the Ozone Strategy

The BAAQMD has jurisdiction over the San Francisco Bay Air Basin including Contra Costa County. The BAAQMD has permit authority over all stationary sources of air pollutants and acts as the primary reviewer of air quality issues in environmental documents. The agency also provides technical and monitoring support, as well as enforcement of rules and regulations. The BAAQMD was also mandated to meet State standards by the earliest date achievable using reasonably available measures.

The *Bay Area 1991 Clean Air Plan (CAP)*, adopted on October 30, 1991, was prepared in response to requirements of the CCAA. The Plan included methods to lower ground-level O_3 in the San Francisco Bay Area and included a comprehensive strategy to reduce air pollution throughout the Basin. The 1991 CAP focused on control measures to be implemented during the 1991 to 1994 period, and also included control measures to be implemented from 1995 through the year 2000 and beyond.

The Plan was updated to the *Bay Area 1994 CAP* in 1994 and serves as a continuation of the comprehensive strategy established in 1991. The 1994 Plan included changes in the organization and scheduling of some 1991 CAP measures and also includes eight new proposed stationary and mobile source control measures. The 1994 CAP included a comprehensive strategy to reduce air pollutant emissions, focused on control measures to be implemented during the 1994 to 1997 period, and also included control measures to be implemented from 1998 through the year 2000 and beyond.

The CAP was again updated in 1997. This plan was a continuation of the comprehensive strategy established in the region's first plan, the 1991 CAP, to attain the State ozone standard. The *Bay Area 1997 CAP* included changes in the organization and scheduling of some 1994 CAP control measures and also includes 12 proposed new stationary and mobile source control measures, as well as two new transportation control measures. The 1997 CAP covered the period to the next California air quality planning update of 2000. It also included projections of pollutant trends and possible emission reduction activities beyond 2000.

The goals of the CAP are to reduce the health impacts from O_3 levels to below the State ambient standard and to comply with the CCAA. The Act requires air districts that exceed the State ozone standard to reduce pollutant emissions by 5 percent per year, calculated from 1990, or take all feasible measures to achieve emission reductions. The Bay Area attained the State CO standard in 1993, so the CCAA planning requirements for CO nonattainment areas no longer apply to the Bay Area. The control measures proposed in the CAP constitute all feasible measures for the reduction of O_3 precursor emissions in the Bay Area.

The most current CAP was the *Bay Area 2000 Clean Air Plan and Triennial Assessment* adopted December 20, 2000. Consistent with CCAA requirements, the strategy for this air quality plan is to implement all feasible measures on an expeditious schedule in order to reduce ozone precursor pollutant emissions as quickly as possible. As in previous iterations of the *Clean Air Plan*, this update defines feasible measures as "those control measures which are: 1) reasonable and necessary for the San Francisco Bay Area; 2) capable of being implemented in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors; and 3) approved or approvable by the California Air Resources Board, based upon State law and CARB policies."

The focus of this plan update is on measures that could be developed and adopted as regulations over the following three year period (2001, 2002, and 2003). To update the plan, BAAQMD staff examined measures from the *1997 Clean Air Plan* that had not yet been implemented. In addition, staff evaluated possible new control measures, through an extensive review of rules adopted or proposed in other jurisdictions. In conducting this review, the District evaluated the following information:

- Regulations adopted or proposed by the South Coast AQMD and by other California air districts;
- State Implementation Plan (SIP) submittals by various states;
- CARB guidance on feasible control measures;
- BAAQMD BACT guidance; and
- EPA guidance documents.

In addition to reviewing the above sources of information, District staff polled District engineers and enforcement staff for suggestions about potential control measures. All potential control measures were then evaluated based on emission reduction potential, technological feasibility, enforceability, cost-effectiveness, and public acceptability to determine whether measures would be feasible for the Bay Area. The measures that appeared feasible were added to the regulatory agenda. This review showed that the following new measures should be added to the CAP:

- Improved Automobile Refinish Coatings Rule;
- Improved Wood Products Coatings Rule;
- VOC limits for Concrete Coating Operations; and
- Improved Residential Water Heaters Rule.

This CAP update, like the updates in 1994 and 1997, increases CAP effectiveness by increasing expected emission reductions. The net effect of the 2000 update in adding new control measures while deleting some of the old measures was to increase expected emission reductions by 3.7 tons per day. By comparison, the 1994 update added three and deleted five stationary source measures, while adding five mobile source measures. The net effect of the 1994 update was to increase expected emission reductions by 3.8 tons per day. The 1997 update added six and deleted two stationary source measures. The net effect of the 1997 update was to increase expected emission reductions by 2.2 tons per day. Though it is not possible or meaningful to compare the 1991 estimate for total emission reductions expected from the plan against current estimates because many emission factors used to make emission inventory and emission reduction estimates have changed since 1991, the

total emission reduction attributable to the plan has increased with each update. The major benefits of the CAP are reduced health impacts from population exposure to O_3. Additional expected benefits are reductions in particulate matter, traffic congestion, energy use, global warming, crop damage, and water pollution.

