

## 3.11 MARITIME NAVIGATION AND SAFETY

This section discusses the affected environment for maritime navigation and safety, including the potential navigational hazards posed by weather, currents, submarine structures, and other vessel traffic.

### 3.11.1 Navigational Environment

For the purposes of this analysis, the navigational environment described is based on typical conditions during the late summer and early fall months when race activities could occur. The study area for maritime navigation and safety is defined as San Francisco Bay (the Bay); with the primary focus being the Central Bay.

#### 3.11.1.1 Navigation in the Bay

The challenges to navigation in the Bay include strong tides and currents, variable depths, and concentrated vessel traffic. Most of the Bay is relatively shallow, constraining deep-draft vessels to dredged shipping channels and presenting the risk of grounding to vessels operating outside the channels. Vessel traffic in the study area includes inbound and outbound oceangoing vessels such as commercial ships transiting to and from the Ports of Oakland and Stockton. Vessel traffic also includes significant in-bay transits including tugs, government vessels, passenger ferries, recreational vessels, and commercial and recreational fishing boats.

#### 3.11.1.2 Navigational Waters Designations

Nearly the entire study area is within a regulated navigation area (RNA) managed by the USCG. **Figure NAV-1** shows waterway routes in the Bay used for maritime commerce. The routes show approximately the typical paths of travel for commercial shipping and ferries. West and south of Alcatraz Island, there are two traffic lanes with a traffic separation lane in between for large vessels entering and exiting the Bay. To the north of these lanes is a two-way deep water route. Vessels with a draft of 45 feet or more must use the deep-draft route closer to Richardson Bay. Vessels with a draft of less than 45 feet are permitted to travel in the eastbound and westbound traffic between the Golden Gate Bridge and Alcatraz Island. East of Alcatraz Island, ships operate within a Precautionary Area consisting of vessels maneuvering on courses between the main ship channels on one of the established traffic lanes. Both north and south of the vessel traffic lanes are areas designated as Recreation Areas, intended to be used primarily by recreational vessels. Large vessels (greater than 300 gross tons) are not permitted to enter Recreation Areas.

#### 3.11.1.3 Shoals and Islands

The study area contains significant islands including Angel Island, Alcatraz Island, Yerba Buena Island, and Treasure Island. In addition, the Bay contains numerous shoals and reefs, as well as fixed and floating aids to navigation. Although outside the study area, there is a shoal area just west of the Golden Gate Bridge and north of the main entry channel to the Bay. This area, commonly known as

the 4-fathom bank or Potato Patch Shoals, is a potential navigational hazard for any vessel with a draft greater than 24 feet. Once vessels are inside the Golden Gate, shallow areas around Alcatraz, Angel, Yerba Buena, and Treasure islands can present hazards.

#### ***3.11.1.4 Weather***

Fog, often heavy, occurs much of the time during the summer months, entering through the Golden Gate in the late afternoon and typically burning off by early the next afternoon.

#### ***3.11.1.5 Currents and Tides***

Daily tidal ranges on the San Francisco waterfront may be as much as 7 feet during the spring tides. Currents above 2 knots are generally considered strong and potentially hazardous to vessels if proper corrections and allowances are not made, particularly during slow-speed maneuvering required within most of the Bay. The currents at the Golden Gate vary from an average maximum flood being 3.3 knots and maximum ebb of 4.5 knots. There are also strong tidal currents all along San Francisco's waterfront from the Golden Gate Bridge to the Bay Bridge, and around Treasure Island along the east and west sides.

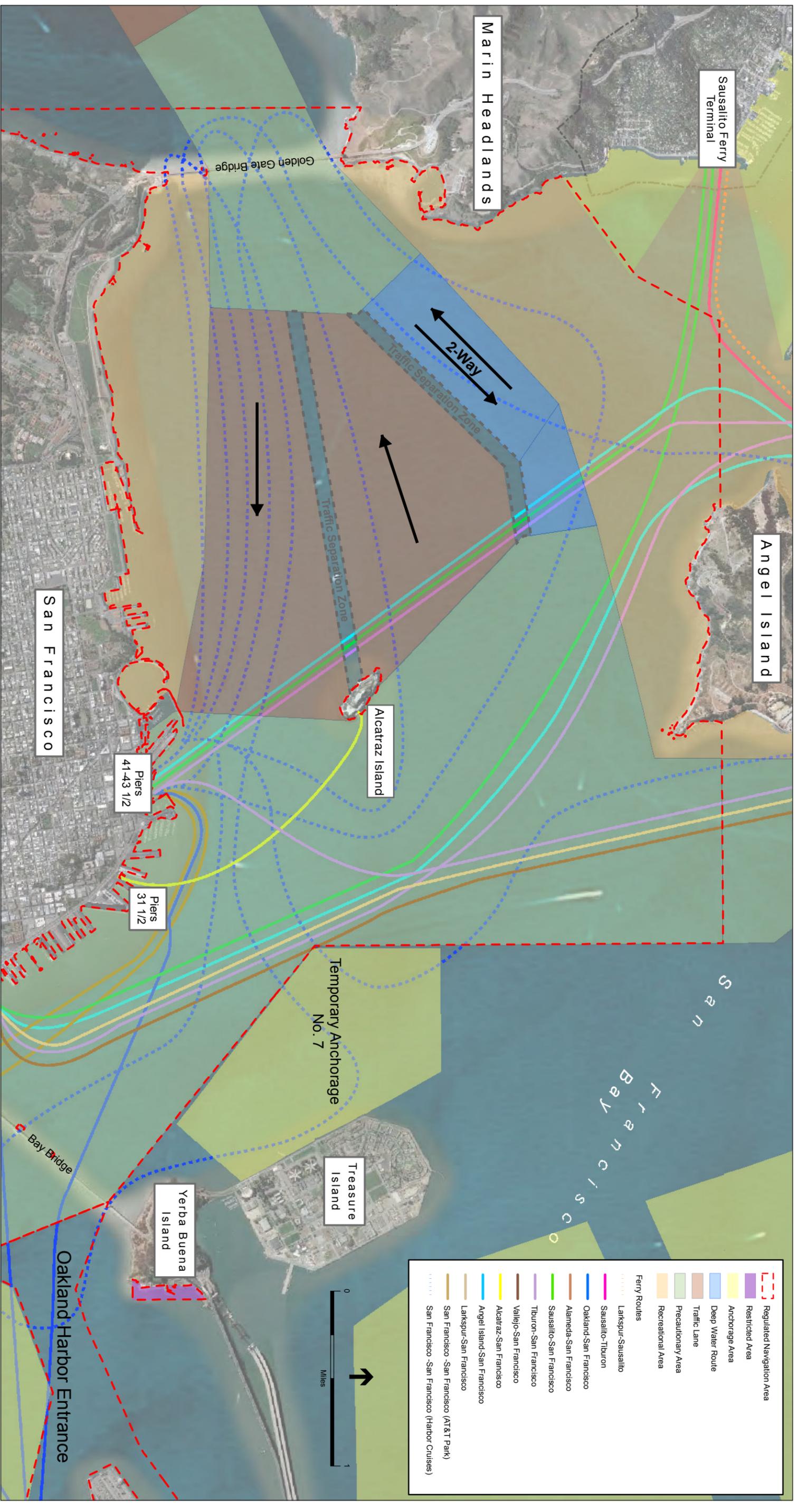
### **3.11.2 Commercial Vessel Traffic**

Vessel traffic in the entire study area is monitored 24 hours per day, seven days per week by the USCG Vessel Traffic Service (VTS) San Francisco. This section describes the general commercial vessel traffic conditions in the Bay. Where data were available, vessel traffic conditions are focused on the summer-fall season and between the 12:00 and 17:00 hours (noon and 5:00 p.m.) when proposed race events would be held.

An estimated 120,000 to 145,000 commercial vessels transit the Bay each year (approximately 400 per day) (USCG 2008). Of these, 60 percent (an average of 240 per day) are composed of ferries (USCG 2008). As stated previously, large commercial and government vessels are required by USCG regulation to use designated traffic lanes when traveling in inland waterways such as the Bay. However, ferries and other small commercial vessels not constrained by their draft often do not navigate within specific traffic lanes. Additional discussion of vessel traffic management in the Bay is provided in Section 4.11.3, Guiding Regulations and Policies.

Numerous different types of commercial vessels operate in the study area. This analysis focuses on those commercial vessels transiting the Central Bay that may be affected by changes in traffic patterns as a result of the AC 34 race activities. These include:

- Large commercial and government vessels (generally larger than 1,600 gross tons), including bulk cargo, tankers, and military vessels;
- Tugs and tow boats;
- Ferries – both commuter and sightseeing;



SOURCE: NOAA ENC 2011; ESA 2011

Note: This map is for illustrative purposes only and does not represent all regulations applicable to navigation in Bay waters

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Figure NAV-1  
 Navigational Designations and Ferry Routes

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- Commercial fishing and touring boats; and
- Other commercial vessels – sand mining, dredge spoils.

The VTS maintains counts of vessel transits in the Central Bay by the hour. These transit counts document the number of vessel movements in the Bay but do not provide an exact count of all vessel traffic and are not representative of the number of vessels entering or exiting the Bay. **Table NAV-1** summarizes the commercial vessel transits recorded between the hours of 12:00 and 18:00 (noon and 6:00 p.m.) between 2005 and 2010. As noted in the table, there are generally fewer commercial ships transiting through the Central Bay on the weekends than there are on the weekdays during those hours.

**TABLE NAV-1: COMMERCIAL VESSEL TRANSITS IN SAN FRANCISCO BAY, 2005 – 2010 (EXCLUDING FERRIES, TOURS AND DINNER CRUISES)**

Days	Average Number of Commercial Vessel Transits in San Francisco Bay between 12:00 and 18:00 Hours (Noon and 6:00 p.m.) (excluding Ferries, Tours and Dinner Cruises)		
	Per Year	Per Week	Per Day
<b>Intra-Bay Transits</b>			
Weekday	1,034	20	4
Weekend	228	4.4	2.2
<b>Offshore Transits</b>			
Weekday	231	4.4	0.9
Weekend	72	1.4	0.7
<b>Totals</b>			
Weekday	1,265	24.4	4.9
Weekend	300	5.8	2.9
NOTES: Commercial vessel types were primarily towboats, tugs, container ships, and tankers, but several other types were included. Although races would end on or before 5:00 pm the hours of noon to 6:00 pm to conservatively estimate potential vessels in transit. SOURCE: ESA, Freedom of Information Act Request, November 3, 2011.			

### 3.11.2.1 Large Commercial Vessels

The Bay is a major transit route for the import and export of goods both nationally and internationally. Deep draft vessels, which include large commercial ships (if eastbound with a draft of 45 feet or greater or westbound with a draft of 28 feet or greater), must use the northern shipping channel when entering and exiting through the Golden Gate (see Figure NAV-1). Such ships typically travel in the Bay at fast speeds, approximately 15 knots. Vessels including bulk carriers, container ships, and tankers transit the Central Bay to several ports in the area, including Oakland, San Francisco, Richmond, Redwood City, Benicia, and Stockton. The Port of Oakland is the third largest port by volume on the West Coast and loads and offloads more than 99 percent of the containerized goods moving through Northern California (Port of Oakland 2011). In 2010, 1,973 shipping vessels docked at the Port of Oakland.

The AC34 races would be held from August to September 2012 and July to September 2013. During those months in the years 2004 through 2008, ship arrivals (inbound only) averaged 290 ships per month. **Table NAV-2** shows ship arrivals by type for July, August, and September of 2004 through 2008. Vessel arrival times were not available.

**TABLE NAV-2: GOLDEN GATE SHIP TRAFFIC ARRIVALS BY TYPE, 2004 TO 2008 (JULY, AUGUST, AND SEPTEMBER)**

Vessel Type	July	August	September	Totals
Bulk	22	23	24	69
Container	162	166	159	487
Other	5	6	8	19
Passenger	5	4	10	19
Tanker	74	65	83	222
Vehicle Carrier	23	17	14	54
<b>Totals</b>	<b>291</b>	<b>281</b>	<b>298</b>	<b>870</b>
SOURCE: The Marine Exchange of the San Francisco Bay Region. "Golden Gate Ship Traffic," 2008.				

### 3.11.2.2 *Intra-Bay Commercial and Government Vessels*

This category includes tugboats, towboats, government (non deep draft), and research vessels. Tugboats represent the majority of the vessels operated in this category, making up over 90 percent of intra-bay transits (excluding deep draft commercial and ferries, tours, and dinner cruises). Tugs make up approximately 38 percent of overall transits (USCG 2011a). Government vessels include USCG ships and the Corps vessels patrolling the bay and other military vessels. Tugs with tows are less maneuverable than individual power vessels and for safety reasons must stay within the designated shipping channels. However, tugs without tows are not required to stay within the shipping lanes and generally take the shortest navigational route between two points allowed by their drafts. Tugs are designed for maneuverability and responsiveness, and the legal requirements for their pilotage include detailed knowledge of the Bay and its hazards. Tugs typically travel at slower speeds, approximately 3 knots.

### 3.11.2.3 *Ferries, Tours, and Dinner Cruises*

Commuter ferries traverse the Central Bay to and from San Francisco, Sausalito, Tiburon, Angel Island, Larkspur, Vallejo, Oakland, and Alameda. Sightseeing ferries also traverse the Bay to Alcatraz Island, the Golden Gate and Bay bridges, Angel Island, and other destinations. Unlike large vessels, these ferries are not required to traverse specific lanes in route to their destinations. However, ferry captains are required to adhere to all other applicable navigation requirements.

Several commuter and sightseeing ferries transit the study area between San Francisco and East Bay and North Bay destinations. A summary of ferry service routes is presented in **Table NAV-3** and shown in **Figure NAV-1**. In addition, the VTS transit counts for ferries are presented in **Table NAV-4**.

**TABLE NAV-3: FERRY SERVICE IN STUDY AREA - SUMMER SEASON**

Ferry Route			Daily Round Trips (average)	
Origin	Pier	Destination	Weekday	Weekend
<b>Commuter Ferry Service</b>				
San Francisco	Pier 41	Sausalito	7	7
San Francisco	Ferry Building	Sausalito	9	6
San Francisco	Pier 41	Tiburon	8	6
San Francisco	Ferry Building	Tiburon	7	0
San Francisco	Ferry Building	Larkspur	20	5
San Francisco	Ferry Building	Vallejo	12	7
San Francisco	Pier 41	Oakland / Alameda	4	3
San Francisco	Ferry Building	Oakland / Alameda	11	4
San Francisco	Ferry Building	Bay Farm Island	7	0
<b>Sightseeing/ Special Event Ferry Service</b>				
San Francisco	Pier 33	Alcatraz	14	14
San Francisco	Pier 41	Angel Island	3	4
Oakland / Alameda		Angel Island	1	1
Tiburon		Angel Island	4	8
Special Events	AT&T Park	Larkspur, Oakland/ Vallejo	3	3
<b>Charter Cruise Service</b>				
San Francisco	Pier 41	Bay Cruise	5	5
San Francisco	Pier 43.5	Golden Gate Bay Cruise	12	12
San Francisco	Pier 43.5	California Sunset Cruise	1	1
San Francisco	Pier 41	San Francisco Bay Cruise Adventure	4	7
<b>Total Daily Round Trips</b>			<b>132</b>	<b>93</b>
SOURCE: Blue and Gold Fleet, "Blue and Gold Fleet Ferry Schedules," 2012; Golden Gate Transit, "Golden Gate Ferry Schedules Effective December 12, 2011-April 1, 2012," 2012; Angel Island Tiburon Ferry, "Angel Island Ferry Schedule," 2012; Alcatraz Cruises, "Alcatraz Ferry Schedule," 2012; and Red and White Fleet, "Red and White Fleet San Francisco 2012 Sailing Schedule," 2012.				

### 3.11.3 Recreational and Fishing Boats

Recreational and, to a lesser extent, fishing boats constitute a large percentage of vessels on the Bay at any given time. In addition to boating, several other on-water recreational activities such as wind surfing and kayaking take place on the Central Bay and affect maritime navigation and safety. This section reviews commercial fishing, commercial sport recreational fishing (charters), recreational boating (sailing and power boating), and other on-water recreational activities.

#### 3.11.3.1 Commercial Fishing

At present, only three species of fish and macroinvertebrates are harvested commercially in the San Francisco Bay-Delta: Bay shrimp (*Crangon franciscorum*), Pacific herring (*Clupea pallasii*), and Northern anchovy (*Engraulis mordax*).

**TABLE NAV-4: FERRY/TOURS/DINNER CRUISE ROUND TRIPS – DURING RACE EVENT TIMES ONLY (12:00 TO 17:00 HOURS) (NOON TO 5:00 P.M.)**

Ferry Route			Race Period Round Trips (average)	
Origin	Pier	Destination	Weekday	Weekend
<b>Commuter Ferry Service</b>				
San Francisco	Pier 41	Sausalito	2	3
San Francisco	Ferry Building	Sausalito	4	4
San Francisco	Pier 41	Tiburon	3	4
San Francisco	Ferry Building	Tiburon	1.5	0
San Francisco	Ferry Building	Larkspur	6.5	3.5
San Francisco	Ferry Building	Vallejo	2.5	1
San Francisco	Ferry Building/Pier 41	Oakland / Alameda	4	2.5
San Francisco	Ferry Building	Bay Farm Island	1.5	0
<b>Total Commuter Ferry Service Round Trips</b>			<b>25</b>	<b>18</b>
<b>Sightseeing/ Special Event Ferry Service</b>				
San Francisco	Pier 33	Alcatraz	6	6
San Francisco	Pier 41	Angel Island	0.5	0.5
Tiburon		Angel Island	2	6
<b>Total Sightseeing/Special Event Ferry Service Round Trips</b>			<b>8.5</b>	<b>12.5</b>
SOURCE: Blue and Gold Fleet, "Blue and Gold Fleet Ferry Schedules," 2012; Golden Gate Transit, "Golden Gate Ferry Schedules Effective December 12, 2011-April 1, 2012," 2012; Angel Island Tiburon Ferry, "Angel Island Ferry Schedule," 2012; Alcatraz Cruises, "Alcatraz Ferry Schedule," 2012; and Red and White Fleet, "Red and White Fleet San Francisco 2012 Sailing Schedule," 2012.				

