CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter discusses the environmental consequences of the project alternatives. This section introduces methodology used to assess the probable environmental consequences, or impacts, of implementing each of the alternatives, and the methods used to assess cumulative impacts. The environmental resources discussed in this chapter are the same and presented in the same order as in Chapter 3—Affected Environment. Each resource section in Chapter 4 presents the applicable analysis thresholds and methodology for evaluation of impacts, and identifies the impacts of each alternative for the specific resource area.

General Methodology for Analyzing Impacts

Potential impacts or effects are described in terms of type, context, duration and intensity, which are generally defined below, while more specific impact thresholds are given for each resource at the beginning of each resource section.

Type of Impact. Impacts can be either beneficial or adverse. A beneficial impact would be a positive change in the condition or appearance of the resource or a change that would move a resource toward a desired condition. An adverse impact would be a change that would move the resource away from a desired condition or would detract from its appearance or condition.

Context. Context describes the area or location (site-specific, local, parkwide, or regional) in which the impact would occur. Site-specific impacts would occur at the location of the action, local impacts would occur area, parkwide impacts would affect a greater portion of the park, and regional impacts would extend beyond park boundaries.

Duration. Duration describes the length of time an effect would occur, either short term or long-term. Short-term impacts are those caused by construction activities (from start to end of the construction period), and long-term impacts are those that are irreversible.

Intensity. Intensity describes the degree, level, or strength of an impact. For this analysis, intensity has been categorized into negligible, minor, moderate, and major. Because definitions of intensity vary by resource topic, intensity definitions are provided separately for each impact topic.

Direct and Indirect Impacts. National Park Service policy requires that direct and indirect impacts be considered, but not specifically identified. A direct effect would occur at the same time and place as the action. An indirect effect would be caused by an action but would be later in time or farther removed in distance, but would still be reasonably foreseeable within the general vicinity of the study.

Impact Thresholds and Significant Impacts

Impacts were analyzed across all alternatives for the topics identified in Chapter 1. Analysts developed impact thresholds as part of their methodology to help agency decision makers and the public discern and understand differences among the alternatives. For this EA the terms **negligible**, **minor**, **moderate**, or **major** are used to discriminate between impacts. The generic definitions of these terms are:

- **Negligible:** The impact is at the lower levels of detection.
- **Minor:** The impact is slight, but detectable.
- **Moderate:** The impact is readily apparent.
- **Major:** The impact is substantial.

The way these terms are applied varies for each impact topic. Geographic and temporal context are important. In the case of thresholds the questions analysts asked were related to the size and scope of AC34. For example, a minor or detectable impact across the scope of the entire affected area would be different than a minor impact for a one-acre site. A short-term impact resulting from a two-year project would be different than a similar impact resulting from the execution a 20-year general management plan.

The AC34 events would only occur during a limited number of days in 2012 and 2013, and would only occupy a short period each day. Many of the scheduled races would be on week days which are expected to draw smaller crowds than on weekends.

The specific elements of resources at stake also help set the thresholds. For example, impacts to Alcatraz seabirds were of particular concern in the AC34 planning process because they nest during the summer months when races are proposed.

Although the analysis of impacts helps inform agencies' decisions, the determination of whether any of the impacts are "significant" is a different process. Criteria to help decide whether an impact is significant are presented in section 40CFR1508.27 in the NEPA regulations that apply to all federal agencies. These criteria include public health and safety, unique natural and historic resources, controversy or disagreement about the degree of impact, uncertainty or unknown risks, precedent or and significant cumulative effects, federally recognized threatened or endangered species, and legal requirements imposed for environmental protection. If the analysis of impacts in the EA indicates any of these criteria are triggered, and significant impacts are likely and cannot be mitigated to below significance, then an EIS is prepared.

The analysis of impact s in this EA indicates the potential for major short-term impacts to traffic and to park operations for some alternatives. Such impacts generally concern traffic delays and park operational costs. However, because impacts to traffic and operations are not impacts to resources or otherwise trigger the significance criteria, and because in context they are short-term, these traffic and operations impacts do not rise to the level of "significant" under NEPA. The federal team has, nonetheless, identified certain management actions and protection measures that would lessen these impacts. In addition, as described below, in some cases, additional mitigation (i.e., additional funding

commitments by the project sponsors) would be required for an alternative with several major impacts to be feasible.

Cumulative Impact Scenario

The Council on Environmental Quality (CEQ) regulations that implement the provisions of the National Environmental Policy Act requires that cumulative impacts be assessed in the decisionmaking process for federal projects. Cumulative effects are defined by the CEQ regulations as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time. The cumulative impact analysis includes projects both inside and outside the project area. Cumulative impacts were determined by combining the impacts of each alternative with other past, present, and reasonably foreseeable future actions within the project area and outside the project area, as described in the Table below.