As noted, the first Bay Area plan for the State ozone standard was the 1991 Clean Air Plan. Subsequently, the Clean Air Plan was updated and revised in 1994, 1997, and 2000. Each of these triennial updates proposed additional measures to reduce emissions from a wide range of sources, including industrial and commercial facilities, motor vehicles, and area sources. The BAAQMD recently released the Draft *Bay Area 2005 Ozone Strategy* (*Ozone Strategy*) (September 2005) as its current contribution to the State Implementation Plan (SIP) replacing the 2000 CAP.

The *Ozone Strategy* describes how the Bay Area will fulfill CCAA planning requirements for the State one-hour ozone standard and transport mitigation requirements through the proposed control strategy. The control strategy includes stationary source control measures to be implemented through Air District regulations; mobile source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through transportation programs in cooperation with MTC, local govemments, transit agencies, and others. Under the *Ozone Strategy*, the District will continue to adopt regulations, implement programs, and work cooperatively with other agencies, organizations and the public on a wide variety of strategies to improve air quality in the region and reduce transport to neighboring air basins.

The *2005 Ozone Strategy* explains how the Bay Area plans to achieve these goals with regard to ozone, and also discusses related air quality issues of interest including the public involvement process, climate change, fine particulate matter, the Air District's Community Air Risk Evaluation (CARE) program, local benefits of ozone control measures, the environmental review process, national ozone standards, and photochemical modeling.

The CCAA requires CARB to periodically assess transport of ozone and ozone precursors from upwind to downwind regions, and to establish mitigation requirements for upwind districts. The CCAA also requires air districts to address transport mitigation requirements in the triennial updates to strategies to achieve the State ozone standard.

The *Ozone Strategy* provides a mechanism where the Bay Area is to:

- Adopt and implement all feasible measures as expeditiously as practicable;

- Adopt and implement best available retrofit control technology (BARCT) on all existing stationary sources of ozone precursor emissions as expeditiously as practicable;

- Implement a stationary source permitting program designed to achieve no net increase in the emissions of ozone precursors from new or modified stationary sources that emit or have the potential to emit 10 tons or greater per year of an ozone precursor;

- Strengthen existing District requirements for various stationary and area source emissions; and

- Include measures sufficient to attain the State ambient air quality standard for ozone by the earliest practicable date within the North Central Coast Air Basin, that portion of Solano County within the Broader Sacramento Area, that portion of Sonoma County within the North Coast Air Basin, and that portion of Stanislaus County west of Highway 33 during air pollution episodes, provided that the are:

  - likely to violate the State ozone standard;

  - dominated by transport from the Bay Area; and

  - not affected by emissions of ozone precursors within their borders.

In addition, the Air District is required to consult with downwind districts, review the list of control measures in the most recently approved attainment plan (*2000 Clean Air Plan*), make a finding as to whether the list of control measures meets the applicable requirements, and include the finding in the proposed triennial plan revision.

4.6.3 Impact Significance Criteria

Permitted Emissions

The air quality impacts of the proposed Project would be considered adverse and significant if Chevron USA does not comply with the terms of the Permit to Operate granted by the BAAQMD. The State CEQA Guidelines state the following: "Sources of air pollutants emissions complying with all applicable District regulations generally will not be considered to have a significant air quality impact" (State CEQA Guidelines, Section 15064(l)). Stationary sources that are exempt from District permit requirements, because they fall below emission thresholds for permitting, will not be considered to have a significant air quality impact (unless it is demonstrated that they may have a significant cumulative impact).

Non-Permitted Emissions

In accordance with the BAAQMD CEQA Guidelines (Guidelines) (April 1996), non-permitted emissions could have a significant, adverse impact if they:

- Contribute to an exceedance of localized CO emissions in excess of the CAAQS of 20 ppm for 1-hour or 9 ppm for 8 hours;

- Result in emissions which exceed the following emission thresholds:
  - ROG, 15 tons/year, 80 lbs/day;
  - NO_x, 15 tons/year, 80 lb/day;
  - PM_{10}, 15 tons/year, 80 lbs/day;
- Allow land uses that create objectionable odors;
- Expose sensitive receptors (including residential areas) or the general public to substantial levels of toxic air contaminants; or
- Potentially result in the accidental release of acutely hazardous air emissions.

Cumulative Emissions

Cumulative impacts are considered significant, based on the Guidelines definition as follows: "Any Proposed Project that would individually have a significant air quality impact would also be considered to have a significant cumulative impact."

Construction Emissions

Construction activities related to the proposed Project or alternatives would be adverse and significant if the activities do not comply with the criteria defined in the BAAQMD CEQA Guidelines. The BAAQMD CEQA Guidelines emphasize a qualitative approach to construction emissions, focusing on comprehensive control measures rather than a detailed quantification of emissions. Gaseous emissions from construction equipment (i.e., carbon monoxide and ozone precursors) are included in the emission inventory that is the basis for regional air quality plans, are not expected to impede attainment or maintenance of ozone and carbon monoxide standards by the Bay Area, and are therefore not subject to impact criteria. Construction impacts are generally short-term in nature and are typically associated with the production of PM_{10}. The District provides viable mitigation for PM_{10} associated with dust, not with other emissions such as exhaust. The BAAQMD CEQA Guidelines do set forth a series of dust abatement procedures to which adherence constitutes mitigation to less than significant levels, regardless of the actual emissions that may occur.