Pacific herring and their roe are harvested in several areas around the Bay. The herring season lasts from the beginning of December to mid-March and would therefore not overlap with the AC34 race events. The Bay has the largest spawning population of herring and produces more than 90 percent of the state's annual herring catch. This fishery is managed through a limited entry system that began with 17 permits in 1973-1974, peaked with more than 450 permits in the 1990s, and declined to 185 permits issued for the 2010-2011 season (CDFG 2010). In addition, in the 2010-2011 season (December to mid-March), four herring eggs on kelp permits were issued, which are available to permittees willing to trade in their sac-roe permits. None of the landings reported for Pacific herring (whole fish, sac roe, or herring eggs on kelp) in the Bay was within the months of August and September.

Bay shrimp are commercially harvested primarily to provide live bait for sturgeon and striped bass, but a small percentage of the catch is reserved for human consumption. Fishing is permitted year-round, and the primary method is beam trawling in waters less than 20 feet deep in channels of the estuary's shallow reaches (CDFG 2001). In 1999, eight boats participated in the bay shrimp fishery in north San Francisco Bay. Peak catch per unit effort and total catch typically occurs in the months of June through November. Bay shrimp is the only commercial species regularly harvested in recent years during the months of August and September.

The northern anchovy is the most abundant fish in the Central Bay and an important prey species for many fishes and seabirds. Northern anchovy are harvested in the Bay, primarily using purse seine type nets, for use as both live and frozen bait for sport fishermen. Northern anchovy landings in the Bay were virtually nonexistent between 2005 and 2009; the one exception was in 2006, when more than

150,000 pounds were landed. During the months of August and September only 15 pounds of northern anchovy were harvested between 2005 and 2009, with the harvest occurring in 2005.

Fishing boats from all over the Bay use oceanic salmon fishing grounds. The boats typically leave early in the morning and return in the early afternoon. Salmon fishing in recent years has been extremely limited as a result of a 2010 ban on salmon fishing due to low population size. The ban was issued by the Pacific Fishery Management Council, which manages Chinook salmon (*Oncorhynchus tshawytscha*) and coho salmon (*Oncorhynchus kisutch*) in addition to other species (Pacific Fishery Management Council 2012). Last year the salmon season in the Bay Area extended from April 2, 2011 through October 30, 2011 (CDFG 2011). The salmon fleet contains approximately 60 vessels (USCG 2011b). The salmon season for 2012-2013 has not yet been approved (Pacific Fishery Management Council 2012).

### **3.11.3.2 Sport Fishing**

Commercial sport fishing vessels typically carry groups of customers to sport fishing grounds outside the Golden Gate but occasionally pursue migratory species within the Bay. Commercial charter fishermen operate from the harbors of Oakland, Emeryville, Berkeley, Richmond, Point San Pablo, San Rafael, and Sausalito. A number of commercial sport fishing vessels also offer San Francisco Bay tours and wildlife viewing. San Francisco-based boats bringing parties outside the Golden Gate (including most wildlife viewing tours) typically transit along the San Francisco waterfront in the early morning. The fleet operating on the Bay comprises between 30 and 40 vessels, and they largely travel from their harbor of origin to locations outside the Bay (URS 2006).

Recreational sport fishing and some commercial sport fishing occurs in all regions of the estuary, as well as in the coastal and open ocean areas beyond. Recreational fishing occurs from shore, pier, personal small craft, and charter boat. Table NAV-5 summarizes recreational fish catch as reported by the Recreational Fisheries Information Network (RecFIN) for the marine inland waters of the estuary during the period of 2006 to 2010. This table shows the breakdown of fish caught by recreational fisherman over the August –September period in the Bay. However, some of the species represented within the RecFIN results for marine inland waters do not inhabit the Central Bay. It should be noted that the proportion of Pacific sardine landed during the months of August and September are skewed by the nearly 103,000 caught in 2009. In most years the proportion of Pacific sardines caught during these months is significantly smaller.

### **3.11.3.3 Recreational Boating**

Recreational boating accounts for a large number of boats on the Bay, with peak concentrations occurring on weekend days. Recreational boating as described in this section includes the use of sail boats, small motorized pleasure craft (i.e., power boats), large motorized pleasure craft, and personal water craft. An estimate of recreational boater activity on typical weekdays and weekend days is presented in Section 4.11.

Recreational boating includes organized sailing regattas, which account for a significant portion of the approximately 2,000 annual marine event permits issued by the USCG each year.

**TABLE NAV-5: ESTIMATED SAN FRANCISCO BAY MARINE INLAND WATERS RECREATIONAL FISH LANDINGS, 2006-2010**

Species	All Months		August–September Period Only					% of Total Catch
	Total, 2006-10	% of All Species	2006	2007	2008	2009	2010	
Jacksmelt	970,827	24.1%	33,789	13,503	8,400	48,874	16,588	12.5%
Northern Anchovy	562,303	14.0%	98,181	47,934	13,249	25,825	144,155	58.6%
Shiner Perch	242,026	6.0%	18,810	7,866	10,153	4,434	3,724	18.6%
California Halibut	210,159	5.2%	4,003	8,910	12,447	10,324	2,369	18.1%
Leopard Shark	189,174	4.7%	19,268	8,656	2,998	8,819	4,699	23.5%
Pacific Sardine	188,285	4.7%	464	0	553	102,968	3,837	57.3%
Striped Bass	174,508	4.3%	8,931	17,645	3,700	5,048	774	20.7%
American Shad	167,581	4.2%	4,151	0	0	425	0	2.7%
Bat Ray	147,949	3.7%	10,245	5,533	3,761	5,361	4,424	19.8%
Silverside Family	130,979	3.3%	23,088	1,076	1,750	368	0	20.1%
Dungeness Crab	76,170	1.9%	0	0	0	0	9,749	12.8%
Pacific Staghorn Sculpin	71,436	1.8%	4,146	1,327	7,024	2,310	5,823	28.9%
Unidentified (Sharks)	64,932	1.6%	4,194	3,349	4,926	2,477	329	23.5%
Red Rock Crab	63,538	1.6%	0	0	0	0	10,138	16.0%
Pacific Herring	59,950	1.5%	0	0	0	88	0	0.1%
Brown Smoothhound	58,752	1.5%	1,901	1,101	2,427	4,845	7,119	29.6%
Chub (Pacific) Mackerel	50,016	1.2%	5,481	47	0	15,721	0	42.5%
Surfperch Family	48,833	1.2%	3,490	2,496	458	2,181	255	18.2%
White Croaker	43,519	1.1%	3,195	3,059	1,229	459	251	18.8%

NOTES: Identified species make up at least 1 percent of the total fish reported. Estimates include number of fish examined by surveyors (A) plus number reported by anglers, both dead (B1) and live (B2). Numbers reported for individual years represent estimates for the months of August and September only, and the resultant percentage of total catch represents the proportion of the species landed during those months over the 5-year period.

SOURCE: Recreational Fisheries Information Network (RecFIN), Recreational Fisheries Landing Data. Available on the Internet at <<http://www.recfin.org/>>. Viewed on March 18, 2011.

San Francisco Fleet Week takes place annually in the beginning of October and includes a parade of ships and air shows. The events of Fleet Week draw large crowds to the shores and waters of the Central Bay, and it has been suggested as the event that most resembles activities that could be expected to occur during the AC34 races in the summers of 2012 and 2013. On Saturday, October 8, 2011, a manual count of boats on the Bay during Fleet Week events was conducted to provide an estimate of peak weekend event boat traffic. Boats were counted at three different times—late morning, early afternoon, and mid-afternoon—and included recreational, commercial, and other types of vessels. The total number of boats counted at the peak times of the peak day at the 2011 Fleet Week events in San Francisco, under nearly perfect weather conditions, ranged from 304 in the late morning to 581 in the early afternoon. The majority of boats counted at all times were sailboats (ranging between 57 percent and 74 percent), followed by small pleasure craft. The vast majority (more than 95 percent) of pleasure craft were less than 50 feet in length (ESA 2011a).

#### **3.11.3.4 Other Recreational Water Uses**

The Central Bay is used for other forms of recreation that affect the vessel traffic and safety setting of the Bay. These include but are not limited to:

- Wind surfing;
- Swimming;
- Kite boarding;
- Kayaking; and
- Paddle boarding.

Many of these activities take place in or initiate from the northern San Francisco waterfront. Windsurfers and kite boarders use much of the Central Bay in the afternoon when winds are suitable. Kayakers generally use the areas closer to shore.

Aquatic Park Cove at San Francisco Maritime National Historical Park hosts many forms of aquatic recreation as it is restricted to non-motorized vessels only; sailboats are allowed with the understanding that small motors are allowed for slow movement when sails are down. This restriction is primarily for the protection of swimmers and other recreational users. There are 12 moorings in the cove, with most of them occupied by NPS or Sea Scout vessels. Visiting vessel use is very light at normal times, with visiting vessels anchoring, not mooring, in the cove. Visiting vessels are allowed to stay overnight in the cove with permits.

As described in Section 3.7, Visitor Use and Experience, there are several swim clubs whose members regularly swim along the San Francisco waterfront and in Aquatic Park. The USCG issues several Marine Event Permits annually for swims occurring farther out in the Bay, including between Alcatraz Island and the San Francisco waterfront.

#### **3.11.3.5 Other Commercial Water Uses**

The mining of sand for use as a construction material occurs within the Central Bay in the race area at several locations between the San Francisco shoreline, Angel Island, and Alcatraz Island. Seasonally, sand mining peaks in the summer, in conjunction with demand from construction activity. Mining activity in July and August peaked at about 90 events per month (ESA 2011b). Mining events typically last approximately 3.0 to 4.5 hours, during which time approximately 1,500 to 2,500 cubic yards of sand are excavated. Sand mining does not occur uniformly within the region, but rather is clustered in specific areas. The sand mining locations recorded for the Central Bay during the period from April 2007 through June 2008 were predominantly in the area of Point Knox Shoal and Presidio Shoal, which is within the AC34 race area. In the Central Bay, sand mining typically occurs in relatively deep water (from 30 to 90 feet deep) and is prohibited within 200 feet of any shoreline. Sand mining activity may occur up to 24 hours per day during peak periods of mining (ESA 2011b).

### 3.11.4 References

#### Alcatraz Cruises

- 2012 “Alcatraz Ferry Schedule.” Available on the Internet at <<http://www.alcatrazcruises.com/website/price-schedule-chart.aspx>>. Viewed on February 16, 2012.

#### Angel Island Tiburon Ferry

- 2012 “Angel Island Ferry Schedule.” Available on the Internet at <<http://www.angelislandferry.com/FerryServices/Schedule.aspx>>. Viewed on February 16, 2012.

#### Blue and Gold Fleet

- 2012 “Blue and Gold Fleet Ferry Schedules.” Available on the Internet at <<http://blueandgoldfleet.com/>>. Viewed on February 15, 2012.

#### California Department of Fish and Game (CDFG)

- 2001 *California’s Living Marine Resources: a Status Report*. December 2001.
- 2010 FAQ Fact Sheet “San Francisco Bay 2010-2011 Season.”
- 2011 State of California Department of Fish and Game Ocean Salmon Project - Marine Region 2011 Ocean Salmon Sport Regulations.

#### ESA

- 2011a “Fleet Week Boat County Study DRAFT.” October 2011.
- 2011b *San Francisco Bay and Delta Sand Mining Revised Draft EIR*. November 2011.
- 2011c Freedom of Information Act Request. November 3, 2011.

#### Golden Gate Transit

- 2012 “Golden Gate Ferry Schedules Effective December 12, 2011 - April 1, 2012.” Available on the Internet at <<http://goldengateferry.org/schedules/documents/FerrySchedules121211.pdf>>. Viewed on February 16, 2012.

#### Marine Exchange of the San Francisco Bay Region

- 2008 “Golden Gate Ship Traffic.” Available on the Internet at <<http://www.sfm.org/>>.

#### Pacific Fishery Management Council

- 2012 Pacific Fishery Management Council Salmon Background. Available on the Internet at <<http://www.pcouncil.org/salmon/background/>>. Viewed on February 16, 2012.

Port of Oakland

- 2011 “Facts & Figures.” Available on the Internet at <<http://www.portofoakland.com/maritime/>>. Viewed on October 5, 2011.

Recreational Fisheries Information Network (RecFIN)

- 2011 Recreational Fisheries Landing Data. Available on the Internet at <<http://www.recfin.org/>>. Viewed on March 18, 2011.

Red and White Fleet

- 2012 “Red and White Fleet San Francisco 2012 Sailing Schedule.” Available on the Internet at <[http://www.redandwhite.com/cruise\\_schedule.asp](http://www.redandwhite.com/cruise_schedule.asp)>. Viewed on February 16, 2012.

URS

- 2006 *Draft Environmental Impact Report for the Proposed Trans Bay Cable Project*. May 2006.

United States Coast Guard (USCG)

- 2008 *Port and Waterways Safety Assessment Workshop Report*. August 12-13, 2008.
- 2011a Vessel Transit Data. Unpublished. Provided to ESA via Freedom of Information Act Request. November 2011.
- 2011b Memorandum dated October 21, 2011.

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### 3.12 FACILITIES AND OPERATIONS

The federal agencies recognize the respective facilities and operations discussed herein to be potentially affected by the proposed 34th America’s Cup project (also referred to as “AC34” or “the project”). The elements determined to be potentially affected have been selected due to their involvement in and/or proximity to the project’s area of focus. The governing federal agencies of these lands and waters are the National Park Service (NPS), Presidio Trust, United States Coast Guard (USCG), and United States Army Corps of Engineers (Corps). The primary project locations to be potentially affected by the project are the Marin Headlands, Fort Baker, Crissy Field, Alcatraz Island, and Fort Mason within the Golden Gate National Recreation Area (GGNRA); the Presidio Trust-managed lands (Area B) within the Presidio; and the Aquatic Park Historic District within San Francisco National Maritime Historical Park (SAFR). Secondary locations that may be affected by the project include Angel Island and Treasure Island, both within the GGNRA, although these entities have been documented in other publications due to their joint authorities at the state and local level. **Figure ALT-1** in Chapter 2 displays the general AC34 locations that host facilities and operations under federal jurisdiction.

The background information presented in this section was derived from current management plans, regulations, and policies, including the following:

- National Park Service (NPS), *General Management Plan*, Golden Gate National Recreation Area, 1980;
- NPS, *General Management Plan Amendment/ Crissy Field Plan*, Golden Gate National Recreation Area, 1994;
- NPS, *Draft General Management Plan/EIS*, Golden Gate National Recreation Area, 2011;
- NPS, *Management Policies*, 2006;
- *Presidio Trust Management Plan*, 2002;
- NPS, *Cultural Landscape Report, Fort Baker*, 2005;
- NPS, *Cultural Landscape Report, Aquatic Park – San Francisco Maritime National Historical Park*, 2010;
- NPS, *Environmental Impact Statement, Marin Headlands and Fort Baker Transportation Infrastructure and Management Plan*, 2009;
- United States Coast Guard, *Eleventh Coast Guard District Mission Statement*, 2011; and
- NPS, *Golden Gate Annual Report*, 2008.

#### 3.12.1 National Park Service Operations

GGNRA and SAFR operational divisions affected by the Sponsor Proposed Project include (1) law enforcement, traffic management, and parking management; (2) natural and cultural resource compliance and protection; (3) facility and maintenance; (4) interpretation and education; (5) planning, projects, and compliance; and (6) administration and business services (NPS 2008).

### ***3.12.1.1 GGNRA Budget and Staffing***

During fiscal year 2012, the GGNRA will expend approximately \$26.5 million in appropriated funds to support its facilities and operations. The GGNRA has partnerships with many organizations that increase the park's ability to preserve resources, educate the public, and provide recreational opportunities for visitors. Many of these partners occupy and maintain park buildings through leases, cooperative agreements, and other legal authorities. Under these various agreements, the GGNRA's park partners reimburse the NPS for its additional costs of providing services in the same manner and for the same purpose as the proposed reimbursement of costs for services provided by the NPS in support of the Sponsor Proposed Project. These reimbursements defray NPS costs of providing services and avoid the expenditure of appropriated funds for the benefit of nonfederal entities.

As of 2011, GGNRA staffing consists of 339 employees (230 permanent, 42 term, and 67 temporary employees) excluding U.S. Park Police and the Presidio Trust staff (NPS 2012d). Volunteers donate more than 377,000 hours of time to the GGNRA each year, saving the park at least \$6 million in equivalent staff costs (NPS 2008). In addition, concession operators within the park also provide visitor services such as restaurants, gift shops, ferry transport, and other commercial services. Additional organizations occupying park buildings provide for the maintenance and upkeep of facilities assigned to them under various agreements.

The evaluation of potential impacts of AC34 on park staffing begins with an examination of the current conditions. The NPS obligation to conserve and provide for enjoyment of park resources and values is supported by the Organic Act of 1916, mandating NPS managers to always seek ways to avoid or minimize to the greatest extent practicable, adverse impacts on park resources and values (NPS 2006a). Federal law also prohibits the NPS from using appropriated funds for purposes not specifically authorized by Congress (31 U.S.C. 1301) or from creating obligations with a financial impact that are not fully funded (31 USC 1341). However, the laws give the NPS the management discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of a park, so long as the impact does not constitute impairment of the affected resources and values (NPS 2006a, section 1.4.3).

### **Facility and Maintenance**

The facility operations and maintenance division is responsible for ensuring the physical integrity of park assets and infrastructure. The operations workforce is responsible for activities that manage park assets on a day-to-day basis, while the maintenance workforce focuses on prolonging the life of park infrastructure. This mission translates into managing the repair, replacement, and rehabilitation of buildings, campgrounds, housing, trails, water treatment facilities, and wastewater treatment facilities within the park's 80,400 acres while maintaining 18 different water systems, 64 miles of trails, 86 paved miles of road, and more than 1.6 million square feet of building and housing space. Though these data encompass elements greater than the project area, they provide a sense of the NPS scope. The GGNRA's facilities workforce includes electricians, gardeners, engineering, equipment operators, and other specialists who work to ensure that the parks are safe and prepared for the millions of people who visit the GGNRA annually (NPS 2008).

Maintenance of the extensive park lands and widespread facilities in the project area is a major, ongoing task and cost for park operations. Landscaping and irrigating, pruning trees, repairing and installing fences and gates, cleaning restrooms, and collecting trash are some of the basic activities in the scope of work needed to maintain park facilities and resources at an acceptable level. Maintenance division facilities near the project area are located at Fort Cronkhite and Fort Baker in Marin County and at Crissy Field, Fort Mason, and Fort Miley in San Francisco (NPS 2008).

### Visitor and Resource Protection

The natural and cultural resource staff is responsible for protecting the assets that help define the unique quality of the park. Natural resource specialists manage and monitor ecosystems and the physical environment in order to preserve and restore healthy systems and populations. Management includes invasive species control, habitat restoration, and threatened, endangered, and candidate species protection (NPS 2008). Hydrologists, ecologists, and GIS specialists represent some of the natural resource specialist employees who also work with other federal, state, and local agencies to help protect the park's species and habitats. Cultural resource management is composed of historians, historical architects, museum specialists, archivists, a curator, and an archeologist. This staff is responsible for protecting the park's historical assets through preservation, rehabilitation, and restoration projects (NPS 2008). Park law enforcement ranger activities are managed in collaboration with U.S. Park Police as part of a comprehensive interdisciplinary effort to protect resources, manage public use, and promote safe and appropriate enjoyment of the park. In addition, to rangers, the division also consists of wildland and structural fire departments (NPS 2008). Law enforcement staff is organized into several geographic areas north and south of the Golden Gate Bridge and is composed of NPS park rangers (30 employees) and the U.S. Park Police (52 employees). Patrol operations are conducted in marked and unmarked police cruisers, on motorcycles, on bicycles, on foot, on horseback, and with all-terrain vehicles.

The mission of the GGNRA's law enforcement personnel is to protect people, property, and park resources and to ensure that park visitors can enjoy the park without unlawful interference. Several federal laws give authority for various components of the NPS incident management program.

According to the Organic Act, the NPS is to "provide broad discretion in taking management actions to achieve the mission of the service and the protection of parks and resources. These authorities include developing and maintaining facilities; managing resources; providing public services; enforcing laws; managing emergencies; entering into agreements; assisting other agencies in emergencies; purchasing supplies, equipment and services as well as other actions" (NPS 2007). This mission is achieved through interpretative and educational efforts, community outreach, and enforcement actions appropriate to establishing an effective level of compliance with applicable laws and regulations.

Law enforcement and search and rescue requirements are extensive due to the park's proximity to a large urban area, high visitation, essentially open access, wide range of resources, and wide variety of recreational opportunities. According to the NPS 2008 *Golden Gate Annual Report*, the GGNRA recently launched a Special Response Team in 2007 that focuses on specific investigations but more recently includes management of security detail for high-profile events in the park. As members of the

Golden Gate Bridge Coalition, NPS personnel meet biweekly with agency representatives to address security issues and concerns specific to the bridge, which continues to be a focal point for homeland security.

Law enforcement programs at the GGNRA operate from four primary locations: ranger stations at Building 223 in the Presidio and Building 507 at Fort Baker; U.S. Park Police San Francisco Field Office Headquarters at Building 1217 at the Presidio; and Fort Cronkhite Building 1056. A small park horse patrol is located at lower Tennessee Valley. Patrol operations cover all GGNRA lands, with U.S. Park Police operations including San Francisco, southern Marin, and San Mateo counties.

For large events, an Incident Command Team is provided by the NPS through the federal Incident Command System (ICS). According to *Director's Order #55*, "during the early 1980's, the NPS began using ICS to manage fires and, subsequently, many parks began using ICS to manage other types of incidents. The results were successful and the use of ICS to manage emergencies and planned events was mandated by policy in *NPS Management Policies* (1988)" (NPS 2007). The ICS uses a standardized four-step planning process for all incidents and events. The steps include: (1) delegating authority or mission level; (2) developing measurable, flexible, and attainable incident objectives; (3) identifying, evaluating and selecting strategies and (4) planning tactics. An ICS process would be employed for management of the AC34 event.

### Interpretation and Education Division

The NPS offers unique and varied experiences to visitors through the interpretation, education, and stewardship programs offered by the park and park partners. Interpretation is delivered through a variety of media and at a variety of locations. Opportunities to learn range from self-guided to formal educational programs. These resources are offered through:

- ***The Golden Gate National Parks Conservancy.*** The park cooperation association for GGNRA offers volunteers and support for a wide range of areas within the GGNRA, including portions of the Presidio. In particular, this organization helps operate the Trails Forever program, Presidio Native Plant Nursery, Institute at the Golden Gate, Golden Gate Raptor Observatory, and programs at the Crissy Field Center, among others.
- ***Bay Area Discovery Museum.*** This hands-on nonprofit children's museum and learning center is located at Fort Baker.
- ***Travis Sailing Center.*** Sponsored by Travis Air Force Base, this nonprofit membership organization offers sailing lessons and programs to the public.
- ***The Marine Mammal Center.*** The Marine Mammal Center is a nonprofit marine wildlife research and rescue organization that rescues and rehabilitates injured, sick, or orphaned marine mammals for return to the wild. The center, which is located in Fort Cronkhite off Bunker Road, has a visitor center, gift shop, classroom, and marine mammal hospital.
- ***The Headlands Center for the Arts.*** Open to the public, the Headlands Center for the Arts is housed in nine historic buildings on Simmonds Road in Fort Barry. The nonprofit center provides studio space for 29 artists who live and work at the center for up to five months. The

center hosts a variety of community and educational programs throughout the year, including talks, performances, open houses, and readings.

- **Presidio Visitor Center.** The temporary Presidio visitor center is located in Building 105 near the Transit Center at the Main Post. The Presidio Trust, NPS, and Golden Gate National Parks Conservancy are working together to develop a permanent Presidio Visitor Center.

### **Planning, Public Affairs, and Administration**

The staff under the planning, projects and compliance division provides technical advice on park management. They are responsible for short- and long-range planning, and environmental review and work with other agencies and park divisions to ensure implementation.

The office of special park uses, public affairs, business management, and general park administration supports staff whose work relates to budget and finance, contracting and procurement, public and legislative affairs, information technology, and human resources. This division is also responsible for common utilities and general overhead not related to a specific programmatic division (NPS 2008).

Pacific Gas & Electric (PG&E) operates the electrical and natural gas system in the area. The NPS owns and operates the water distribution system that receives the potable water supply from the City of San Francisco's Water, Power, and Sewer District (SFWPS) and Marin Municipal Water District (MMWD) via varying sized cast iron pipes (NPS 2011j). The San Francisco Public Utilities Commission and the Presidio Trust provide a portion of water, power, and sewer services to the project area.

#### **3.12.1.2 GGNRA Partners and Other Entities**

The NPS has had many successful partnerships with individuals; organizations; tribal, state, and local governments; and other federal agencies that have helped fulfill the NPS mission. Through these partnerships, the NPS has received valuable assistance in the form of educational programs, visitor services, living history demonstrations, search-and-rescue operations, fund-raising campaigns, habitat restoration, scientific and scholarly research, ecosystem management, and a host of other activities (NPS 2011g).

The Golden Gate National Parks Conservancy, the park's cooperating association, works with the NPS and the Presidio Trust to enhance the park visitor experience, and build a community dedicated to conserving the parks for the future. With volunteers from the San Francisco Conservation Corps and the general public, the organization builds trails, improves signage, grows native plants, protects and restores endangered habitats, and assists in managing the Recycling/Compost Center.

The Volunteer-In-Parks program provides between 300,000 and 400,000 volunteer hours to various programs and efforts within the GGNRA in a typical year (NPS 2011i).

The Presidio Restoration Advisory Board, a group of agency representatives and community members, monitors the hazardous waste cleanup process from prior military activities to ensure that it is consistent with community priorities.

The Fort Mason Foundation assumes responsibility for and ensures that existing historic structures in Lower Fort Mason are restored, preserved, and maintained for continuing long-term and expanded visitor use and experience of its recreational, educational and cultural programs (Fort Mason Foundation 2008).

### ***3.12.1.3 SAFR Budget and Staffing***

SAFR's fiscal year 2012 appropriated funds for operations are \$7.3 million and SAFR employs a total of 83 full-time equivalent employees. SAFR staff is responsible for historic vessels, the Hyde Street and Municipal Piers, Aquatic Park landscape and cove, park visitor center, Maritime Museum, maritime library and a variety of exhibits and programs. In 2011, SAFR documented 4,224,897 total visits to the park (NPS 2012c; NPS 2012b).

#### **Facility and Maintenance**

SAFR's facilities workforce includes electricians, gardeners, engineering, equipment operators, and other specialists who work to ensure that the parks are safe and prepared for the millions of people who visit SAFR annually. The area under the amphitheater structure also houses administrative space in support of the continued maintenance of the ships, grounds, and exhibits at the park. Park maintenance employees and gardeners are responsible for the daily maintenance and enhancing the sustainability of the park. Equipment for the maintenance division is also housed at this location (NPS 2006b).

#### **Visitor and Resource Protection**

The cultural resource management staff provides for the preservation and interpretation of park cultural resources including the fleet of historic vessels. This staff also manages the park collections and visitor use as a result of these assets to ensure their preservation (NPS 1997). Similar to the GGNRA, SAFR employs the United States Park Police and United States Park Rangers as the responsible unit for law enforcement. Only non-motorized boats and sail boats are allowed in Aquatic Park Cove, with overnight anchoring requiring an issued permit (NPS 2012b). Management of the cove is under SAFR's Harbormaster.

#### **Interpretation and Education**

The visitor experience staff provides a wide range of educational and interpretive opportunities to inform, educate, and challenge visitors. The park's visitor information center operates under this division and, along with park partners, develops public programs to enhance the understanding and encouragement of public stewardship of the park (NPS 2008). In 2011, there were 177 education programs offered by SAFR, with 5,456 visitors attending these programs (NPS 2012c). Park rangers operate the visitor center on Jefferson Street, as well as the Warming Hut and Crissy Field Center on Crissy Field. Historic vessels moored in Aquatic Park Cove are a popular attraction requiring interpretation and education staff for these assets (NPS 2012b).

In addition to educational resources such as the Sea Scout Organization, an overnight education program is offered for children on the Balclutha vessel. Museum exhibit storage space beneath the amphitheater hosts storage units for museum exhibits and photographs.

#### 3.12.1.4 SAFR Partners and Other Entities

SAFR's partners include several nonprofit organizations that provide assistance and support in various forms. The park's cooperating association, the San Francisco Maritime National Park Association (SFMNPA), operates the Maritime Bookstore on Hyde Street Pier, special events in the Maritime Museum, and provides educational programs to over 10,000 Bay Area school children annually. In addition, other partners include Friends of the San Francisco Maritime Museum Library and the San Francisco Senior Center, which is the oldest formally organized senior center in the United States; the seniors use space in the Maritime Museum for programs and activities (NPS 1997). The Volunteers-In-Parks (VIPs) program is supported by over 500 volunteers who participate in all areas of the park's operations (NPS 1997).

#### 3.12.1.5 NPS Assets

The following discussion and **Table FAC-1** describe the NPS locations that could potentially be affected by AC34 and provide an inventory of the existing conditions within the 942 acres and 1,150 total facilities (buildings, trails, roads, and other structures) of the GGNRA management that relate to the AC34 race area. Currently, nearly half of the park building square footage is occupied by park partners in exchange for assuming building maintenance and other responsibilities (NPS 2008).

**TABLE FAC-1: PROJECT AREA ASSET TYPES**

Asset Type	NPS	Partner	Total
Historic Buildings	142	88	230
Nonhistoric Buildings	105	117	222
Maintained Landscapes	35	1	36
Trails	146	1	147
Paved and Unpaved Roads	215	1	216
Parking Lots	113	0	113
Water Systems	16	2	18
Wastewater Systems	13	2	15
Other Assets	187	4	191

The GGNRA General Management Plan (1980) identifies maintaining the visual integrity of parkland facilities as an important factor in the placement and design of all new park facilities. In addition, the 1997 General Management Plan of the SAFR Maritime National Historical Park includes an objective to design high-quality facilities that exemplify visual consistency. These mandates will be important in managing the proposed temporary structural and operational elements of the project.

The discussion below provides a broad description of the utilities within the race area. Water and wastewater capacity are critical to all sites within the park lands. System needs vary over time and can be stressed by increases in use as well as the age and level of maintenance. Additional information is provided below for some locations in the race area.

### **Fort Baker**

**Historic/Non Historic Buildings.** Over 100 historic buildings and structures are located at Fort Baker and represent a continuum of U.S. Army use extending from the mid-19th century until the present. Most of the buildings at Fort Baker have been transferred to NPS management. Buildings and structures dating from the Cold War era also exist at Fort Baker, including the radio siren tower, a torpedo head installed at the waterfront, the Capehart housing development, along with the non-historic USCG Golden Gate Station (NPS 2008).

The Bay Area Discovery Museum occupies nine buildings in the southeastern portion of Fort Baker. Travis Air Force Base, which provides recreational and boating opportunities to all active duty, reserve, and retired U.S. Armed Services, Coast Guard, federal civilian, and CG Auxiliary members, continues to operate the Travis Sailing Center at the Presidio Yacht Club. The Cavallo Point lodge provides full-service accommodations to overnight visitors.

**Maintained Landscapes and Park Amenities.** Cavallo Point Pier provides non-licensed fishing opportunities, while kayaking and sailing are popular activities based out of Horseshoe Bay. Recreational open space and picnic areas are located on the 10 –acre parade grounds near Cavallo Point as well as along East Road. Principal viewing locations are along the southern waterfront. The seacoast forts at Battery Yates on the eastern bluffs provide spectacular views of the Bay and are a tourist attraction. Along the waterfront, the Moore and Satterlee breakwaters provide protection from rough seas for the boats and buildings at Horseshoe Bay. Restrooms are provided in the museum, at the public fishing pier, in the sailing center, and in the lodge.

**Trails, Roads, and Parking.** Partially paved and gravel roads are not open to public vehicle access and are often used by pedestrians. These roads include Battery Yates Road, Satterlee Road, Battery Cavallo Road, Drown Road, and Gibson Drive. The Drown Road Trail is accessible by Alexander Avenue and East Road. The new Chapel Hill Trail has access from Alexander Avenue. The San Francisco Bay Trail follows the southern and eastern coastlines of the Fort Baker area.

Alexander Avenue is a two-lane main road off U.S. Highway 101 from which visitors can reach downtown Sausalito and Fort Baker. The large unpaved sloping area along East Road is occasionally used for overflow parking and considered a low erosion area by the NPS (NPS 1999). There are few sidewalks or formal pedestrian paths and a limited trail network alongside Fort Baker's vehicular road network. Lower Conzelman Road connects pedestrians from Fort Baker with the trailhead lot in the Marin Headlands. The road has been closed for security reasons but is open for pedestrian and bike access. In addition, the two-lane Bunker Road provides access for visitors to and from Fort Baker and the Marin Headlands.

**Utilities.** Pacific Gas & Electric (PG&E) operates the electrical power distribution system and supplies natural gas to Fort Baker, but the NPS owns and operates the natural gas distribution system within the park jurisdiction.

At Fort Baker, including Cavallo Point, the potable water distribution system is gravity-fed from a 400,000-gallon storage tank. The system is supplied with water from Marin Municipal Water District (MMWD) through an 8-inch-diameter water main with a supply capacity of 720,000 gallons per day (gpd). Average daily use at Fort Baker is about 50,000 gpd (NPS 1999).

Wastewater flows from Fort Baker and Cavallo Point are directed to the Sausalito-Marín City Sanitary District, which provides collection, treatment, and disposal of sewage (SMCSD 2012). Fort Baker's gravity sewer system drains to a wastewater pumping station, which conveys the collected wastewater via a force main to the treatment plant. A 1997 study of the Fort Baker's wastewater collection system found that excessively high wet weather flows into the system could cause localized overflows, and that the pumping station had insufficient wet weather capacity. The study recommended replacement of existing pipelines and replacement of existing pumps (NPS 1999).

Stormwater at Cavallo Point consists of a trunk line drainage system. This trunk line system includes catch basins, pipes, and concrete-lined swales that drain to four major storm drain outfalls along the seawall at Horseshoe Bay. The system does not involve any pumps and is drained entirely by gravity flow (NPS 1999). Additionally, a reinforced concrete reservoir remains in service.

**Park Maintenance Facilities.** As of 2005, the NPS administration offices for Fort Baker are located in FB602 (the former Artillery Barracks). The Marin Headlands and Fort Baker area constitutes approximately 3,000 acres (or 4%) of the parkwide total (NPS 2009a). Because these various parks and recreation sites share administrative resources, the information from the operating plan and budget refers to the entire GGNRA and is not specific to the Marin Headlands and Fort Baker. NPS maintenance staff currently occupies FB513, FB407, and FB691. (The garage at the far left of FB691 is shared with the United States Coast Guard and California Department of Fish and Game.) The Fort Baker historic dump is located on the down slope of East Road.

## **Marin Headlands**

**Historic/Non Historic Buildings.** All of the buildings in the Marin Headlands reflect the U.S. Army presence dating from the mid-19th century, including the Marin Headlands Visitor Center located in the historic Fort Barry Chapel at the intersection of Field and Bunker roads. The visitor center is approximately 3 miles from either entrance to the Marin Headlands and is open year-round from 9:30 a.m. to 4:30 p.m. The majority of the structures in the Marin Headlands are located in areas that are not directly on the coast, with the exception of the building cluster around Fort Chronkite. For this reason, the impacts from AC34 spectators may be limited to the use of restrooms and the visitor center. The buildings near Fort Chronkite and the Headlands Center for the Arts area could receive foot traffic from displaced visitors seeking tourist attractions at Fort Baker or Conzelman Road. The housing area lining Bunker Road just west of the Marin Headlands tunnel may be affected by increased car traffic, while displaced hikers could also use the surrounding valley formed by Rodeo Creek. Battery Spencer is situated along Conzelman Road; farther to the west, the remaining remnants of Battery 129 are situated atop Hawk Hill.

**Maintained Landscapes and Park Amenities.** The Marin Headlands and Fort Baker area constitutes approximately 3,000 acres (or 4%) of the parkwide total. Within the Marin Headlands, principal viewing locations are along the southern and western cliffs. A seasonal overnight campground with restrooms, picnic tables, water sources, and a parking area is located at Kirby Cove. Accessible restroom facilities are available at the Fort Chronkite parking lot by Rodeo Beach, and the visitor center in Rodeo Valley (NPS 2011h). As mentioned in the previous subsection, Battery Spencer and Battery Hawk Hill, topping at 920 feet above sea level, are some of the GGNRA's signature viewpoints and prime visitor destinations (NPS 2009a).