4.6.4 Impacts Analysis and Mitigation Measures

Impact AQ-1: Construction Associated with Continued Operations

No major construction is proposed as part of the 30-year lease. Minor upgrades, maintenance and repairs would be adverse, but less than significant (Class III).

The proposed Project does not involve any new construction to the Long Wharf. Upgrades, maintenance and repair expected as part of the 30-year lease renewal are considered minor in nature and would not contribute significantly to the baseline emissions. Therefore, there is no impact from construction associated with continued operation of the Long Wharf. Chevron is required to notify the CSLC of major repairs, which CSLC staff reviews for environmental applicability, among other criteria.

AQ-1: No mitigation is required.

Impact AQ-2: Permitted Emissions Associated with Continued Operations with No Increased Throughput

Measured and calculated criteria pollutant emissions are below existing yearly BAAQMD permitted levels. Continued operation of the Long Wharf at current throughput levels would not result in significant air quality emissions impacts (Class III).

The granting of a new lease for the Long Wharf would continue the air emissions associated with current operations for an additional 30 years. The quantity of emissions produced from operations is presented in Table 4.6-5. Note that in Table 4.6-5, the total emissions in pounds per day are converted to tons per year. The non-permitted emissions are subtracted from the permitted emissions and the differences are compared to the emissions thresholds.

Emissions Allowed under the BAAQMD Permit to Operate

The Long Wharf operates under a Permit to Operate granted by the BAAQMD. The BAAQMD has set emissions limitations which govern the maximum volume Long Wharf- and Refinery-related of emissions on a yearly basis. These emissions limitations include on-wharf operations (including the operation of the thermal oxidizer), as well as those operations related to ships and tugs which call on the Long Wharf. Based on the Permit to Operate, the Long Wharf and Refinery can produce as much as 773.5 tons of CO, 6,151.0 tons of NO_x, 391.1 tons of ROG, 918.0 tons of SO_x, and 326.0 tons of particulate on a yearly basis. Of these values, Refinery operations are limited to 723.5 tons of CO, 5,772.0 tons of NO_x, 326.3 tons of ROG, 392.0 tons of SO_x, and 281.1 tons of particulate.

Table 4.6-5
Emissions Associated With Long Wharf Operations
(Pounds Per Day Unless Otherwise Noted)

Source	CO	NO_x	ROG	SO_x	PM_{10}
Thermal Oxidixer[1]	---	---	244.4	---	---
Ship Combustion	250.4	1,796.2	134.4	3,328.1	263.1
Barge Combustion	45.4	439.9	19.4	163.3	25.6
Lightering	0	---	5.2	---	---
Fugitive ROG Emissions	0	---	28.8	---	---
Worker Commutes[2]	6.0	0.6	0.6	0.0	0.0
Haul Trucks[3]	37.9	58.2	5.3	0.6	2.4
Onsite Vans[4]	0.8	0.1	0.1	0.0	0.0
Dredging Operations[5]	9.6	37.7	3.3	2.1	2.3
Total Pounds per day	350.1	2,332.7	441.5	3,494.1	293.4
Total Tons per year[6]	63.9	425.7	80.6	637.7	53.6
BAAQMD Permitted Emissions Tons per year[7]	55.0	412.8	79.1	637.4	52.9
Non-permitted Emissions Tons per year	8.9	12.9	1.5	0.3	0.7
Emission Thresholds	NA[8]	15	15	NA	15

[1]Only ROG is reported.
[2]Based on 25 automobiles traveling 375 miles per day.
[3]Based on 60 heavy diesel trucks traveling 1,536 miles per day.
[4]Based on 20 light duty trucks traveling 40 miles per day.
[5]Based on 10 days of dredging averaged over 365 days per year
[6]Operations occurring 365 days per year.
[7]Excludes augmentations for lightering. Dredge and generators are assumed to be permitted.
[8]Not applicable. There is no daily of yearly criterion for this pollutant.

Based on the Refinery operating at its allowable maximum values, the Long Wharf (including ship and tug operations) can produce as much as 50 tons of CO, 379 tons of NO_x, 64.8 tons of ROG, 526 tons of SO_x, and 44.9 tons of particulate on a yearly basis. The ROG limitation may be exceeded only to the extent that lightering emissions may exceed 24.1 tons per year. In the event that lightering emissions do exceed 24.1 tons per year, the presented value for ROG, i.e., 64.8 tons per year, shall be increased by 1 ton per year for each ton of lightering emissions in excess of 24.1 tons per year. However, in no case shall the total combined ROG emissions for both the Long Wharf and Refinery increase by more that 5.7 tons per year. While the values presented for the Refinery are not to be exceeded, values for the Long Wharf operations may be exceeded to the extent that corresponding reductions are made in Refinery Routine operations emissions would remain within these limitations, and impacts are considered adverse, but less than significant (Class III).