**Trails, Roads, and Parking.** Trails or segments of trails that are considered historic include the Rodeo Valley Trail, the Coastal Trail, the Battery Alexander to Rodeo Beach Trail, and the Rodeo Lagoon (South Shore) Trail. The trail from Conzelman Road to Battery Spencer provides views of the ocean. A new segment of the California Coastal Trail has been added connecting Hawk Hill and Conzelman Road. Battery Spencer Overlook provides motorists, pedestrians, and bicyclists with elevated views of the ocean and Golden Gate Bridge.

Bunker Road provides access to U.S. Highway 101 and Fort Baker, while Conzelman Road winds along the oceanside bluffs providing spectacular views of the Golden Gate Bridge, the Bay, and the ocean. The Battery Spencer overlook area is typically crowded on weekends. The parking area is located 1/8 mile north of the overlook, and limited parking restricts the number of vehicles at any given time. People at the site can spend a long time enjoying views. Motorists, however, have much shorter views because of the curving road and rather short viewing area from the road. Although distant from the project area, the Point Bonita trailhead is within walking distance of the Battery Alexander lot, which is substantially underused, and the Battery Mendel parking lot lies nearby to the north. No more than five cars may park at the Point Bonita trailhead. Although bicyclists are permitted on the wider portions of the trail network in the Marin Headlands (such as fire roads), few sections of the Coastal Trail and few of the short steep trails leading to the coastline are restricted to hikers and equestrians (NPS 2009a).

**Utilities.** The Marin Municipal Water District (MMWD) provides water to Fort Baker and the Marin Headlands.

## Alcatraz

**Historic/Non Historic Buildings.** Alcatraz Island was the home of the West Coast's first lighthouse. The tower's automated rotating light, supplemented by powerful foghorns on either side of the island, continues to be a key navigational aid. The Historic Barracks (Building 64) just above the dock, houses a bookstore and various exhibits. The upper floors of the barracks building remain unused. The Sally Port stands as the oldest existing structure on the island. In addition to the Historic Barracks Fortress Alcatraz remains as the original barracks building and is currently being used as a bookstore and theater. The Main Prison Building has been rehabilitated to represent the federal penitentiary era (NPS 2011f).

**Maintained Landscapes and Park Amenities.** Alcatraz provides staff-led programs and hosts visitors who arrive from San Francisco's Pier 33. The 10- to 15- minute ferry ride departs the island every 45 minutes during the day. A round-trip visit typically takes between two and three hours.

Currently, the Golden Gate National Parks Conservancy is attempting to restore historic gardens originally established by prison staff. The parade ground and the ruins of officers' cottages are also significant details to the island. The Recreation Yard has been rehabilitated and the steep cliffs along the island's edge are managed to preserve habitat for birds and marine wildlife. The island also features tide pools, bird colonies, and spectacular bay views. The most spectacular views can be seen from the Agave Trail (open approximately October through February, when the birds are not nesting), the parade ground, and the lighthouse plaza. A walk on Alcatraz offers a 360-degree panorama of the Bay and takes visitors along rocky cliffs, past colonies of western gull nests, and through areas overgrown with exotic flowers and trees (GGNPC 2011d). There are fully accessible restrooms located on the dock and adjacent to the cell house. Little Alcatraz Island is located just off the northeastern end of the island, and like Alcatraz Island, provides marine mammal and nesting bird habitat. No vessel landings are permitted on Alcatraz Island (NPS 2011f).

**Trails, Roads, and Parking.** Steep climbs and uneven walking surfaces remain throughout the island. The East Road has a 12% grade from the dock to the cell house. An electric accessibility shuttle is available for those unable to navigate the incline. This shuttle runs twice an hour from the prison to the dock. The East Road connects to the West Road at the crest of the roadway near the lighthouse. The Agave Trail lines the southeast portion of the island (NPS 2011f).

**Utilities.** The water supply and wastewater outputs at Alcatraz Island are transported via vessel to and from the city of San Francisco. Water is pumped into holding tanks on the island, where it is used for potable purposes. Landscape vegetation is watered by a rainwater catchment system.

Alcatraz Island's system comprises a network of pipes and grinder pumps installed at sanitary stations on the island. The grinder pumps collect and pulverize wastewater, which flows through 1.25-inch pipes to a dockside collection tank for transport off the island. Alcatraz Cruises, the company that brings tourists to the island, has a service agreement to bring fresh water, fuel, and supplies to the island and dispose of trash and wastewater. Alcatraz transfers 6,000 gallons per day, and 2.19 million gallons of wastewater annually. Solid waste is also transferred into the city's waste stream at that point. Alcatraz Cruises recycles and composts all solid waste, and has a 70% diversion rate (Alcatraz Cruises 2011).

On the north end of the island, buildings and adjacent yards continue to house the island's diesel generators that currently provide all power to the island's facilities and are used for operations and maintenance functions. The NPS owns and operates all utility systems on Alcatraz Island.

**Park Maintenance Facilities.** Public safety offices are located in Building 64. A power plant is located in the northwestern area of the island.

### **Crissy Field**

**Historic/Non Historic Buildings.** Fort Point National Historic Site is open Friday, Saturday, and Sunday from 10:00 a.m. to 5:00 p.m. and is located near the south anchorage of the Golden Gate Bridge (NPS 2011b). Associated historic resources include Battery East, built to supplement the obsolete brick fort, the historic seawall, Crissy Field Promenade, and numerous historic landscape features and historic archeological sites. According to 36 CFR §1.5, "within Fort Point National Historic Site (all

areas outside Historic Fort itself) is an area designated as day use due to public safety concerns associated with limited visibility, steep coastal cliffs and the marine environment during hours of darkness. In addition, these areas are significant for the naturally spectacular serpentine coastal bluffs and particularly the Fort Point area is one of our remnant natural areas and contains populations of three rare plants that are highly sensitive to damage with no scheduled attendant protection services.”

Situated at the west end of Crissy Field, the USCG Fort Point Station is maintained by the National Oceanic and Atmospheric Administration (NOAA) and the NPS; both entities use the structure as office and education space. The Gulf of the Farallones National Marine Sanctuary visitor center is within this grouping of buildings; the visitor center serves as an ocean and climate change communication center for the Bay Area and facilitates the exchange of technical, scientific, policy and education information and ideas. The Torpedo Wharf complex is a popular site for visitors; it includes a warming hut, open daily from 9:00 a.m. to 5:00 p.m., and access to the pier for fishing. The existing Fort Point Station pier has been stabilized but remains closed to public use. The Crissy Field Center’s facilities, located along the East Beach, include a media lab, resource library, arts workshop, science lab, gathering room, and the Beach Hut Café. The Crissy Field Center will likely experience an increase in visitor use by race spectators due to its location in relation to the nearby waterfront.

**Maintained Landscapes and Park Amenities.** Crissy Field is largely open space that encompasses the historic airfield (restored as open space), an 18-acre tidal marsh, wetland, beach and dunes, Crissy Field Promenade, meandering trails, and dedicated bike lanes along Mason Street. This area encompasses the Crissy Field Wildlife Protection Area (WPA) and the Snowy Plover Protection Area extending from the Torpedo Wharf eastward to the concrete riprap, which lies approximately 700 feet east of the old USCG district. Within the USCG Fort Point district, footpaths and driveways flanked by lawns, hedges, and Canary Island dates are still present and provide pedestrian access. Throughout the open space, there are designated picnic areas outfitted with barbeque grills and picnic tables, including the West Bluff picnic area and the Crissy Field picnic area. Picnic areas in Crissy Field are defined by sculpted and turfed landforms that approximate a dune-like topography and provide visual and wind protection. The Golden Gate National Parks Conservancy has indicated that, during large events, spectators have damaged tables, benches, and other site furnishings by standing on them and have moved temporary barricades and caused structural and surface damage to landforms (GGNPC 2011e). Park maintenance operations have reported gopher problems; though under control, the gophers may return to the site if park maintenance strategies are not continued. General restrooms are located near the Fort Point National Historical Site, at the West Bluff parking area (also serving the Warming Hut), and near the East Beach parking area (Presidio Trust 2002).

**Trails, Roads, and Parking.** The Bay Trail runs through Crissy Field along the Crissy Field Promenade, connecting East Beach to Torpedo Wharf and providing 4.3 miles of waterfront trail. The Crissy Field bridge, promenade, and the outer rim of the airfield are all generally accessible. Park Boulevard, which becomes McDowell Avenue, enters Crissy Field from the south, running through the airfield and terminating at the Bay Trail. The beach does not have a boardwalk or ramp.

Mason Street (also known as “Old Mason Street”) is the principal access point from the east, through the Marina Gate. Connections to Mason Street from the south are along Gorgas Avenue (connecting

to the Letterman Digital Arts Center), Halleck Street (connecting to the Main Post), and McDowell Avenue (connecting to the Cavalry Stables).

**Utilities.** The NPS and Presidio Trust share responsibility for maintenance of the utility systems in Area A of the Presidio, but the NPS sources some utilities from the Presidio Trust. Crissy Field uses water purchased from the City and County of San Francisco.

**Park Maintenance Facilities.** Two structures at the USCG Fort Point Station are used as NPS maintenance garages.

### **Aquatic Park (SAFR)**

**Historic/Non Historic Buildings and Structures.** The Aquatic Park Historic District is a National Historic Landmark and is listed on the National Register of Historic Places. Aquatic Park is considered an outstanding example of the Streamline Moderne style of the 1930s, which was applied to the design of both the buildings and grounds that make up the park. The primary historic structures in Aquatic Park are located around the shoreline of the cove and are oriented toward the water and the Aquatic Park Promenade, which follows the shoreline from the east boundary of the park to Van Ness Avenue. The primary structures include the bathhouse, convenience stations, amphitheater; Municipal Pier, seawall, promenade and speaker tower. The recently renovated bathhouse is a 125-foot-long elliptical structure constructed of a steel frame and concrete and is flanked by concrete amphitheater seating. It houses the San Francisco Maritime National Historical Park Museum and the San Francisco Senior Center and is the central structure at Aquatic Park. The West Convenience Station, located near Van Ness Avenue, is used to store facility management supplies and material. The East Convenience Station is adjacent to the rowing club buildings at the end of Jefferson Street and is used for storage. The Tubbs Cordage Company office building is on Hyde Street Pier. (NPS 2010). The Sea Scouts building, constructed by the army during World War II, also remains with nearby historic basalt curbing along the Van Ness Avenue sidewalk. The building contains many small storage rooms, offices, classrooms, and a docking and boat repair facility for the Sea Scout Organization (NPS 2010).

The visitor center, located at Hyde and Jefferson streets, is housed in a 1908 historic brick California fruit cannery warehouse (also known as the Haslett Warehouse) and offers interpretation and educational exhibits, an informational desk, and restrooms. The Pacific West Information Center (PWIC) is located inside the park visitor center (NPS 2012b). The Argonaut Hotel, through a long-term lease, uses a majority of the warehouse.

**Maintained Landscapes and Park Amenities.** SAFR encompasses about 35 acres on San Francisco's northern waterfront in what was once an industrial and food packing section of the city. The Hyde Street Pier and Aquatic Park are located in SAFR. The Hyde Street Pier, the visitor center, the maritime store, and the Maritime Museum are wheelchair accessible (NPS 2012b).

The Hyde Street Pier, located at the corner of Jefferson and Hyde streets, hosts historic steam and sailing vessels as well as other maritime exhibits and interpretive demonstrations (NPS 2012b). Historic vessels such as the *Alma*, *Eureka*, *Balclutha*, *Eppleton Hall*, and *C.A. Thayer* are moored at the Hyde Street Pier, attracting more than 771,900 visitors in 2010 (NPS 2012c).

Aquatic Park is a historic designed landscape, significant because it was developed by the Works Progress Administration and the Federal Art Project in the 1930s (NPS 2010). Public restrooms are located at the visitor center on Jefferson Street, near the terminus of Jefferson Street (closed), and near the terminus of Van Ness Avenue (closed). Restrooms are also on Hyde Street Pier and in the Maritime Museum on Beach Street. Significant resources within SAFR include the fleet of historic vessels; a collection of approximately 90 small watercraft; a museum artifact collection of approximately 30,000 items, historic documents, photography, and manuscripts; a maritime library estimated at over 21,000 titles; and historic structures including the Aquatic Park bathhouse and historic district, the Tubbs Cordage Company office building, and the Haslett Warehouse (NPS 1997).

Municipal Pier, constructed in 1933, extends out in a curvilinear fashion with a bulb-like end along the northwest side of the cove. The baffles incorporated into the pier structure serve as a breakwater. Riprap has been added over the years to act against scouring at the mud line. Concrete benches and streetlights are located at even intervals along the length of the pier. Notches in the railing opposite the benches provide easier access for fishing and improve views to the water while seated. Today the pier is in very poor condition due to saturation by seawater and deterioration of metal rebar. In 2008, the park installed a fenced gate at the entrance to the pier for safety reasons, and in 2009 most of the west (Bay) side of the structure was also fenced to prevent access to the most deteriorated portion of the structure. The convenience station and lifesaving station at the end of the pier remain unfinished today with only the rough concrete exterior constructed. Currently, the pier is used by park visitors for a variety of recreational activities such as sightseeing, photography, strolling, and fishing (NPS 2010). It is closed to public use during major waterfront events.

Built in 1938, the East and West Bleachers flank the bathhouse and are constructed of concrete and were substantially repaired in 2008-2009. The space under the bleachers is used by the park staff and the Senior Center for officer shops, storage, and other activities. Bleacher seating is the setting for outdoor events and serves as informal seating for park visitors (NPS 1997).

The seawall wraps around the cove, creating a hard edge between the water and the Aquatic Park Promenade. There are also several retaining walls throughout the park. The East and West Speaker Towers are integral structures in the designed landscape and are surrounded by planting beds (NPS 2010).

Aquatic Park Promenade remains a popular area for public use and access to the beach and water as well as for walking, sightseeing, and using the Bocce Ball courts. Small-scale features in Aquatic Park include both historic elements, such as the Sergeant Johnson slate façade, and non-historic elements. Historic small-scale features include concrete lampposts with metal collars along the promenade and Municipal Pier (one located on Beach Street near the bocce ball courts); several formed concrete benches along the length of Municipal Pier; welded-steel tube railings along the front and the sides of the East and West Bleachers; and stone curbing. Non-historic features include light fixtures, benches, trash cans, bollards, water fountains, fencing, signs, interpretive and commemorative features, anchors, propellers (placed in planting beds), a Muni bus shelter, a mailbox, and a metal bike rack. The following are specific examples of historic and non-historic small-scale features found throughout Aquatic Park (NPS 2010):

- California State Historical Landmark plaque commemorating the 1775 arrival into San Francisco Bay of the Spanish vessel *San Carlos*;
- Historic concrete benches along Municipal Pier;
- Restored (historic) terrazzo paving in front of the bathhouse, and compatible accessibility ramp;
- Historic, aboveground remnants of the stone masonry wall piers near the bocce ball courts;
- Non-historic but compatible bench near the East Convenience Station;
- Non-historic and incompatible drinking fountain;
- Maritime interpretive feature near East Convenience Station; and
- Non-historic commemorative fountain location near the bocce ball courts.

There are currently 12 moorings in Aquatic Park Cove, most occupied by park or Sea Scout vessels. Visiting vessel use is very light at normal times, with visiting vessels anchoring, not mooring, in the cove. With a permit, visiting vessels are allowed to stay overnight in the cove. For major waterfront events such as the Fourth of July and the Fleet Week air show, the NPS actively monitors the cove and restricts access when it is determined that the cove is "full." Such determination depends on other activities in the cove, so the number of visiting vessels allowed in may vary.

**Trails, Roads, and Parking.** The sidewalk along Beach Street defines the south boundary of the park and connects with other paved walkways leading to the lower levels of the Aquatic Park, including Van Ness Avenue and the bocce ball courts on the west and Victorian Park on the east. Street parking is provided on Beach Street, Jefferson Street, and Van Ness Avenue. Aquatic Park is the terminus of the Powell-Hyde cable car line.

**Utilities.** Aquatic Park is situated in the North Shore sub-basin of the San Francisco Public Utilities Commission (SFPUC) combined sewer system. PG&E and City and County of San Francisco provide and maintain utilities at Aquatic Park. Solar panels installation on the Small Boat Shop roof provides energy for lighting needs at the boat shop, shipwright shop, and ranger office (NPS 2012b).

## Fort Mason

**Historic/Non Historic Buildings.** The National Park Service entered into a long-term lease with Fort Mason Center to continue its public programming and management of Lower Fort Mason and to invest in the capital improvements needed for historic building preservation. The long-term lease accommodates continued use of Building E by San Francisco Maritime National Historical Park as a headquarters for park operations, public research library, museum collections storage, and use by the San Francisco Maritime National Park Association. The National Park Service and Golden Gate National Parks Conservancy use Building 201 as a headquarters for park operations among other historic buildings at Upper Fort Mason. The covered piers and waterfront warehouses at Lower Fort Mason provide space for the Fort Mason Foundation, a collection of more than 30 distinct environmental, cultural, and arts organizations. Lower Fort Mason consists of three piers and warehouses, four additional warehouse buildings, and four other buildings for a total of 344,608 square feet making up

Fort Mason Center. Buildings within the district are occupied by the following: Hostelling International, NextCourse located in the Historic Officers Club, the NPS Pacific West Regional Information Center, and Park Headquarters for the GGNRA and Golden Gate National Parks Conservancy. A firehouse is located just east of Pier 3 (GGNPC 2011c).

**Maintained Landscapes and Park Amenities.** The Great Meadow slopes down from Upper Fort Mason to the Marina with maintained lawns for picnicking, sunbathing, walking, or sports activities. The meadow also offers views of San Francisco's skyline and the Golden Gate Bridge, allowing only partial views of the AC34 race course due to vegetation. The Black Point area offers visitors picnic areas anchored around the Black Point Battery above MacDowell Road, but views are obstructed due to vegetation. There is a generally accessible restroom facility located within the Great Meadow. There is also an accessible high and low water fountain outside the restroom with a bowl for dogs. The Bufano and Burton statues represent historical references on the site. The piers located at Fort Mason Center are not accessible to the public (GGNPC 2011c).

**Trails, Roads, and Parking.** Paved, accessible trails and steep steps connect Fort Mason's upper and lower units. All pathways in Fort Mason are generally accessible. The eastern end of the park connects to Aquatic Park along the waterfront. MacDowell Road circumvents the core of Fort Mason along the waterfront, allowing authorized vehicles access from Van Ness Avenue to Laguna Street.

Paid parking is available at Fort Mason Center, with an entrance off Marina Boulevard. There are two fully accessible parking spaces located in the front of the building. They provide access to the Great Meadow and other portions of Fort Mason. There are two fully accessible parking spaces in the quad parking lot, which is the first right when entering Fort Mason from the intersection of Franklin and Bay streets. On MacArthur Street in front of the Officers Club there are four designated accessible parking spaces. The entrance at the intersection of Laguna Street and Marina Boulevard contains extreme slopes, and access to the Great Meadow from the intersections of Laguna and Bay streets and Octavia and Bay streets is encouraged. Visitors can also reach the Great Meadow from MacArthur Street within Fort Mason (GGNPC 2011c).

**Utilities.** Pumping Station #2 of the San Francisco Fire Department Auxiliary Water Supply System represents an example of an innovatively planned and designed "earthquake-proof" firefighting system for San Francisco. The pumping station is significant within the areas of community planning and engineering for the City and County of San Francisco. Its period of significance is 1912 to 1975. Although the building is sited on park land in the Fort Mason Historic District, the facility is still owned and used today by the City and County of San Francisco.

**Park Maintenance Facilities.** Maintenance and public safety have administrative offices at park headquarters in Fort Mason.

### **Baker Beach and Dunes**

**Maintained Landscapes and Park Amenities.** Mile-long Baker Beach lies at the foot of rugged serpentine cliffs west of the Golden Gate and within Area A of the Presidio, managed by the NPS. The Six-Inch Gun Number 9 and disappearing carriage were received by the National Park Service in 1977

from the Smithsonian Institution. Battery Chamberlin is located at the north end of the Baker Beach parking lot. It is open on the first full weekend of each month, between 11:00 a.m. and 3:00 p.m. Picnic units are located along the asphalt pathway. There is a “generally accessible” restroom facility located in the north parking lot and “fully accessible” portable restrooms located in the south parking lot. The areas south of Baker Beach, including Ocean Beach, Lands End, and the Presidio Bluffs, may receive people displaced from their regularly occurring activities in or around the race area. In the event of displacement, there are other nearby GGNRA destinations that could accommodate these people. The tiny cove of China Beach, accessible via a paved drive or stairway down from the parking lot, lies between Baker Beach and Lands End. At nearby Lands End, the West Fort Miley batteries, with an adjacent parking lot, offer a grassy picnic area among three early 20<sup>th</sup> century gun emplacements and a view of Ocean Beach.

**Trails, Roads, and Parking.** The Coastal Trail is located on the cliff above the beach, and similarly to the south, the Lands End Trail parallels El Camino Del Mar. The Sand Ladder Trail connects beach visitors from the Coastal Trail to the north end of the beach. The beach does not have a boardwalk or ramp, although a ramp is located at Stairwell 15 at Ocean Beach.

South of U.S. Highway 101, Lincoln Boulevard and El Camino Del Mar provide access to Marshall and Baker beaches. There is general accessible parking located in both parking lots of Baker Beach. The parking lot serving Ocean Beach along the Great Highway is owned and maintained by the City and County of San Francisco. Another parking lot located at the drive-in Vista Point at Point Lobos and 48th avenues above the Cliff House offers grand views of the coast and access to nearby Sutro Baths.

### **3.12.2 U.S. Coast Guard**

The United States Coast Guard (USCG) is the lead federal agency for maritime security and law enforcement. USCG Sector San Francisco is responsible for overseeing port security and maritime law enforcement mission activities in the San Francisco Bay area. Aside from its own staff, Sector San Francisco has responsibility for seven USCG stations and four patrol boats with resources and personnel capable of enforcing federal laws and regulations associated with port security, living marine resources, drug laws, immigration laws, and marine environmental/pollution laws. For AC34, the USCG law enforcement responsibilities would include enforcement of a Special Local Regulation (SLR), safety/security zones, enforcement of safe boating laws, environmental protection, protection of high-value assets (e.g., ferries and cruise ships), and response to waterside security incidents.

#### **3.12.2.1 Staffing**

Within the project area, there are two stations: USCG Station Golden Gate and USCG Station San Francisco. Additionally, under the operational control of USCG Sector San Francisco are the USCG Cutter Pike and USCG Tern whose area of responsibility includes the Central Bay. Each station has approximately 45 crew members, while the patrol boats typically have a crew of 11 (USCG 2011).

The USCG Station Golden Gate, located at Horseshoe Bay, is responsible for search and rescue missions, homeland security, maritime law enforcement, maritime environmental protection, and boating safety. During a typical year the Station Golden Gate crew carries out approximately

600 search and rescue cases and approximately 300 law enforcement boardings, with the busiest part of the year occurring from June through September, making Station Golden Gate the busiest station on the West Coast.

USCG San Francisco completes varied and complex missions including but are not limited to search and rescue, homeland security, maritime law enforcement, marine environmental protection, and boating safety. Station San Francisco is also involved in community and public relations allowing thousands of people to participate in Station San Francisco's boating safety demonstrations at schools and public relations events (USCG 2011).

USCG also establishes temporary regulated navigation areas or limited access areas, such as Safety Zones (SZ), under 33 CFR Part 165, to protect the navigational safety and health of the people and activity inside or outside the regulated area. These regulated areas must have a location and boundaries; a date, time, and duration; a description of the activity planned for the regulated area; the nature of the conditions or restrictions desired for the area; and a reason why the area is needed. Safety zones are defined as the following (33 CFR 165.20):

A water area, shore area, or water and shore area to which, for safety or environmental purposes, access is limited to authorized persons, vehicles, or vessels. It may be stationary and described by fixed limits or it may be described as a zone around a vessel in motion.

### ***3.12.2.2 Assets***

#### **Buildings**

USCG Station Golden Gate is located in East Fort Baker under the north side of the Golden Gate Bridge in the town of Sausalito. The USCG Station Golden Gate currently uses FB655 and portions of FB691 at the southwest corner of the historic core area.

USCG Station San Francisco is co-located with USCG Sector San Francisco on Yerba Buena Island in San Francisco. The unit consists of Station Engineering Shops, Deck Department Shops, Administrative Offices, and Phillips Hall Barracks, as well as the waterfront pier area. This unit's area of responsibility for search and rescue covers San Francisco Bay south to San Jose, west to a line drawn northward from Pier 45 to Alcatraz Island to Point Blunt on Angel Island, and north from Point San Pedro to Point San Pablo. During homeland security patrols, the area of responsibility extends west to the Golden Gate Bridge.

#### **Boats**

The USCG Station Golden Gate crew operates and maintains two 47-foot Motor Lifeboats (MLBs) and two 25-foot Response Boats (RB-Ss). The unit has an exceptionally large area of responsibility that extends offshore 50 nautical miles from Point Reyes to Point Ano Nuevo including the Farallones Islands and inside the Bay from Tiburon's Bluff Point to San Francisco's Pier 39.

The USCG Station San Francisco has two 45-foot Response Boats (RB-Ms), two 25-foot Response Boats (RB-Ss), and one shallow draft boat. Their area of response is the entire Central and South Bay.

### 3.12.3 Presidio Trust

The Presidio Trust was established by Congress as a wholly owned corporation of the federal government. The Presidio Trust's mission is to preserve Area B of the Presidio as an enduring resource for the American people. To achieve this mission, the Presidio Trust is building a community to support the park; enhancing the Presidio's scenic, natural, and cultural resources; and forging public-private partnerships to sustain the park. The *Presidio Trust Management Plan (2002)* provides the framework for how the Presidio Trust is charged with preserving and enhancing the Presidio's resources, while also encouraging public use and generating revenue to support the Presidio in perpetuity.

#### 3.12.3.1 Budget and Staffing

The Presidio Trust's fiscal year 2012 operating budget is approximately \$64.8 million and the Trust has approximately 330 full time equivalent employees. Trust personnel have expertise in resource preservation, operations and maintenance, planning, real estate development, public affairs and programs, law, and finance. The Presidio Trust is governed by a seven-member board of directors. Six members are appointed by the President of the United States. The seventh is the U.S. Secretary of the Interior or his designee. An executive director reports to the board.

#### 3.12.3.2 Buildings and Other Facilities

Area B, including Mason Street and areas to the south, is managed by the Presidio Trust, as shown in **Figure ALT-3** in Chapter 2. The historic buildings at Crissy Field (Area B) are organized into distinct clusters facing Mason Street. Air hangars, warehouses, and administrative buildings at the western edge of the historic airfield, and the warehouse cluster at the east end, are oriented toward Mason Street and the former rail lines that once served the Presidio's north waterfront. Several recreational facilities now occupy the old West Crissy airplane hangars. The buildings are relatively modest in scale, creating a distinctive rhythm along the street broken only by the setback of historic Stillwell Hall (Building 650) and the adjacent buildings. Some businesses that currently lease these buildings have programs that may be affected by AC34 events. As described above, businesses in the potentially affected area are La Petite Baleen children's swim school, Planet Granite rock climbing gym, Sports Basement, House of Air Trampoline Park, USF Presidio, San Francisco Cross Fit, and San Francisco Gymnastics. Please refer to **Table SOC-2** in Section 3.13, Socioeconomics, for a detailed listed of affected businesses.

Buildings 649 and 937 could provide indoor storage space for AC34 event, if they are still vacant in 2013 and pending required upgrades and code approvals. Building 649 is an 8,000-square-foot building located on a rise in the mid-Crissy Field area. It could be appropriate for AC34 first aid, event operations, and even merchandising. Building 937 is the westernmost hangar along the West Crissy crescent. This building has 10,000 square feet that are primarily suitable for storage of items such as merchandise and concession supplies, tents, equipment, generators, and small vehicles (Presidio Trust 2011a). The Transit Center, including a restaurant, is situated at the foot of the Main Post and operates as the hub for the free PresidiGo shuttle service, as well as regional transit. Within the Presidio, there are 1,116 conventional dwelling units and 538 group quarters (e.g., barracks, dormitories) (Presidio

Trust 2002). The housing areas remain at a considerable distance from the waterfront; therefore, it is unlikely they would be affected by AC34 beyond increased traffic. Approximately 80% of the dwellings and 25% of the group quarters are either currently occupied or have been occupied within the last year. Of the total occupied housing units at the Presidio, about 35% are occupied by Presidio-based employees. All of the housing units were occupied when the Presidio was a military post and are reflected in the 1990 Census, which reported a residential population of 4,700. The following are the total existing dwelling/dorm units within each Presidio housing district (Presidio Trust 2002): Main Post – 139, Letterman – 158, Fort Scott – 360, Public Health Service Hospital – 97, East Housing – 313, and South Hills – 587.

### **Maintained Landscapes and Amenities**

There are several formal and informal overlooks throughout the Presidio. The Crissy Field Overlook along Lincoln Boulevard near Armistead Road provides limited parking although spectacular views of the Bay; Battery East has views to the north including portions of the race course, although it provides pedestrian access only. Battery Lancaster, near the toll plaza, is also a popular location for visitors seeking Bay, bridge, and ocean views. The bluff to the east of Building 211 is situated above where Doyle Drive currently is located, providing informal views north to the Bay and race area. On the west side of the Presidio, the octagonal-shaped Point Lobos Marine Exchange Lookout has access from the Lands End parking lot and may be an area for displaced visitors rather than race spectators. Clear views of the ocean and Golden Gate can be found at the Coastal Overlook (near Battery Godfrey) and Battery Boutelle, in addition to the overlook just south of Battery West, which could also be used for recreationalists who may seek scenic views away from the race area impacts (Presidio Trust 2002).

### **Trails, Roads, and Parking**

The Bay Area Ridge Trail (2.5 miles long), California Coastal Trail (2.7 miles long), and Juan Bautista de Anza National Historic Trail (2.7 miles long) provide views looking west to the ocean and portions of the Golden Gate Bridge. Tennessee Hollow Trail (1.2 miles long), Crissy Field Promenade/Bay Trail (4.3 miles long), and Presidio Promenade Trail (2.1 miles long) provide views of the Bay and west toward the Golden Gate Bridge. Visitors may travel to the Batteries to Bluffs Trail to capture indirect views of the race course to the north or views directly west. The Presidio Trust has organized and inventoried the trail system within its jurisdiction in the following manner (Presidio Trust 2002):

***Pedestrian Trails (10.2 Miles).*** Pedestrian trails are composed of primary trails occurring in the major trail and road corridors, and provide connecting routes to important Presidio destinations. Wider trails accommodate a larger number of trail users. Secondary trails allow visitors, residents, and tenants to experience many of the Presidio's less-visited environments and the many cultural, historical, natural, and scenic resources. Primary and secondary pedestrian trails are designed for a wide range of pedestrian uses. Typically, secondary trails are soft-surfaced, single-track footpaths, while primary trails are wider and often hard-surfaced.

***Multiuse Trails (6.1 Miles).*** Multiuse trails offer safe, enjoyable opportunities to travel through the Presidio for pedestrians, slower-speed recreational or family bicyclists, non-motorized wheeled sports users, and groups with a combination of the above. These trails would provide major connections between important Presidio destinations, entry gates, and other local, regional, and national trail systems.

***Bikeways (Class II Bike Lanes, Standard 5 Feet Wide) (2.3 Miles)***. Nearly all Presidio roads (whether they have pavement markings or not) are currently open for bicycle use. The Presidio bikeways continue to make important connections to City bike routes and other local and regional bikeways.

***Social Trails (9.9 Miles)***. Social trails are composed of unofficial, unplanned, informal paths or shortcuts that have been created by consistent human use. In some cases, these unplanned and non-maintained trails cross through areas of fragile natural and cultural resources. Although they may appear to users to be no different from other trails, social trails tend to have a greater impact on natural, cultural, and historic resources than routes that were designed and constructed as trails (Presidio Trust 2002).

U.S. Highway 101, Lincoln Boulevard, Mason Street, and Doyle Drive are the main thoroughfares through the Presidio but provide limited access to points to enter and exit the park. Connections to Mason Street from the south are along Gorgas Avenue (connecting to Letterman), Halleck Street (connecting to the Main Post), and McDowell Avenue (connecting to the Cavalry Stables). Once complete, the Doyle Drive project will provide easier access to the grounds of the Presidio. The expected closure of Halleck Street, which provides access from Lincoln Boulevard and Mason Street, could potentially affect key access roads such as McDowell Avenue, which provides access from the Presidio to the waterfront areas including Crissy Field. To accommodate mass transit, 6,400 square feet in front of Stilwell Hall could be reserved for bus/shuttle turnaround (Presidio Trust 2011a).

Parking at Crissy Field (Area B) is limited and scattered in lots of varying sizes south of Mason Street. The parking lot located at the Golden Gate toll plaza is heavily used by regular tourists and buses. The parking lot located at Battery East provides 100 parking spaces. Near the Warming Hut along Marine Drive, 150 parking spaces are provided. The Fort Scott parking lot, adjacent to Lincoln Boulevard in the northern end of the Presidio, could be of use to race spectators visiting Crissy Field Overlook, Battery Boutelle, and Battery Godfrey. Six parking spaces are offered directly adjacent to the Crissy Field Overlook. Eighty parking spaces are provided adjacent to Building 667 along McDowell Avenue. Parking lots that could be of service to the Crissy Field spectators are the Thoreau Center parking lot in the Letterman Digital Arts Center and the Presidio Main Post parking lot. The land adjacent to Cowles Avenue and Lincoln Boulevard near the U.S. Park Police stables is unused and is a potential location for a parking area. Adjacent to there Sports Basement, there is a 40,000-square-foot parking lot (Presidio Trust 2002).

## Utilities

Unlike most of the City and County of San Francisco, the Presidio operates separate stormwater and sanitary sewer systems (Baseline 2004). The Presidio Trust operates a facility that treats water from Lobos Creek to provide potable water to the park. Supplemental water is purchased from the City and County of San Francisco as needed. Historically, the Presidio water needs have been met by Lobos Creek water. The main source of water for Lobos Creek is the Lobos groundwater drainage basin, a 3.2-square-mile underground aquifer extending from under the southwest quarter of the Presidio south to Golden Gate Park and west to the Palace of the Legion of Honor. Creek flows are treated at the Presidio Water Treatment Plant and are supplemented by water purchased from the San Francisco Public Utilities Commission (SFPUC). Between 0.7 and 1.6 million gallons per day (mgd) of Lobos Creek water is available in any given year for diversion, treatment, and use at the Presidio. Historically

the SFPUC system, described above, has supplied up to one-third of the Presidio's water demand. The amount of water purchased varies by year (Presidio Trust 2002).

### Park Maintenance Facilities

The Presidio Trust maintenance facilities are located on Lincoln Boulevard near the Lobos Dunes. The Presidio's electrical distribution system is currently undergoing safety and efficiency upgrades, including repair and rehabilitation of old cables and, where possible, undergrounding of overhead lines. The Trust has also installed small-scale cogeneration units in individual buildings. These units provide both heat and power to the buildings.

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### Sausalito-Marín City Sanitary District (SMCSD)

- 2012 Sausalito-Marín City Sanitary District website: <<http://www.sausalitomarincitysanitarydistrict.com/aboutus>>. Viewed March 2012.

### United States Coast Guard (USCG)

- 2011 United States Coast Guard website: <<https://homeport.uscg.mil/mycg/portal>>. Viewed October 2011.

### 3.13 SOCIOECONOMICS

The socioeconomic analysis evaluates the proposed AC34 event's socioeconomic direct impacts as either "on-water" or "landside" related businesses and activities. The race itself would occur within San Francisco Bay and during race days would temporarily limit access within certain portions of the Central Bay. The access limitations may directly affect "on-water" Bay use by shipping, ferries, and other commercial activities (e.g., fishing, charter, and sand mining operations). On-water use by recreational boaters and users (e.g., windsurfers) is analyzed in Section 3.7, Visitor Use and Experience.

The majority of spectator viewing and race support activities for the AC34 event would occur at numerous locations along San Francisco's north and northeastern waterfront, and these would represent the event's primary direct "landside" effects. Accordingly, the socioeconomic effects from the AC34 event's increased visitation as well as the event management and participants' spending with support business are analyzed as "landside" socioeconomic impacts.