AQ-2: No mitigation is required.

Impact AQ-3: Non-Permitted Emissions Associated with Continued Operations

Since the facility is already operational, worker commute emissions are already part of ambient conditions, thus non-permitted emissions impacts are less than significant (Class III).

The Permit to Operate does not consider those emissions associated with the use of "onroad" motor vehicles. These emissions include those produced by site workers' daily commutes and vehicles that service the Long Wharf facilities. Based on information provided by Chevron, the facility operates with a minimum of seven operators at all times, 24 hours per day. Assuming three shifts, this would equate to 21 workers per day. For the purposes of this analysis, it was assumed that 25 workers commute to the site daily. Chevron has also indicated that approximately 60 trucks are associated with routine operation and maintenance activities and 20 van-trips carry passengers onto the Long Wharf daily. Chevron did not specify if these trucks include those that visit the Long Wharf from offsite locations and/or emanate from the Refinery. Trip lengths and emissions for these trips were based on the both the Guidelines and the BURBEN2002 module of the EMFAC2002 computer model distributed by the CARB. According to the Guidelines, the average trip in Contra Costa County is approximately 7.5 miles. The BURDEN2002 model indicates that heavy trucks travel an average of 12.8 miles per trip and this value was used for all trucking activities. Finally, each van-trip was assumed to average 1 mile along the Long Wharf. Emissions for these vehicles were calculated using the BURDEN2002 model and are included in Table 4.6-5. As shown in the table, the criteria pollutant emissions associated with operations of the Long Wharf are not exceeded and no significant impact would result (Class III).

AQ-3: No mitigation is required.

Impact AQ-4: Dredging Operations Associated with Continued Operations

Dredging is a permitting activity that is calculated into the Bay Area's baseline conditions. Air quality emissions will not increase from continued dredging activities over the term of the proposed 30-year lease, and are considered adverse, but less than significant (Class III).

Table 4.6-5 includes the emissions produced from dredging operations. The 10 days of dredging per year is averaged over the year in the calculation of average daily emissions. In this case, the dredge and generators on-board both the dredge and tug as assumed to be permitted under the BAAQMD's stationary source regulations. The tug and crew are mobile-sources of emissions and are included as un-permitted emissions. As shown in the table, the criteria pollutant emissions associated with operations of the Long Wharf are not exceeded and no significant impact would result (Class III).

AQ-4: No mitigation is required.

Impact AQ-5: Emissions Associated with Long-Term Continued Future Operations

Over the lease period, a minimal amount of emissions would be associated with Berth No. 4 modifications. Indirect operations emissions would reduce in accordance with the Bay Area CAP and subsequent clean air plans enacted during the lease period. Thus, future operational emissions (both indirect and direct) would result in an adverse, but less than significant (Class III) impact.

No major expansion of the Long Wharf is foreseen during the proposed lease period and no change in operations is proposed. As discussed in Section 2.3.2, Physical Description of Long Wharf, However, Berth No. 4 may be modified to accommodate new double-hulled ships up to 297,000 DWT or higher depending on hull materials. The activity would involve raising the height of the loading arms and gangway, upgrading the breasting dolphin, and dredging a wider berth. Wharf modification would produce a minimal amount of gaseous emissions that are exempt from construction impact criteria. Construction would occur over water; therefore, no soil would be disturbed and PM_{10} impacts would be minimal. Construction impacts would be adverse but less than significant (Class III).

Indirect Project emissions would continue to be reduced in accordance with the control measures included in the Bay Area 1997 CAP as well as subsequent clean air plans that will be enacted during the life of the Project. Regulations included in the CAP that were promulgated between 1991 and 1997 and control measures which relate to the Long Wharf include:

- Improvement in pressure relief valves which require venting to abatement devices and/or rupture disks with tell-tale indicators;
- Improvement in pump and compressor seals which require leakless seals and adoption of a more stringent leak definition; and
- Improvement of valves and flanges which require leakless valves, improvement in inspection and maintenance requirements, and adoption of a more stringent leak definition.

The 1997 CAP added new measures that would further reduce Project-associated emissions. Those that are directly applicable to the Long Wharf include:

- Limitations on marine vessel tank purging which requires a reduction of ballasting and housekeeping emissions; and
- Further improvements and controls in valves and flanges.

Additionally, while only indirectly related to the operation of the Long Wharf, various other control measures for Refinery operations were promulgated between 1991 and 1997, with additional measures included in the 1997 CAP. Implementation of the noted requirements plus those included in future CAPs, will further reduce Long Wharf emissions.

AQ-5: No mitigation is required.

Impact AQ-6: Odors

The Long Wharf and ongoing activities do not emit odors that are/have been reported in the local area. No sensitive receptors are located in the immediate area. Impacts are adverse, but less than significant (Class III).