#### 3.13.1 Local Economy

##### 3.13.1.1 General Economy

The economies likely to be most directly affected by the proposed AC34 event activities would vary by the location of the affected commercial business operations. For the landside effects, the City and County of San Francisco (CCSF or City) would be the primary economy affected. For on-water effects, the economic impacts would be determined by the location of those businesses operating on the Bay whose commercial operations are affected by the race event activities. As will be discussed below, the Port of Oakland is the major cargo destination. Consequently the direct local economic impact would be expected to predominantly affect Alameda County. By contrast, Fisherman's Wharf is the center of Northern California's commercial and sport fishing fleets, and consequently the City would be the local economy most directly affected by any commercial fishing impacts associated with AC34.

However, given the nature and scale of the project, as well as the existing diverse transportation links with the surrounding counties, project-related socioeconomic impacts may extend beyond the City or a single county to affect the neighboring Alameda, Contra Costa, Marin, and San Mateo counties. Therefore, for purposes of this analysis, the regional economy is defined as including these five counties.

For ease of presentation, each of the five counties' economies is characterized separately below so that, if need be, each can also be recognized as a local economy distinct from the combined five-county regional economy. Consequently, all the necessary socioeconomic data and characterization of the local and regional economies are described below.

##### 3.13.1.2 On Water Activities

Numerous businesses use the Bay commercially. For the purposes of the socioeconomic analysis, commercial activity on San Francisco Bay consists of four main use types:

- Deep draft vessels (predominantly cargo container vessels, but also includes bulk and oil transport vessels);
- Low draft /small commercial (predominantly tug and tow boats);
- Ferry operators (including both commuter and tourist ferry services); and
- Other commercial operators (includes fishing, charter/excursion boats, and sand miners).

There are typically between 120,000 to 145,000 vessel transits per year within San Francisco Bay. A vessel transit is a one-way trip voyage between a port of origin and destination port. This corresponds to approximately an average of 400 vessel transits per day (PAWSA 2008).

### Deep Draft Vessels

The Bay is a major transit route for the import and export of goods, both nationally and internationally. Bay Area maritime cargo includes containerized cargo at the Port of Oakland; bulk cargoes at San Francisco, Richmond, Redwood City, Benicia, North Bay, San Joaquin, Stockton, and Sacramento; and crude petroleum productions, raw sugar, and bay sand handled at private terminals.

**Container Cargo.** The Port of Oakland is the third largest container port, by volume, on the West Coast and the region's leading seaport. The port loads and offloads more than 99 percent of the containerized goods moving through Northern California (Port of Oakland 2011). In 2010, 1,973 shipping vessels docked at the Port of Oakland and the annual container throughput was approximately 2.33 million 20-foot equivalent units, which is the standard space occupied by a 20-foot container. This throughput equals a total of \$39.7 billion of commodity value. It is estimated that the Port of Oakland is currently operating at only 40% capacity given its considerable expansion potential (PAWSA 2008). Furthermore, unlike most other West Coast ports, the export container cargo volumes from the Port of Oakland exceed its import volumes, indicating that the Port plays an important role providing an outlet to markets for California businesses. Strong future growth is forecast for containerized cargo, which will continue to dominate the region's future maritime trade.

The largest export commodity was fruits and nuts, with \$3.2 billion shipped out of Oakland (20.8% of total exports). Meat products were another major commodity, with \$1.9 billion exported (12.3% of total exports). Machinery and electrical equipment were the two dominant import goods, with \$5.38 billion and \$3.26 billion imported, respectively. Together, these two commodities accounted for over a third (35.5%) of all imports to the Port of Oakland.

**Tanker Vessels.** San Francisco Bay is the fourth largest port in the United States for tanker traffic, with over 700 inbound oil or chemical tanker vessels per year. The destination of these tankers is either Alameda or Contra Costa counties, where approximately 20 oil terminals are sited along the Bay shoreline (BCDC 2005). In 2010, 756 tankers brought approximately 221 million barrels of imported petroleum products, most of which was crude oil (148 million barrels, or 67% of the total imports). Crude oil prices fluctuated between \$70 and \$92 per barrel in 2010. Based on an average price of \$81 per barrel, the total import deliveries may be estimated to represent over \$12 billion in commodity value (New York Mercantile Exchange 2011). These tankers also carried approximately 138 million

barrels of oil products for exports out of Northern California. The majority (122 million barrels) consisted of refined oil goods such as diesel, gasoline, and fuel oils (HSC 2011).

Most of the large tank ships operating within the Bay have 650,000-barrel capacity. Chevron also operates 1.1 million-barrel capacity vessels, but these are generally operated at 800,000-barrel capacity due to draft limitations. The largest oil barges have 350,000-barrel capacities.

**Other Cargo.** Other major goods passing through San Francisco Bay consist of three major categories: bulk, neo-bulk, and general cargo. Bulk cargo is any commodity that is loaded directly into a ship's hold (e.g., grains or oil products). Such goods are typically poured, pumped, or loaded using conveyors. Neo-bulk cargo refers to uniformly packaged goods that stow as solidly as bulk. In the Bay, this refers predominantly to automobile and truck cargo. Finally, general cargo consists of other uncontainerized bulk goods and might include bagged and baled commodities.

On a tonnage basis, the estimated 2.86 million tons of bulk cargo transported (excluding bulk oil deliveries) in 2010 was nearly five times the general cargo deliveries made by Bay Area ports. The Port of Stockton is the major bulk cargo port (0.86 million tons), followed by Crockett (0.65 million tons). In addition, substantial bulk cargo off-loadings occur at the Port of San Francisco, Redwood City, and Richmond (PMA 2011). Neo-bulk cargo transport in and out of San Francisco Bay predominantly consists of automobiles and trucks. In 2010, an estimated 1.93 million tons of cars and truck were transported through the Bay. The majority (1.1 million tons) were imported to the Port of Benicia. Approximately another 0.5 million tons of vehicles were landed at the Port of Richmond. The remaining vehicle cargo transfers occurred at the Port of Oakland, although approximately 0.25 million were exports (PMA 2011).

As discussed above, general cargo transportation through San Francisco Bay is relatively small at less than 0.6 million tons annually. Of this, almost all (94%) arrives or departs from the inland ports of Stockton and West Sacramento (PMA 2011).

**Ocean Cruise Ships.** Ocean cruise ships are also an occasional deep draft vessel use within San Francisco Bay. Numerous major cruise lines make port calls to San Francisco primarily at Pier 35 or if necessary to Pier 27 if another large ships is already in port. Between 2003 and 2006, there were on average 80 or more ocean cruise ship port calls at San Francisco annually. Over that period, the annual number of boat passengers (including those "in transit") increased from 137,300 in 2003 to 223,600 in 2006. On average there will be 2,500 to 2,750 passengers on each cruise ship.

Since 2006, however, the number of port calls and passengers both decreased by almost 50%, resulting in only 41 port calls and 112,200 passengers to San Francisco in 2010. Cruise ship and passenger visitation in 2011 rose to an estimated 61 cruise ships with approximately 160,000 passengers (Port of San Francisco 2011).

Ocean cruise schedules are determined a year or two in advance. May to August is the high season for cruise trips into and out of San Francisco. Most ocean cruise ships are scheduled to arrive in the morning and depart in the late afternoon between 5:00 and 6:00 p.m.

### Low Draft and Small Commercial Operators

A considerable amount of San Francisco Bay maritime traffic consists of low draft barges, most typically used to transfer bulk or general cargo within San Francisco Bay locations or to deliver materials or equipment for major projects such as construction of the new Bay Bridge. Tug boats are used to move the barges between locations.

Seven major tug boat companies provide most of the tug and tow services within San Francisco Bay. Commercial tug boats are also used extensively to accompany and assist large vessels entering or leaving San Francisco Bay. The California Oil Spill Prevention Act of 1990 established statutory requirements for regulations governing petroleum transport vessel movements in California ports and harbors. The regulations require all tank vessels carrying 5,000 or more long tons (2,240 pounds) of oil as cargo to employ a tugboat escort from the approaches to San Francisco Bay to any ports or anchorages within the Bay. Large cruise ships and cargo container ships regularly use tugboat assistance. Under more difficult weather or operating conditions, cargo vessels may use one or more tug boats to assist their docking, undocking, or transit out of the Bay (HSC 2011). Vessels of 300 gross tons or more, and all foreign vessels, are required to have a San Francisco Bar pilot on board to enter the Golden Gate specifically to navigate the waterways and traffic of San Francisco, San Pablo, and Suisun bays. Nonetheless, additional tug boat assistance is also frequently required.

### Ferry Operations

Ferry traffic accounts for approximately 55% (220 transits per day) of the 400 average daily vessel transits (approximate) across San Francisco Bay (PAWSA 2008). Currently, there are six principal commuter ferry service routes that connect from San Francisco to six locations in the North Bay and East Bay. These routes are served by three passenger service companies that operate the ferry routes. **Table SOC-1** shows these routes and their key operating characteristics.

During the peak periods (i.e., between 9:00 a.m. and 6:00 p.m.), there can be as many as 20 ferry transits occurring in the course of an hour. On weekdays there are approximately 220 transits per day, with fewer occurring on Saturdays and Sundays. Altogether Bay commuter ferries transport an average of 10,735 riders daily.

The majority of the commuter ferry operations serve San Francisco from the Ferry Building (located at the foot of Market Street). In addition, there are several short ferry connections from the Ferry Building to Pier 41 and limited direct commuter service from Piers 41 to Sausalito and Tiburon. Pier 41 also serves as embarkation point for popular tour operations. Also, passengers can transfer to Pier 33 for the popular Alcatraz ferry. The longest route extends from San Francisco (Ferry Building) to Vallejo with a distance of 24 miles and average travel time of approximately 55 minutes (BCDC 2005). The shortest routes have 20- to 30-minute travel times over approximately a 5- or 6- mile distance. The largest of the ferry vessels can carry up to 750 passengers. Ferries are not required to but have agreed to and do follow pre-designated routes and are typically very maneuverable. While most ferries operate at speeds up to 20 knots, the faster catamaran ferries serving Tiburon and Vallejo can operate at speeds of over 30 knots.

**TABLE SOC-1: FERRY AND CHARTER CRUISE OPERATIONS ON SAN FRANCISCO BAY - SUMMER SEASON**

Commuter Ferry Service		Origin	Daily Round Trips		Average Daily Passengers <sup>a</sup>	Estimated Travel Time <sup>a</sup>	Operator
			Weekday	Weekend			
San Francisco	Ferry Building	Sausalito	9	6	1,565	30 minutes	Golden Gate Ferry
	Pier 41	Sausalito	7	7	685	25 minutes	Blue & Gold Fleet
San Francisco	Ferry Building	Tiburon	7	0	755 (all ferries)	25 minutes	Blue & Gold Fleet
	Pier 41	Tiburon	8	6	755 (all ferries)	40 minutes	Blue & Gold Fleet
San Francisco	Ferry Building	Larkspur	20	5	3,285	30 or 50 minutes	Golden Gate Ferry
San Francisco	Ferry Building	Vallejo	12	7	2,190	60 or 75 minutes	Vallejo Baylink Ferry (Blue & Gold Fleet)
San Francisco	Ferry Building	Oakland / Alameda	11	5	1,715 (all ferries)	30-35 minutes	Alameda / Oakland Ferry (Blue & Gold Fleet)
	Pier 41 <sup>b</sup>	Oakland / Alameda	4	3	1,715 (all ferries)	55 minutes	Alameda / Oakland Ferry (Blue & Gold Fleet)
San Francisco	Ferry Building	Bay Farm Island	7	0	580	25-28 minutes	Harbor Bay Ferry
<b>Total</b>			<b>85</b>	<b>39</b>	<b>10,775</b>		
Excursion Ferry Service		Origin	Daily Round Trips		Average Daily Passengers <sup>a</sup>	Weekend	Operator
			Weekday	Weekend			
San Francisco	Pier 33	Alcatraz	14	14	4,200	15 minutes	Alcatraz Cruises (Hornblower)
San Francisco	Pier 41	Angel Island	3	4	275	20 minutes	Blue & Gold Fleet
Oakland / Alameda		Angel Island	1	1	430	20 minutes	Alameda / Oakland Ferry (Blue & Gold Fleet)
Tiburon		Angel Island	4	8	na	5-10 minutes	Angel Island - Tiburon Ferries
Special Events <sup>c</sup>	AT&T Park	Larkspur	1	1	na	35 minutes	Golden Gate Ferry
		Vallejo	1	1	300	60 minutes	Vallejo Baylink Ferry (Blue & Gold Fleet)
		Oakland / Alameda	1	1	335	30 minutes	Alameda/Oakland Ferry (Blue & Gold Fleet)
<b>Total</b>			<b>25</b>	<b>28</b>	<b>5,540</b>		
<b>TOTAL - ALL FERRIES</b>			<b>110</b>	<b>67</b>	<b>16,315</b>		

NOTES:

na = **not available**

<sup>a</sup> Per segment. Roundtrip consists of two segments. Only cross bay transits counted.

<sup>b</sup> Additional ferry service also continues between Pier 41 and Ferry Building.

<sup>c</sup> 2005 estimate.

AT&T Park Ferry service only on game days. Estimated approximately 80 homes games per regular season.

SOURCES: WETA, 2011; MTC, 2011; Blue & Gold Fleet, 2011.

1 Tourist service between San Francisco (Pier 33) to Alcatraz Island is operated by Alcatraz Cruises (a  
2 subsidiary of the Hornblower Cruises). The ferry service is the only means of public access to the  
3 island and is generally fully booked a week in advance during the summer season. Each boat carries  
4 approximately 300 passengers. The ferry trip to Alcatraz Island takes 10 to 15 minutes. The other  
5 major tourist ferry routes connect Angel Island with Tiburon and San Francisco. In addition, there is  
6 limited service between Angel Island and Alameda/Oakland during the summer season. These ferry  
7 services provide the only public transportation to Angel Island. Blue & Gold Fleet also provides special  
8 event ferry service between San Francisco's AT&T Park and Larkspur, Vallejo, and Alameda/Oakland  
9 for San Francisco Giants weekday night games and weekend day games.

## 10 Other Commercial Operators

11 **Dinner Cruises.** Several cruise operators run dinner cruises within San Francisco Bay. Most of the  
12 cruises run in the evening, timed for viewing the sunset while out on the Bay. Hornblower Cruises and  
13 Red & White Fleet operate most of the dinner cruises on San Francisco Bay. Dinner cruises typically  
14 depart in the early evening at 7:00 p.m. The largest cruise boat operating within the San Francisco Bay  
15 is the *M/V San Francisco Belle*, which can carry up to 2,000 passengers. However, the ship typically  
16 carries 1,200 passengers and operates 60 transits annually. Other dinner cruises range from several  
17 hundred passengers to as few as 30 passengers (PAWSA 2008). Blue & Gold Fleet also operates several  
18 roundtrip bay cruise trips during the summer season.

19 **Commercial Fishing.** At present, only three species of fish and macroinvertebrates are harvested  
20 commercially in the San Francisco Bay-Delta: Bay shrimp (*Crangon franciscorum*), Pacific herring  
21 (*Clupea pallasii*), and Northern anchovy (*Engraulis mordax*).

22 Pacific Herring and their roe are harvested in several areas around the Bay. The herring season lasts  
23 from the beginning of December to mid-March and would therefore not overlap with the AC34 race  
24 events. San Francisco Bay has the largest spawning population of herring and produces more than  
25 90 percent of the herring catch. This fishery is managed through a limited entry system that began with  
26 17 permits in 1973-1974, peaked with over 450 permits in the 1990s, and declined to 185 permits issued  
27 for the 2010-2011 season (CDFG 2011) In addition, in the 2010-2011 season, four herring eggs on kelp  
28 permits were issued; these permits are available to permittees willing to trade in their sac-roe permits.  
29 None of the landings reported for Pacific herring (whole fish, sac roe, or herring eggs on kelp) in  
30 San Francisco Bay was within the months of August and September.

31 Bay shrimp are commercially harvested primarily to provide live bait for sturgeon and striped bass, but a  
32 small percentage of the catch is reserved for human consumption. Fishing is permitted year-round and  
33 the primary method is beam trawling in waters less than 20 feet deep in channels of the estuary's shallow  
34 reaches (CDFG 2011). In 1999, eight boats participated in the bay shrimp fishery in north San Francisco  
35 Bay. Peak catch per unit effort and total catch typically occur in the months of June through November.  
36 Bay shrimp is the only commercial species regularly harvested in recent years during the months of  
37 August and September.

38 The northern anchovy is the most abundant fish in the Central Bay and an important prey species for  
39 many fishes and seabirds. Northern anchovy are harvested in San Francisco Bay, primarily using purse

1 seine type nets, for use as both live and frozen bait for sport fishermen. Northern anchovy landings in  
2 San Francisco Bay were virtually nonexistent between 2005 and 2009; the one exception was in 2006,  
3 when more than 150,000 pounds were landed. During the months of August and September, only  
4 15 pounds of northern anchovy were harvested between 2005 and 2009, with the harvest occurring in  
5 2005.

6 In addition to fishing within San Francisco Bay, numerous fishing boats depart from San Francisco for  
7 ocean fishing. The Port of San Francisco's Fisherman's Wharf is the center of Northern California's  
8 commercial and sport fishing fleets. Additionally, the wharf's Pier 45 houses the West Coast's largest  
9 concentration of commercial fish processors and distributors. In 2010, approximately 8 million  
10 pounds of seafood worth \$13.8 million were brought in at Fisherman's Wharf. This represents 90.6%  
11 by weight and 89.1% by value of all the commercial seafood brought into ports within the Bay (CDFG,  
12 2011).<sup>1</sup> While commercial fishing occurs year-round, the peak season is November and December  
13 when typically nearly 70% of the year's total catch (by value) is landed. August is typically the third  
14 busiest month for commercial fishing, although catches are generally only a third to quarter of peak  
15 season totals (by value).

16 **Charter Fishing / Party Boats.** Charter fishing vessels (also known as "sport fishing" or "party" boats)  
17 typically carry small groups of paying customers to sport fishing grounds outside the Golden Gate,  
18 although occasionally they may fish for migratory species within the Bay. Charter fishing boat  
19 operations operate from the harbors of Oakland, Emeryville, Berkeley, Richmond, Point San Pablo,  
20 San Rafael, and Sausalito. Ten charter operators offer daily fishing excursion from the Port of  
21 San Francisco. The charter fishing trips generally leave port in the early morning (6:00 to 7:00 a.m.) and  
22 return in the early afternoon (2:00 to 3:00 p.m.). The major activity period for charter fishing operators  
23 is the salmon season (April through October), during which time up to 40 to 50 charter fishing boats  
24 typically operate per day (PAWSA 2008).

25 Many commercial sport fishing vessels also offer San Francisco Bay tours and wildlife viewing trips for  
26 whale and shark observation, mostly in the Gulf of the Farallones outside the Golden Gate.

27 **Sand Miners.** The California State Lands Commission currently permits sand mining to occur within  
28 San Francisco Bay under permit agreements with three private businesses: Hanson, Jericho, and RMC  
29 Pacific Materials. Sand miners are permitted to extract sand at nine locations within the Central Bay,  
30 and three of these lease locations (Lease #s 709S, 709E, and 7780S) are within the Central Bay  
31 proposed AC34 race area. The lease areas are located approximately one-half mile south, west, and  
32 southwest of Angel Island. The largest mining area extends for approximately 2 miles west and  
33 1.5 miles north between Alcatraz Island, Sausalito, and Angel Island. Other Central Bay mining areas  
34 are located 0.5 mile north of Crissy Field and west/southwest of Alcatraz Island. In addition, there are  
35 other leased state mining areas north of Pittsburg and a private mining area offshore of the Concord  
36 Naval Weapons Station.

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<sup>1</sup> Sausalito's \$1.1 million annual Dungeness crab operations account for the majority of the remaining commercial fishing activity within the Bay Area (CDFG 2011).

1 Mining events typically last approximately 3 to 4.5 hours with a range of 1 to 11 hours depending on  
2 weather conditions, equipment performance, and sand availability at a site. Sand mining may occur up  
3 to 24 hours per day during peak periods of mining. Once the barge is loaded it travels to an offloading  
4 location. Depending on the mining and offloading locations, the entire mining operation can take 8 to  
5 24 hours to travel to the mining location, mine, travel to the offload location, and offload. Tidal  
6 conditions further limit the frequency of sand mining operations and disturbance of the sand shoals  
7 (CSLC 2011).

8 The number and seasonal timing of sand mining events are largely determined by demand for the  
9 product and the weather. Sand mining occurs year-round at an average rate of 70 events per month.  
10 Sand mining is most active in the July and August when approximately 90 sand events occur per  
11 month. If a sand mining operation were to work on a race day, vessels would avoid the hours of  
12 1:00pm and 5:00pm as operation would not be able to halt and change locations quickly to  
13 accommodate race boats. Total sand mining employment is approximately 20 full-time-equivalent  
14 employee positions for crew members on the sand extraction tugs and barges (CSLC 2011).

### 15 **3.13.1.3 Landside Activities**

16 Numerous businesses are located on federally owned lands along San Francisco's north and  
17 northeastern waterfront and in the Marin Headlands, and hundreds of additional businesses are  
18 located on private lands along the San Francisco waterfront. This discussion will focus primarily on  
19 the commercial businesses and offices found on the federally owned lands, but similar economic  
20 effects would be felt in private neighborhoods (e.g., Fisherman's Wharf) as well. Due to their close  
21 proximity to the proposed race course and the programmed viewing areas, the most immediately  
22 affected businesses on federal lands likely would be those in the area administered by the Presidio  
23 Trust. As an illustrative example, **Table SOC-2** lists the businesses found within the Presidio and  
24 provides a brief description of each business, and four are highlighted in more detail below.

25 The majority of businesses within the Presidio Trust are not of a nature that would be adversely  
26 affected by AC34's landside activities. There are, however, four businesses on Mason Street adjacent to  
27 the historic airfield that could be affected by AC34's landside activities:

- 28 • **La Petite Baleen.** La Petite Baleen is a swim school for children. Classes occur seven days a  
29 week and are paid on a monthly basis. Class sessions are run continuously throughout the  
30 year, and cancellation requires 30-day notice.
- 31 • **The House of Air.** The House of Air is an indoor trampoline park that is host to open  
32 trampoline jump time, aerial and physical training on trampolines, trampoline dodgeball, and  
33 fitness classes. The House of Air also holds group events, including birthday parties, corporate  
34 events, family events, and fundraisers. For the majority of the day, the House of Air hosts open  
35 trampoline time. Some mornings and evenings, the House of Air hosts trampoline workouts  
36 and training classes. The training classes are purchased in sets of 10 classes. The workouts can  
37 either be purchased individually, in sets of 10, or in sets of 20. Events are scheduled as  
38 requested.  
39

1 **TABLE SOC-2: PRESIDIO BUSINESSES**

Name	Description
Acre café	Restaurant.
Alexa Internet	Offers Internet navigation software service.
Alliance for California Traditional Arts	Provides model programs and services to support the state's diverse living cultural heritage.
Archives and Records Center	Houses the archives collections of the Golden Gate National Recreation Area, Muir Woods, the Presidio, and other military forts.
ARCS Foundation	Raises funds for scholarship awards to science students.
Arion Press	Publishing company.
ArtSeed	Volunteer-based nonprofit that funds fine arts.
ArtsFest	Promotes the cultural fabric of the San Francisco Bay Area.
Bay Area Ridge Trail Council	Plans, promotes, builds, and maintains the Bay Area Ridge Trail.
Bay Kids	Provides filmmaking, broadcasting, and innovative opportunities for children, many of whom are in need and have disabilities.
Bay School of San Francisco	College preparatory high school.
Beggs, Richard	Offers sound design for feature film and audio post-production.
Bellingham Investment Management	Investment management and advisory firm.
Benningfield Financial Advisors	Fee-only financial and investment advisory practice.
BLUM, Inc.	Provides project management and owners representation for Presidio rehabilitation projects.
Body of Work / Hopola, Inc.	Health and fitness studio.
BoxIT	Provides IT services.
Building 38	Subleased to a variety of service firms and organizations.
Cabezon Capital Management, LLC	Manages the BWII global macro fund.
California Clean Money Campaign	Nonprofit whose vision is to achieve open and accountable government responsive to the needs of all Californians.
CB Richard Ellis	Manages all non-residential space within the Presidio's interior lands.
CDA Services LLC	Full-service, offsite accounting department.
Center for Policy Analysis on Trade and Health	Advocate for global trade and sustainable development.
Columbia Foundation, The	Funds work to protect and enhance the quality of life within the means of nature.
Community Clinics Initiative	Provides resources, evidence-based programming and evaluation, education, and training to community health centers and clinics.
Consultative Group on Biological Diversity	Nonprofit environmental organization working with foundations on issues of biodiversity grantmaking.
Consumer Advocacy (Harry M. Snyder)	Public interest advocacy and consultancy working for nonprofits, government agencies, and the courts.
Cow Hollow School	Preschool for children 2-5 years old.
Coyote Films	Creative production and editorial company.
Crissy Field Center	Partnership project of the Golden Gate National Parks Conservancy and the National Park Service.
Crissy Field Media	Provides audio/visual consulting services.

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**TABLE SOC-2: PRESIDIO BUSINESSES (CONTINUED)**

Name	Description
Cultural Conservancy	Conservancy dedicated to preserving and revitalizing indigenous cultures and their ancestral lands.
Dada	Provides design and production services.
Discovery Mining, Inc.	Provides electronic discovery and online hosting services to the legal industry.
Dish	Restaurant.
Door Dog Music Productions	Nonprofit presenting and production organization.
Douglas Wright Consulting	Provides consulting services on transportation, land use, environmental planning, policy, and finance matters.
ECB Management Services, Inc.	Property manager for the Thoreau Center for Sustainability and Building 38, both located at the Presidio.
EcoTalk (formerly Trash Talk)	Environmental radio show.
EMERGENCY (park dispatch)	Provides 24-hour fire, medical, and police dispatch services.
Environmental History Project	Produces a television series on the history of the environmental movement.
Eucalyptus Associates, Inc.	Family office and related private foundation.
Exploratorium	Museum of science, art, and human perception, dedicated to the public understanding of science.
F1rst Graduate	Organization committed to helping young people finish high school and become the first in their family to graduate from college.
Farallones Marine Sanctuary Association	Association with a mission to protect the Gulf of the Farallones National Marine Sanctuary wildlife and habitat.
Fire Department, Presidio	Provides emergency fire and medical services to the Presidio, Fort Mason, Fort Baker, Fort Barry, and Fort Cronkhite.
First Republic Bank	Commercial bank with ATM.
Fleishhacker Foundation	Charitable organization that makes grants to the arts and K-12 education.
Foghorn	Creative direction company specializing in event design, script development, and video production.
Fort Point National Historic Site	National Historic Site constructed between 1853 and 1861 to defend San Francisco Bay against hostile ships.
Foundation for Environmental Education	Foundation with a mission to expand environmental and energy literacy.
Futures Without Violence	Nonprofit whose mission is to end violence against women, children, and families.
FW-JP Management, LLC	Provides property management services.
Geographic Expeditions, Inc.	Offers small group and private journeys.
Golden Gate National Parks Conservancy	Nonprofit membership organization created to preserve the Golden Gate National Parks.
Goldman Environmental Prize	Annually awards \$125,000 to environmental heroes from each of the world's six inhabited continental regions.
Grabhorn Institute	Nonprofit that conducts public programs at the historic bookmaking facility of Arion Press and M&H Type.
Grantmakers Without Borders	Network of foundations and individual donors who practice global social change philanthropy.
Greywolf Capital Management LP	Asset management firm.
Groundspring.org	Provides information technology solutions to nonprofits.

**TABLE SOC-2: PRESIDIO BUSINESSES (CONTINUED)**

Name	Description
Grove Consultants International, The	Provides graphics and strategic planning services.
Gulf of the Farallones National Marine Sanctuary / NOAA	Protects natural and cultural marine resources.(GGNRA Park Partner in Area A)
Haight Ashbury Free Clinics, Inc.	Increases access to health care for all and improve the health and well-being of its clients.
Hamilton Zanze & Company	Real estate broker and asset management firm.
House of Air	Indoor trampoline park.
Institute for the Study and Development of Legal Systems	Promotes worldwide legal development through the facilitation of legal exchanges and modernization initiatives.
Interfaith Center	Hosts all religious spiritual traditions, often in interfaith ceremonies and events.
International Forum on Globalization	International research and educational institution.
InterScholastic Company, LLC.	Helps institutions sell surplus assets at public auction.
Interview Clips	Creates personal interview web pages.
It's Yoga Kids	Offers healthy fun for kids of all ages, adults, and families.
Jenifer Altman Foundation	Makes grants in environmental health and mind-body health areas.
Joe Goode Performance Group	Dance and theater performance group.
Julius Kahn Playground	Playground.
Just Think Foundation	Teaches media production and critical thinking skills to young people and educators.
JVQ California	Nonprofit organization whose mission is to provide free vision exams and custom-made corrective eyeglasses for economically disadvantaged children.
KACO Solar	Manufactures sine wave inverters.
Kao & Company	Offers film and digital media production.
L.S.B. Leakey Foundation	Foundation with a mission to increase scientific knowledge and public understanding of human origins and evolution.
La Petite Baleen	Swim school for children.
La Terrasse	Restaurant.
Living Goods	Network of door-to-door Community Health Promoters in East Africa who sell essential health products at affordable prices.
LoBue & Majdalany Management Group	Association management company.
Lone Mountain Children's Center	Preschool.
Lucasfilm Ltd. (Letterman Digital Arts Center)	Home of Lucasfilm Ltd., one of the world's leading film and entertainment companies.
M&H Type	Offers design, composition, and typesetting services, using both contemporary and traditional (hot metal) technologies.
Miller Video and Film, Inc.	Offers edit suites for the film and video industry.
Moore Foundation	Seeks to improve the quality of life for future generations.
New Field Foundation	Nonprofit that supports women and their families to overcome poverty, violence, and injustice in their communities.

**TABLE SOC-2: PRESIDIO BUSINESSES (CONTINUED)**

Name	Description
New Ways to Work, Inc.	Nonprofit whose mission is to ensure better access to quality educational and career opportunities for youth.
NextAdvisor.com	Provides independent reviews and comparisons of financial, self-improvement, and personal technology services for consumers.
Northern California Independent Booksellers Association	Nonprofit trade association representing independent booksellers.
Object Health	Management consulting group assisting health care organizations and communities.
Omnia Foundation	Focuses on the areas of restorative justice and immigrant rights.
One World Children's Fund	Nonprofit charitable organization that supports local projects providing services for those in need worldwide.
Orphanage, The	Visual effects and production company.
Pachamama Alliance, The	Dedicated to global sustainability.
Pacific Forest Trust	Works to preserve, enhance, and restore America's vast and vital private forests.
Pacific Union Co.	Provides real estate development and management services.
Planet Granite	Rock climbing facility.
pMDsoft, Inc	Offers software that allows physicians to enter charges that will be accessible from any computer.
Pohaku Fund	Supports community organizing, aggressive environmentalism, and participatory democracy in the United States.
Police, U.S. Park	Serves the entire Golden Gate National Recreation Area.
Positive Coaching Alliance	Nonprofit that is creating a movement to transform the culture of youth sports.
Pottruck Family Foundation	Established to improve the lives of disadvantaged children.
Presidio Bowling Center	Bowling alley.
Presidio Café	Restaurant.
Presidio Child Development Center	Provides quality child development services to children from 3 months to 10 years of age.
Presidio Fitness, LLC	Personal training studio for individual and group training.
Presidio Golf Course	Eighteen-hole public course.
Presidio IT	Provides IT services.
Presidio Native Plant Nursery	One of five nurseries in the GGNRA that preserves, maintains, and restores natural diversity and beauty in the park.
Presidio Recycling Center	Provides recycling services and programs.
Presidio Residences	Manages the park's residential properties.
Presidio School of Management	Offers an MBA program in sustainable management.
Presidio Social Club	Restaurant.
Presidio Sport and Medicine	Active lifestyle and wellness clinic.
Presidio Trust	Federal government entity with a mission to preserve and enhance the Presidio of San Francisco.
Presidio Wine Bunker	Storage facility for collectable wines and objects of fine art.

**TABLE SOC-2: PRESIDIO BUSINESSES (CONTINUED)**

Name	Description
R & A Investment Forestry	Creates partnerships between conservation and private investors for the purpose of acquiring institutional forestlands.
Raven Group, The	Focuses on customized recruitment, training, and development for the hospitality and restaurant industry.
Regeneration Project	Wellness center.
Rex Foundation	Public, charitable organization.
Rights Workshop, The	Represents issues relating to licensing, music publishing, and digital rights.
RockRose Institute	Supports, promotes, and advances non-violent conflict resolution.
Rough House Editorial	Video post-production facility.
Rudolf Steiner Foundation	Provides financial services to Waldorf Schools, Biodynamic Farms, and other cultural and socially constructive initiatives.
San Francisco Film Centre	Provides long- and short-term rental office space to tenants in the film industry.
San Francisco Film Society	Presents the San Francisco International Film Festival, the oldest film festival in the Americas.
San Francisco Gymnastics	Offers gymnastics programs for children and adults.
San Francisco Medical Society	Nonprofit organization that advocates for San Francisco physicians and their patients in the interest of public health.
San Francisco National Cemetery	A national cemetery managed by the Department of Veterans Affairs.
San Francisco Ocean Film Festival, Inc.	An annual film festival that focuses on the oceans.
San Francisco Psychotherapy Research Group	Psychotherapy research group and training center providing low fee psychotherapy services to the community.
SenSpa, LLC	Spa and wellness center.
Serra Preschool, The	Preschool.
SF Green Clean	Offers professional non-toxic dry cleaning, laundry, and alteration services.
Social Venture Network	Nonprofit network business and social entrepreneurs committed to a socially just and environmentally sustainable world.
Solutions	Provides a range of architectural services for sustainably designed additions, remodels, and ground-up projects.
Solutions Alert	K to 12 student-driven, action-oriented environmental education program.
Soma Development	Real estate development firm.
Sports Basement	Discount retailer of sports and outdoor apparel and gear.
State Farm Insurance and Financial Services	Insurance firm.
Swords to Plowshares Veterans Academy	Provider of veteran housing coincident with supportive, educational, and vocational services.
Thoreau Center for Sustainability	Multi-tenant, nonprofit center.
Threshold Foundation	Foundation focused on sustainability.
Tides Center	Fiscal sponsor for charitable initiatives.
Tides Foundation	Partners with donors to increase and organize resources.
United Religions Initiative	Global community dedicated to promoting enduring, daily interfaith cooperation.

**TABLE SOC-2: PRESIDIO BUSINESSES (CONTINUED)**

Name	Description
United States Postal Service	Serves the Presidio community and park visitors.
Veriditas, Inc	Wellness center.
Vintrust, LLC	Provides services for wine collecting needs.
Visitor Center, Presidio	Offers information on the park's points of interest and history, as well as exhibits.
W. Clement and Jessie V. Stone Foundation	Funds programs in education, early childhood, and youth development.
Walt Disney Family Museum, LLC	Museum that tells the story of the life and work of Walt Disney.
Warming Hut, The	Restaurant (GGNRA Park Partner within Area A).
Westbase Productions	Production company specializing in creative services for film, video, design, and interactive media.
WestEnd Capital Management	Independent asset management company.
Winton duPont Films	Film and video production.
World Wildlife Fund	Conservation organization.
WorldLink Foundation	Nonprofit focusing on critical global and local issues.
WorldLink Media	Makes available innovative media and education programs that foster a greater understanding of global issues and cultures.
YMCA, Presidio Community	Operates the Main Post gymnasium, Letterman gymnasium and pool, Presidio tennis courts, and two baseball fields.

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- **Planet Granite.** Planet Granite holds 25,000 square feet of climbing, fitness, and cardio areas, and two yoga studios, with 10,000 square feet of combined fitness areas with strength, cardio, and core fitness equipment. The facility offers a variety of fitness classes throughout the week. Planet Granite offers both day passes and memberships. Memberships are either paid monthly or annually.

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- **Sports Basement.** Sports Basement is a discount retailer of outdoor and indoor sports gear. Sports Basement also hosts weekly classes in CPR, yoga, kids' yoga, and prenatal yoga, and serves as a meeting place for fun runs and bicycle group rides. The Presidio store has several spaces that can be used by groups for meetings, events, clinics, or parties. Sports Basement has a 40,000-square-foot parking lot that is across Old Mason Street from Crissy Field.