As noted above, an impact may be significant if the Project emits odors that create a nuisance at local receptor locations. The major potential source of odors from the Long Wharf is fugitive ROG emissions that may be emitted to the atmosphere during the Long Wharf's loading and unloading operations. Any such odors are typically removed in the vapor recovery system, which captures and destroys the ROG in a thermal oxidizer. ROGs are broken down to largely odorless compounds of water and carbon dioxide.

Wharf-related odor complaints are minimal and no formal complaints have been filed against the Long Wharf (personal communication, J. Kimball 1999). Chevron's policy is to police incoming ships and has periodically removed foreign tankers due to odors, resulting in a loss of revenue to both Chevron as well as the supplier.

AQ-6: No mitigation is required.

Impact AQ-7: Hazardous and Toxic Pollutants

The Long Wharf is in compliance with the BAAQMD permitting for hazardous and toxic pollutants. Impacts are adverse, but less than significant (Class III).

Because the Long Wharf and its operations have been permitted through the BAAQMD, Chevron has had to satisfy requirements related to both toxic air contaminants and accidental release of acutely hazardous air emissions. Necessary hazardous and toxic pollutant modeling, as well as any necessary contingency measures, would have been submitted as part of the permitting process and are on file with the BAAQMD. The appropriate permits would not be issued without adequate documentation and mitigation. The Long Wharf handles many blending agents, some of which are hazardous (see Section 4.1, Operational Safety/Risk of Accidents). Any release of these contaminants is considered to be an adverse, but less than significant impact (Class III) because mitigation measures would already be in place through the permit conditions.

AQ-7: No mitigation is required.

4.6.5 Impacts of Alternatives

Impact AQ-8: No Project Alternative

With no new lease, emissions associated with the Long wharf would cease, resulting in a beneficial impact (Class IV). With no Project, the Long Wharf could be abandoned and left in place or decommissioned and removed and such impacts would be adverse, but less than significant (Class III).

Under the No Project Alternative, Chevron's lease would not be renewed and the existing Long Wharf would be subsequently decommissioned with its components abandoned in place, removed, or a combination thereof. The decommissioning of the Long Wharf would follow an Abandonment and Restoration Plan as described in Section 3.3.1, No Project Alternative.

Under the No Project Alternative, alternative means of crude oil / product transportation would need to be in place prior to decommissioning of the Long Wharf, or the operation of the Chevron Refinery would cease production, at least temporarily. It is more likely, however, that under the No Project Alternative, Chevron would pursue alternative means of traditional crude oil transportation, such as a pipeline transportation, or use of a different marine terminal. Accordingly, this EIR describes and analyzes the potential environmental impacts of these alternatives. For the purposes of this EIR, it has been assumed that the No Project Alternative would result in a decommissioning schedule that would consider implementation of one of the described transportation alternatives. Any future crude oil or product transportation alternative would be the subject of a subsequent application to the CSLC and other agencies having jurisdiction, depending on the proposed alternative.

For decommissioning, if the Long Wharf is abandoned and left in place it is likely that its pipelines and pumping facilities would be removed. Heavy equipment and delivery of materials would produce combustion pollutants. It was assumed that as many as six pieces of heavy equipment could be used daily during demolition. The exact type of equipment used during demolition would vary with the contractor. The average emissions produced by all heavy earthmoving equipment typically used in construction (presented in AP-42) was used. Each piece was assumed to operate for 7 hours during the day and actual use of this equipment is not anticipated to exceed 24 hours per day. Based on the anticipated use, daily emissions as calculated for this equipment mix are presented in Table 4.6-6.

Table 4.6-6
Demolition Emissions for Wharf Abandonment in-Place (Pounds Per Day)

Pollutant Source	Carbon Monoxide	Nitrogen Oxides	Reactive Organic Gases	Sulfur Oxides	PM_{10} Particulates
Heavy Equipment[1]	41.5	77.1	6.5	8.6	6.6
Haul Trucks[2]	4.9	7.6	0.7	0.1	0.3
Worker Commutes[3]	6.0	0.6	0.6	0.0	0.0
Total Daily Emissions	52.4	85.3	7.8	8.7	6.9

[1] Heavy equipment emissions based on AP-42 (1985) and 24 hours of equipment use on a daily basis.
[2] Based on five heavy diesel trucks traveling 200 miles per day.
[3] Based on 25 automobiles traveling 375 miles per day.

Construction employee travel would generate mobile emissions. It was estimated that as many as 25 workers would travel to the site daily. This commute would average 15.0 miles round-trip, twice the average trip length projected in the Guidelines for Contra Costa County. Furthermore, this analysis included the use of five trucks each traveling 40 miles round-trip daily for removal of debris. Automobile and truck emissions are as projected from a year 2005 model run of the BURDEN2002 emissions model.