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For these example businesses, and for others found in such federal areas as Fort Mason or Fort Baker, AC34 events may generate both positive and negative economic effects at the same time. The presence of large crowds drawn by AC34 on peak days would present businesses with a pool of potential customers, some of whom may purchase goods or services during the day of the event, and others who may return in the future to become paying customers having been introduced to the business by their AC34 experience. At the same time, other existing and potential customers may stay away from the area due to concerns about congestion and inconvenience during AC34 event days. The sum total of positive and negative impacts would be different for every business and would likely be a net positive for some and a net negative for others.

## 1 3.13.2 Regional Economy

2 As discussed previously in Section 3.13.1, Local Economy, above, for ease of presentation, each of the  
3 five counties' economies is characterized separately in the regional economy discussion below. In this  
4 way, the potential impact on each local economy can be determined distinct from the combined five-  
5 county region. Consequently, all socioeconomic data and description characterizing the local  
6 economies needed for the socioeconomic impact analysis are presented below.

### 7 3.13.2.1 Population

8 Table SOC-3 shows the past and projected future population, households, and employment for the  
9 five-county region using the most recent version of the most widely accepted planning tool for such  
10 purposes in the Bay Area, *Projections 2009* prepared by the Association of Bay Area Governments  
11 (ABAG 2009). It should be noted that *Projections 2009* was developed just before the 2010 U.S. Census  
12 was available, and final Census counts were slightly different from the 2010 estimates made by ABAG.

13 In 2000, the five-county region's population was approximately 4.124 million. (ABAG used Census  
14 totals for 2000.) According to the U.S. Census, the population grew by approximately 211,000 to total  
15 4.335 million in 2010. This increase represents approximately 5.1% growth over the 10-year period.

16 In 2000, there were 777,000 people living in San Francisco, the county housing the majority of AC34  
17 activities. The number of people living in the City has increased by about 3.7 percent since 2000. The  
18 2010 Census shows 805,000 people living in San Francisco—an increase of approximately 28,000  
19 people from April 2000 through April 1, 2010 (DOF 2011). San Francisco's population accounts for  
20 about 19% of the five-county region's total population.

### 21 3.13.2.2 Housing

22 The five-county region contains a total of approximately 1,742,000 housing units (as of April 2010) with  
23 an average vacancy rate of 6.6%. The estimated household size for the region overall is 2.61 persons  
24 per household.

25 Since 2000, there has been marked housing growth in San Francisco. The City's official housing  
26 inventory counts more than 368,000 housing units in 2010—an increase of 23,600 units between April  
27 2000 and 2010 (SFPD 2011). Census data reported by the State of California Department of Finance  
28 show almost 377,000 housing units in the City as of April 1, 2010, with an estimated vacancy rate of  
29 8.3% (DOF 2011). This vacancy rate represents approximately 31,100 available housing units. Over  
30 this same period, Alameda County's housing increased from 540,183 to 582,549 housing units, which  
31 was equivalent to a 7.8% increase.

### 32 3.13.2.3 Employment

33 Major job losses have occurred across the five-county region over the last decade. Total employment  
34 within the five counties was approximately 2.285 million in 2000 but dropped by 145,000 as of 2010.

**TABLE SOC-3: POPULATION, HOUSEHOLD AND EMPLOYMENT ESTIMATES FOR SAN FRANCISCO AND THE FIVE-COUNTY REGION (2000 - 2035)**

Factor	2000	2005	2010	2020	2010 to 2020 Increase		2010 to 2035 Increase		
					Number	%	Number	%	
<b>Population</b>									
San Francisco	776,733	795,800	810,000	867,100	57,100	7.0%	969,000	159,000	19.6%
Alameda	1,443,741	1,505,300	1,549,800	1,705,900	156,100	10.1%	1,966,300	416,500	26.9%
Contra Costa	948,816	1,023,400	1,090,300	1,177,400	87,100	8.0%	1,322,900	232,600	21.3%
Marin	247,289	252,600	256,500	264,000	7,500	2.9%	274,300	17,800	6.9%
San Mateo	707,163	721,900	733,300	801,300	68,000	9.3%	893,000	159,700	21.8%
Five-County Region	4,123,742	4,299,000	4,439,900	4,815,700	375,800	8.5%	5,425,500	985,600	22.2%
<b>Households</b>									
San Francisco	329,700	338,920	346,680	372,750	26,070	7.5%	415,000	68,320	19.7%
Alameda	523,366	543,790	557,270	615,470	58,200	10.4%	707,960	150,690	27.0%
Contra Costa	344,129	368,310	392,680	424,340	31,660	8.1%	480,480	87,800	22.4%
Marin	100,650	103,180	104,550	107,420	2,870	2.7%	112,170	7,620	7.3%
San Mateo	696,713	711,500	721,500	788,800	67,300	9.3%	880,500	159,000	22.0%
Five-County Region	1,994,558	2,065,700	2,122,680	2,308,780	186,100	8.8%	2,596,110	473,430	22.3%
<b>Employment</b>									
San Francisco	642,500	553,090	568,730	647,190	78,460	13.8%	806,830	238,100	41.9%
Alameda	750,160	730,270	712,850	825,070	112,220	15.7%	1,039,680	326,830	45.8%
Contra Costa	371,310	379,030	376,820	445,550	68,730	18.2%	555,650	178,830	47.5%
Marin	134,180	135,470	135,600	143,780	8,180	6.0%	158,280	22,680	16.7%
San Mateo	386,590	337,350	346,320	404,400	58,080	16.8%	505,860	159,540	46.1%
Five-County Region	2,284,740	2,135,210	2,140,320	2,465,990	325,670	15.2%	3,066,300	925,980	43.3%

SOURCE: ABAG, 2009.

1 Manufacturing, retail, and professional services sectors accounted for most of the region’s job losses,  
 2 with 60,000, 36,000, and 35,000 fewer workers employed in these sectors, respectively (ABAG 2009).

3 Approximately 576,000 people worked in San Francisco in 2009, and this was a considerable decrease  
 4 from the recent high of 605,000 workers in 2008. This estimate measures workers by place of work and  
 5 includes full-time and part-time wage and salary employment, as well as the self-employed. Wage and  
 6 salary jobs in San Francisco totaled about 524,000 in 2009. The self-employed (and a relatively small  
 7 number of unpaid family workers) account for about 9 percent of total jobs in the City. Between 2000  
 8 and 2010, Alameda County lost approximately 37,000 jobs and had an estimated 712,850 jobs in 2010.

9 As shown in **Figure SOC-1**, employment in San Francisco has fluctuated substantially since the mid-  
 10 1990s. Both the Bay Area and San Francisco economies experienced strong growth through 2000,  
 11 fueled by the boom in the high technology and Internet sectors; employment levels peaked in  
 12 San Francisco at almost 600,000. By 2004, however, job losses following downturns in the national  
 13 economy soon reduced employment to lower than mid-1990s levels. San Francisco’s job losses were  
 14 more severe than elsewhere within the Bay Area, with the exception of Santa Clara County. Over the  
 15 10-year period from 1995 to 2004, San Francisco gained about 85,000 jobs and subsequently lost about  
 16 92,000 jobs. The City then saw a net gain of 45,000 jobs between 2004 and 2008, although employment  
 17 remained substantially below the 2000 peak. The recent job growth ended in 2009, with a year-over-  
 18 year loss of 26,000 wage and salary jobs within the City from 2008 through 2009 (EDD 2011a).

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SOURCE: State of California, Employment Development Department,  
 Annual Average Industry Employment, March 2010 Benchmark,  
 April 15, 2011

**Figure SOC-1**  
 Changes in Wage and Salary Employment  
 in San Francisco (1995-2009)

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22 The boom and bust economic conditions of the last decade have exacerbated long-term trends of decline  
 23 in manufacturing, wholesale trade, transportation, and warehousing employment in San Francisco. Job  
 24 losses have been concentrated in the information sector, financial activities, and professional and  
 25 business services. Overall employment within retail, hospitality, government, education, and health care  
 26 sectors has been relatively stable. Between 2001 and 2009, retail employment (including food and

1 beverage services) declined from 101,505 to 98,278 jobs, a loss of 3,227 jobs (representing a 3% decrease)  
 2 and hotel employment declined from 17,962 to 17,828 jobs in 2009, a decrease of approximately 1% from  
 3 2001 levels (SFPD 2010).

4 **Table SOC-4** shows the estimated employment (including self-employed individuals) by industry sector  
 5 (as defined under the North American Industry Classification System [NAICS]) for the five-county  
 6 region. The employment estimates shown in Table SOC-4 are higher than those shown in Table SOC-3,  
 7 which does not include self-employed workers. Data for Table SOC-4 are also from a different source,  
 8 the Minnesota IMPLAN Group. Availability of these data tends to lag one to two years, but the data are  
 9 used here because they are consistent with estimates of economic output that are also produced by  
 10 IMPLAN. It is notable that the retail, entertainment, and accommodation sectors, which together may be  
 11 characterized as including region's tourism industry, account for nearly 19% of the region's employment  
 12 and an even higher proportion of San Francisco's employment (20.6%). These industry sectors may be  
 13 expected to experience the majority of impacts from event-related visitation increases. Most of the "on-  
 14 water" commercial activity related to goods movement is included within the transportation and  
 15 warehousing sector.

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**TABLE SOC-4: EMPLOYMENT BY INDUSTRY SECTOR FOR THE FIVE-COUNTY REGION (2009)**

Industry Sector	NAICS Code	Alameda	Contra Costa	Marin	San Francisco	San Mateo	Region
Ag, Forestry, Fish & Hunting	11	884	1,025	641	219	1,303	4,072
Mining	21	243	1,010	181	612	284	2,329
Utilities	22	121	2,587	239	246	1,039	4,230
Construction	23	45,510	34,658	10,224	22,665	21,801	134,857
Manufacturing	31-33	66,344	21,715	2,071	11,707	27,443	129,279
Wholesale Trade	42	40,990	9,530	2,983	13,975	11,865	79,343
Retail Trade	44-45	80,270	52,970	17,421	53,788	54,037	258,487
Transportation & Warehousing	48-49	32,044	13,148	1,400	15,120	27,554	89,266
Information	51	17,469	12,194	2,672	26,104	22,172	80,610
Finance & Insurance	52	25,988	33,802	14,688	84,102	34,007	192,587
Real Estate	53	38,310	37,635	20,474	39,555	35,170	171,144
Professional Services	54	89,067	43,309	25,607	166,771	78,554	403,308
Management of Companies	55	15,561	6,571	1,848	16,431	4,562	44,973
Administrative & Waste Services	56	43,369	29,042	11,302	44,605	28,810	157,128
Educational Services	61	20,712	10,509	5,406	20,948	8,500	66,076
Health & Social Services	62	85,498	51,519	18,554	48,391	36,225	240,187
Arts, Entertainment & Recreation	71	20,053	9,434	8,863	33,172	8,017	79,539
Accommodation & Food Services	72	49,168	29,454	11,825	69,018	30,747	190,211
Other Services	81	49,924	33,244	13,399	46,416	28,726	171,708
Government & Non NAICs	92	107,064	51,116	15,871	103,431	32,715	310,197
<b>Total</b>		<b>828,589</b>	<b>484,471</b>	<b>185,667</b>	<b>817,276</b>	<b>493,531</b>	<b>2,809,533</b>
NOTES:							
NAICS = North American Industry Classification System							
Employment estimates include self-employed.							
SOURCE: Minnesota IMPLAN, 2010.							

1 More specifically, Table SOC-5 shows the estimated employment and output for five industry groups  
 2 that best represent commercial “on-water” use of San Francisco Bay. The data and industry groups have  
 3 been collected by Minnesota IMPLAN and these are related to the NAICS shown in Table SOC-4.

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5 **TABLE SOC-5: OUTPUT BY INDUSTRY SECTOR FOR THE FIVE-COUNTY REGION (2009) (\$ MILLIONS)**

Industry Sector	NAICS Code	Alameda	Contra Costa	Marin	San Francisco	San Mateo	Region
Ag, Forestry, Fish & Hunting	11	\$119.3	\$218.4	\$135.3	\$8.6	\$197.0	\$678.5
Mining	21	\$59.5	\$1,183.1	\$58.9	\$201.6	\$55.5	\$1,558.6
Utilities	22	\$1,844.9	\$4,182.8	\$295.8	\$1,627.5	\$1,369.5	\$9,320.5
Construction	23	\$7,712.9	\$5,622.0	\$1,588.1	\$3,994.2	\$3,594.6	\$22,511.8
Manufacturing	31-33	\$36,488.5	\$77,312.9	\$768.1	\$4,748.1	\$32,739.1	\$152,056.6
Wholesale Trade	42	\$9,476.5	\$2,459.7	\$733.2	\$3,747.7	\$3,240.3	\$19,657.4
Retail Trade	44-45	\$6,159.8	\$3,729.5	\$1,484.8	\$5,382.1	\$4,366.9	\$21,123.0
Transportation & Warehousing	48-49	\$5,015.1	\$1,953.7	\$168.5	\$2,128.2	\$5,594.5	\$14,860.0
Information	51	\$7,891.6	\$5,793.2	\$1,098.5	\$9,285.9	\$10,836.7	\$34,905.9
Finance & Insurance	52	\$7,452.6	\$9,216.7	\$4,224.6	\$25,060.4	\$10,980.4	\$56,934.8
Real Estate	53	\$15,149.9	\$13,029.7	\$6,106.3	\$20,740.8	\$12,607.3	\$67,634.1
Professional Services	54	\$14,016.7	\$5,679.0	\$3,496.3	\$26,722.7	\$13,253.8	\$63,168.4
Management of Companies	55	\$4,064.6	\$1,631.0	\$459.3	\$4,771.9	\$1,346.9	\$12,273.7
Administrative & Waste Services	56	\$3,823.9	\$2,320.9	\$975.1	\$4,279.0	\$2,578.7	\$13,977.6
Educational Services	61	\$1,265.1	\$586.3	\$344.9	\$1,644.0	\$489.0	\$4,329.4
Health & Social Services	62	\$10,747.0	\$6,573.7	\$2,214.9	\$5,838.0	\$4,697.0	\$30,070.6
Arts, Entertainment & Recreation	71	\$1,462.4	\$540.5	\$504.8	\$2,755.1	\$702.5	\$5,965.4
Accommodation & Food Services	72	\$3,556.2	\$2,106.2	\$923.2	\$6,740.8	\$2,556.7	\$15,883.1
Other Services	81	\$4,007.3	\$2,446.5	\$1,138.1	\$3,591.2	\$2,291.1	\$13,474.2
Government & Non NAICS	92	\$11,515.1	\$5,166.1	\$1,486.8	\$13,486.5	\$3,450.8	\$35,105.3
<b>Total</b>		<b>\$151,829.0</b>	<b>\$151,751.8</b>	<b>\$28,205.4</b>	<b>\$146,754.4</b>	<b>\$116,948.3</b>	<b>\$595,489.0</b>

NOTES:

NAICS = North American Industry Classification System

Output estimates adjusted into 2011 terms using Consumer Price Index - Urban Consumers.

SOURCE: Minnesota IMPLAN, 2010.

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7 **3.13.2.4 Labor Force**

8 The current recession has resulted in persistent high unemployment in the region. Across the five-  
 9 county region, the unemployment rate averaged nearly 10.2%, with approximately 225,000 people  
 10 looking for employment. Within San Francisco, the annual unemployment rate has been 9% and 10%  
 11 through 2009 and 2010. The City’s unemployment rate is now more than double its mid-decade levels.

1 In January 2011, the unemployment rate for San Francisco was 9.5%, with 43,200 unemployed  
2 residents of a total labor force of 458,000 (EDD 2011b). By comparison, Alameda County had an  
3 unemployment rate of 11.3%, with 85,500 unemployed residents of a total labor force of 755,500.

#### 4 **3.13.2.5 Output**

5 Table SOC-5 shows the estimated output by industry sector for the five-county region. Output  
6 provides a measure of the market value of the economic activity generated by different industries. In  
7 the case of the retail industry, sales revenues (adjusted to account for the wholesale goods cost) will  
8 provide a measure of the sector's output. For manufacturing industries, the value added by the  
9 industry production processing will determine the output value generated by those businesses.

10 The table also indicates that manufacturing industries make the largest single contribution to the  
11 regional economy (although predominantly in Alameda and Contra Costa counties). The next largest  
12 major sectors are the real estate, professional (e.g., science and technical consulting), and financial  
13 services. Hospitality and tourism-related industry sectors of entertainment, accommodation, and retail  
14 also play a lesser though still important role in the regional economy.

15 Table SOC-5 also includes estimated output associated with maritime businesses, much of which is  
16 included in the "Transportation & Warehousing" industry group. By design, however, the output  
17 estimates only show the direct economic activity associated with those maritime businesses. These  
18 businesses will also play an important role for other industries that rely on their services for their own  
19 production. For example, oil refining is a major industry in the region, and as such it employs a large  
20 number of Bay Area residents and contributes greatly to the region's economic output. The oil refinery  
21 industry relies on maritime transport for much of its crude supplies and distribution of its refined oil  
22 products. Nonetheless, the Table SOC-5 output estimates for maritime transportation only represent  
23 the earnings by oil transit service companies and not their cargo values.

#### 24 **3.13.2.6 Future Growth Trends**

25 The Association of Bay Area Governments (ABAG) provides projections of the Bay Area future  
26 population, housing, and employment. Table SOC-3 shows the past and projected future population,  
27 housing, and employment growth trends for the five-county region, including San Francisco and  
28 Alameda County.

29 Between 2010 and 2035, the City's population is expected to increase by 159,000 new residents, which  
30 would represent a 19.6% increase over its 2010 population levels. Over the same 25-year period, the  
31 five-county region's population is expected to increase by 22.2%, or by nearly 986,000 residents.  
32 ABAG projects that the number of households in both San Francisco and the five-county region will  
33 increase at a comparable rate between 2010 and 2035 (ABAG 2009).

34 The rate of future job growth in San Francisco and the five-county region as a whole is expected to be  
35 nearly double the rate of population growth. Between 2010 and 2035, San Francisco is expected to add  
36 238,100 new jobs, which would represent nearly a 42% increase over its 2010 employment levels. Over

1 the same 25-year period, the five-county region's employment is expected to increase by 43.3%, or by  
2 nearly 926,000 new jobs.

### 3 3.13.3 References

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