The Long Wharf is constructed over water. Site demolition would require no earth movement and, unlike demolishing a large structure, most of the removed pieces would be left intact for reuse at the Refinery or at other locations. Therefore, the removal of the appurtenant facilities would produce only very minor quantities of dust and associated PM_{10}. Furthermore, site access is paved and no off-road travel is envisioned. As such, any dust raised would be minimal and no significant dust impacts (Class III) are projected.

As noted in the Guidelines, short-term construction does not produce significant air quality impacts as long as dust abatement is included. Because dust is not projected to be significant and the types of dust abatement methods included in the Guidelines would not be applicable, any demolition would result in an adverse but less than significant (Class III) impact.

With no new lease, emissions as described for the proposed Project would cease, resulting in a slight beneficial impact (Class IV) associated with the Chevron Richmond facility, as Chevron Refinery emissions would continue. For the air basin, Long Wharf operations would be transferred to another marine terminal facility, with impacts similar to the proposed Project.

<u>AQ-8: No mitigation is required</u>.

Impact AQ-9: Full Throughput via Pipeline Alternative

To operate at its current capacity, Chevron would need to purchase crude oil from a number of sources. Pipeline delivery, potentially from both the Central Valley and Alaska, would be augmented with foreign crude delivered to and then piped over from other Bay Area terminals. While there may be some capacity in existing pipelines, it was assumed that new pipelines and booster stations would have to be constructed to make up any shortfall. Short term pipeline construction would result in a significant impact (Class II).

Construction Emissions

For the Refinery to continue to operate, it was assumed that new pipeline facilities would be constructed prior to Long Wharf abandonment. Pipeline and, if required, booster station construction would require both heavy equipment and materials' deliveries. These actions would produce combustion pollutants and fugitive dust during Project construction along any chosen routes. For the purposes of this analysis, it was assumed that as many as 10 pieces of heavy equipment could be used daily during construction. Because the exact type of equipment used during construction would vary with the contractor, the average emissions produced by all heavy earthmoving equipment typically used in construction (presented in *AP-42, A Compilation of Air Pollutant Emissions Factors* [AP-42]) (EPA 1985) was calculated. This includes track and wheel-type tractors, dozers, scrapers, graders, loaders, off-highway trucks, rollers, and miscellaneous equipment. Each piece was assumed to operate for 7 hours during the day (includes 1-hour per day for down-time). More pieces may be used, but the actual use of this equipment is not anticipated to exceed 70 hours per day. (Note that this is considered conservative because it is based on 100 percent load factor and does not consider reduced emissions due to lesser load factors.) Based on the anticipated use, daily emissions were calculated for this equipment mix. These are presented in Table 4.6-7.

Table 4.6-7
Pipeline Construction Emissions (Pounds Per Day)

Pollutant Source	Carbon Monoxide	Nitrogen Oxides	Reactive Organic Gases	Sulfur Oxides	PM_{10} Particulates
Heavy Equipment[1]	69.2	128.5	10.8	14.3	11.0
Haul Trucks[2]	9.9	15.2	1.4	0.2	0.6
Worker Commutes[3]	6.0	0.6	0.6	0.0	0.0
Dust	---	---	---	---	102
Total Daily Emissions	85.1	144.3	12.8	14.5	113.6

[1] Heavy equipment emissions based on AP-42 (1985) and 70 hours of equipment use daily.
[2] Based on 10 heavy diesel trucks traveling 400 miles per day.
[3] Based on 25 automobiles traveling 375 miles per day.

Construction employee vehicle travel would generate mobile emissions. It was estimated that as many as 25 workers would travel to the job site daily. This commute is anticipated to average 15.0 miles round-trip, twice the average trip length projected in the Guidelines for Contra Costa County. (Actual worker commutes could be considerably longer than this when construction occurs in outlying areas. However, as these commutes contribute only a small part of the construction emissions, augmented trips would not substantially change the outcome of this analysis.) Other miscellaneous trips could be generated (such as lunch trucks, inspectors, etc.), but some workers could carpool or use alternate forms of transportation, and the overall number of trips would be similar to that predicted. Furthermore, this analysis included the use of 10 trucks each traveling 40 miles round-trip daily for removal of cut material and delivery of construction materials. Automobile and truck emissions are as projected from a year 2005 model run of the BURDEN2002 emissions model distributed by the CARB.

In addition to exhaust emissions, fugitive dust would be generated by the excavation and backfill of the trench as well as equipment use on unpaved surfaces. As a reasonable worst case, 1,800 feet of pipeline can be laid per day. The total disturbed area is 25 feet to either side of the trench. Water spray would be required and would provide 50 percent dust control. However, for the purposes of this analysis, the use of this spray is considered as mitigation and this control efficiency is not included in the analysis presented here. If an area of approximately 50 feet wide is disturbed, then approximately 2 acres are disturbed daily or 60 acres monthly. The Guidelines note that in the absence of any control measures, each acre of land disturbed during construction activities creates 51 pounds of PM_{10}. Therefore, approximately 102 pounds of PM_{10} could be produced daily during pipeline construction. (Note that the 51 pounds per day value is based on grading and, in this case, the soil would only be disturbed by heavy equipment moving over the disturbed area with minor trenching down the center. Thus, the 102 pounds per day value is considered conservative.) The Guidelines do not assign daily significance criteria values to construction projects, but the PM_{10} from dust requires mitigation to reduce its impact to less than significant levels. Therefore, pipeline construction is considered a significant, adverse impact (Class II).

Operations Emissions

Upon completion, the pipeline(s) would be used to transfer crude from the Central Valley, and neighboring terminals. Because the pipeline would be welded and buried, emissions could only occur at booster pump stations. The emissions' points at a typical pump station are listed in Appendix I, as are the emissions associated with these points. This analysis assumed the use of two pump stations each with a 10-million Btu per hour heater. The emissions associated with this operation are included in Table 4.6-8. Because the pump stations are fully automated, human intervention would be limited to occasional inspection and maintenance, and mobile-source emissions would not add substantially to the projected emissions nor change the outcome of the analysis. These emissions are below criteria thresholds; therefore, operational impacts associated with pipelines would be adverse but less than significant (Class III).

Table 4.6-8
Booster Pump Station Emissions

Units	Carbon Monoxide	Nitrogen Oxides	Reactive Organic Gases	Sulfur Oxides	PM_{10} Particulates
Pounds per day	9.2	45.8	165.0	0.2	2.2
Tons per year[1]	1.7	8.4	30.1	0.04	0.4
[1] Based on operations occurring 365 days per year.					

BAAQMD regulations would allow emission reductions generated from the shutdown of the Long Wharf to be banked. These banked emissions could then be used to offset new or modified installations within BAAQMD that are the same or a closely related type of facility. Depending on the pollutant, the emissions offsets would be used in a greater than 1:1 ratio. Assuming the import and export of petroleum liquids continues at an alternative terminal, the air quality impact from the total elimination of the Long Wharf may be limited to the benefit derived from the offset ratio. However, because of the offset ratio, air emissions would decrease and this would constitute a beneficial (Class IV) impact.

Mitigation Measures for AQ-9:

AQ-9. Mitigation to control fugitive dust and its attendant PM_{10} emissions includes implementation of the following measures during construction:

- Water all active construction areas at least twice daily;
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard;
- Pave, apply water three times daily, or apply nontoxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites;
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; and
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

If construction is to disturb an area greater than 4 acres per day, the following measures shall be applied:

- Implement all control measures listed above;
- Hyrdoseed or apply nontoxic soil stabilizers to inactive construction areas (previously disturbed areas inactive for 10 days of more);

- Enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles (sand, dirt, etc.);

- Limit traffic speeds on unpaved roads to 15 mph;

- Install sandbags or other erosion control measures to prevent silt runoff to public roadways; and

- Replant vegetation or repave disturbed areas as quickly as possible.

Finally, the following measure is to be included for any construction involving soil disturbance within 1,000 feet of any residential or commercial areas:

- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.

Rationale for Mitigation: The implementation of these measures is designed to reduce dust and its attendant PM_{10} by at least 50 percent. The actual level of effectiveness will ultimately depend on the amount of area disturbed at any one time. These measures would reduce any potentially significant impacts to less than significant levels.

Impact AQ-10: Conceptual Consolidation Terminal Alternative

With this alternative, a new marine terminal would be constructed within Contra Costa County north of the Long Wharf. This new terminal would handle half of the quantity of material that is now handled by the Long Wharf, in addition to providing services to other area refiners; the other half would be handled by the Long Wharf. Because the Long Wharf would be constructed over water, construction is not expected to result in substantial quantities of dust emissions, and an adverse but less than significant (Class III) impact is projected. However, associated pipeline construction emissions would have the potential to result in significant adverse (Class II) impacts.

Construction Emissions

Consolidation would result in the construction of a new terminal. The short-term emissions associated with the construction of this terminal could approximate or exceed those predicted for the installation of the pipeline as presented in Table 4.6-6. In addition, a pipeline would be constructed to transport petroleum liquids from the new terminal to the Refinery, which would result in short-term emissions similar to those presented in Table 4.6-6. Because the Long Wharf would be constructed over water, construction is not expected to result in substantial quantities of dust emissions, and an

adverse but less than significant (Class III) impact is projected. Pipeline installation would require more substantial soil movement resulting in a Class II impact that could be mitigated to a level of less than significant.

In addition to this construction, Chevron may remove some of the equipment on the existing Long Wharf as it becomes unnecessary. Short-term demolition impacts from the removal of this equipment are as described above for Long Wharf demolition and would result in a Class III impact.

Operations Emissions

Assuming that partial consolidation of the operations of existing area marine terminals in the vicinity of the Long Wharf resulted in a 50 percent decrease in Long Wharf operations, emissions would be reduced to roughly half of their existing values. (Actual emissions within the air basin could be similar to existing emissions because while emissions could be reduced to greater than 1:1 offsets, half the ships which were previously bound for the Long Wharf would now have a slightly longer trip.) Dredging operations are assumed to continue at their current level. For the purposes of this analysis, the number of employees associated with Long Wharf operations is not expected to change; however, the number of trucks that call on the facility for deliveries and maintenance is reduced by half. Because of the proximity of the proposed consolidation terminal, it was assumed that no booster stations would be required along the pipeline route. Table 4.6-9 presents the projected emissions associated with this alternative. Those non-permitted emissions (all except Long Wharf operations) would result in adverse but less than significant (Class III) impacts.

Table 4.6-9
Projected Emissions for the Conceptual Consolidation Terminal Alternative (Pounds per Day)

Source	CO	NO_x	ROG	SO_x	PM_{10}
Wharf Operations[1]	147.9	1,118.1	201.7	1,745.7	144.4
Worker Commutes[2]	6.0	0.6	0.6	0.0	0.0
Haul Trucks[3]	19.0	29.1	2.6	0.3	1.2
Onsite Vans[4]	0.8	0.1	0.1	0.0	0.0
Dredging Operations[5]	9.6	37.7	3.3	2.1	2.3
Total Daily Emissions	183.3	1,185.6	208.3	1,748.1	147.9
Total Yearly Emissions (Tons)[6]	31.7	209.7	37.4	318.7	26.6

[1] Based on half of the current existing emissions including Long Wharf and vessel operations.
[2] Based on 25 automobiles traveling 375 miles per day.
[3] Based on 30 heavy-heavy diesel trucks traveling 768 miles per day.
[4] Based on 20 medium duty trucks traveling 40 miles per day.
[5] Based on 10 days of dredging averaged over 365 days per year
[6] Based on 365 days of operation per year.

Consolidation would reduce emissions directly associated with the Long Wharf, thereby allowing the banking of emission credits which could then be used to offset the new consolidation facility or any similar installations within BAAQMD that are of the same or a closely related type of facility. (Chevron would not be required to apply these credits to the new facility and instead could sell them to the highest bidder.) Any new terminal constructed would require permitting, is not specifically included in the CAP, and would have to undergo CEQA review to determine if it would produce significant air quality impacts.

Mitigation Measures for AQ-10:

AQ-10. Implement MM AQ-9.

Rationale for Mitigation: The implementation of these measures is designed to reduce dust and its attendant PM_{10} by at least 50 percent. The actual level of effectiveness will ultimately depend on the amount of area disturbed at any one time. These measures would reduce any potentially significant impacts to less than significant levels.

4.6.6 Cumulative Projects Impacts Analysis

Impact CUM-AQ-1: Cumulative Air Quality Emissions

Cumulative projects in the region contribute to cumulative emissions in the region. The Long Wharfs contribution to the overall air quality emissions is less than significant (Class III).

The Guidelines provide very specific guidance for determining if a project would have a cumulative impact. Quoting from the Guidelines: "Any proposed Project that would individually have a significant air quality impact would also be considered to have a significant cumulative impact." The proposed Project does not result in Project-specific significant impacts, and thus does not contribute to cumulative impacts (Class III). Further, for any project that does not individually have significant operational air quality impacts, the determination of significant cumulative impacts should be based on an evaluation of the consistency of the project with the local general plan and with the regional air quality plan. (The appropriate regional air quality plan for the Bay Area is the most recently adopted Clean Air Plan.)

A general plan for a particular area is primarily based on factors related to population, employment, and vehicle travel (personal communication, J. Roggenkamp 1999). Whether a project is consistent with the general plan in which it is located and whether that plan is included in the CAP is a basis for consistency for new land use development projects. The Long Wharf has been operating since 1902 and is included in the emissions inventory in the CAP; therefore it is considered to be consistent with the CAP and any potential cumulative impact would be adverse, but less than significant (Class III).

CUM-AQ-1: No mitigation is required.

Table 4.6-10 summarizes Air Quality impacts and mitigation measures.

Table 4.6-10
Summary of Air Quality Impacts and Mitigation Measures

Impacts	Mitigation Measures
AQ-1: Construction Associated with Continued Operations	**AQ-1:** No mitigation required.
AQ-2: Permitted Emissions Associated with Continued Operations with No Increased Throughput	**AQ-2:** No mitigation required.
AQ-3: Non-Permitted Emissions Associated with Continued Operations	**AQ-3:** No mitigation required.
AQ-4: Dredging Operations Associated with Continued Operations	**AQ-4:** No mitigation required.
AQ-5: Emission Associated with Long-Term Continued Future Operations	**AQ-5:** No mitigation required.
AQ-6: Odors	**AQ-6:** No mitigation required.
AQ-7: Hazardous and Toxic Pollutants	**AQ-7:** No mitigation required.
AQ-8: No Project Alternative	**AQ-8:** No mitigation required.
AQ-9: Full Throughput via Pipeline Alternative	**AQ-9:** Apply fugitive dust and PM_{10} emission controls.
AQ-10: Conceptual Consolidation Terminal Alternative	**AQ-10:** Implement MM AQ-8.
CUM-AQ-1: Cumulative Air Quality Emissions	**CUM-AQ-1:** No mitigation required.

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