CUMULATIVE SCENARIO PROJECTS: PAST, PRESENT, AND FUTURE

Project Name (jurisdiction, if applicable)	Project Summary
Past Actions. Past actions are assumed to create the existing affected environment. The text will not specifically call out each action—with the exception of threshold or milestone projects identified by the resource specialist or land manager. Identified actions include:	
Fort Baker Plan (GGNRA)	Over 28 historic buildings are being rehabilitated to national historic preservation standards to ensure that the significant historic features are maintained. The project includes Cavallo Point: The Lodge at the Golden Gate (a resort) and the Institute at the Golden Gate (a retreat and conference center), as well as infrastructure upgrades, waterfront improvements, and native habitat restoration. The new lodging units are environmentally friendly and architecturally sensitive to the historic area. Landscape improvements include the restoration of the main parade ground by NPS to its historic appearance. (completed before Jan. 2011)
California Outdoor Recreation Plan (California Department of Parks & Recreation)	Provides guidance to all recreation providers, including federal parks, that provide outdoor recreational lands, facilities, and services.
Crissy Field Center Temporary Move to East Beach (GGNRA)	As a result of Caltrans' receipt of funds from the American Recovery and Reinvestment Act, the Doyle Drive improvement project was fast-tracked, and consequently Crissy Field Center needed to move its operations from 603 Old Mason to temporary quarters on the east end of the beach in 2009.
GGNRA Fire Management Plan	Protect natural resources from adverse effects of fire and fire management activities, and use fire management wherever appropriate to sustain and restore natural resources. Preserve historic structures, landscapes, and archeological resources from adverse effects of fire and fire management activities, and use fire management wherever appropriate to rehabilitate or restore these cultural resources.

CUMULATIVE SCENARIO PROJECTS: PAST, PRESENT, AND FUTURE (CONTINUED)

Project Name (jurisdiction, if applicable)	Project Summary
Past Actions. Identified actions include (cont.)	
Vegetation Management Plan for the Presidio of San Francisco (Presidio Trust, NPS)	The NPS partnered with the Presidio Trust and the Golden Gate National Parks Association and prepared a VMP to ensure that the Presidio's landscape and native habitats survive. The plan included a variety of restoration activities throughout the Presidio and recommended that changes be made gradually over the next several decades so that visual impacts of rehabilitation can be minimized as much as possible.
GGNRA Long Range Transportation Plan Update	GGNRA has initiated work on a Long-Range Transportation Plan (LRTP) for the park that is consistent with US DOT transportation planning practices. The process developed at GGNRA will be a model for future transportation planning efforts at park units throughout NPS. GGNRA is developing the LRTP concurrently with an update to the 1980 GMP to better understand baseline transportation conditions and to inform the new GMP's vision for transportation.
Golden Gate Park Asset Management Plan	Focuses on maintenance of park assets; informed the development of alternatives in the draft GMP.
Ocean Park Stewardship Action Plan (NPS)	Developed by NPS to increase the emphasis on restoring and conserving park marine and estuarine resources.
Bay Trail Plan (ABAG)	Focuses on the development of a regional hiking and bicycling trail around the perimeter of San Francisco and San Pablo Bays and creating connections to existing park and recreation facilities in an environmentally sensitive manner.
Pier 24 Annex Rehabilitation (Port of San Francisco)	Rehabilitation of the Pier 24 Annex Building located along the Embarcadero at Harrison Street for use as a multi-use retail facility.
San Francisco Bicycle Plan	Includes near-term bicycle route improvement projects, long-term bicycle route network improvement projects, and minor improvements such as signage and pavement marking changes.
Planned Renovation and Upgrade Projects (SAFR)	Various upgrades to Aquatic Park, including rehabilitation of the Aquatic Park Bathhouse building and amphitheater, completion of renovations of the historic ship the C.A. Thayer, retrofitting Building E of the Fort Mason Center, repairs to the municipal pier, rehabilitation of the Sea Scout Base and moorings, and more. The Amphitheater rehabilitation (completed in 2009) entailed repair, and in some cases substantial reconstruction, of the severely deteriorated visitor-use bleachers, including the structure's accompanying underground offices and work spaces. Included removal and replacement of failed concrete and rebar in some areas, and shotcrete repair in other areas, installation of new waterproofing and drain system, replacement of skylight. Rehabilitation on the Aquatic Bathhouse (completed in 2009) included work on the building's roof, waterproofing and drainage, and window systems; and repair of Aquatic Park's failing bleachers and associated underground structures.
GGNRA Dog Management Plan (GGNRA)	Plan provides a clear, enforceable policy to determine the manner and extent of dog uses in appropriate areas of the Golden Gate National Recreation Area.
Energy Improvements on Alcatraz Island (GGNRA)	Installation of photovoltaic panels on the Prison Building and New Industries Building to reduce the island's reliance on diesel-generated power and to help move towards the park's goal of becoming carbon neutral.
Marin Headlands and Fort Baker Transportation Infrastructure and Management Plan (GGNRA)	Improvements to 11 miles of historic roads in the Marin Headlands and Fort Baker, including improvements to roadway surfaces and configurations, drainage structures, and directional signage and safety, will help promote public transit, pedestrian, and bicycle travel to and within the park while preserving the historic character of the areas. Phase 1 of the improvements was completed in 2010 and 2011, and included rehabilitation to Upper Conzelman Road, Lower Conzelman Road, McCullough Road, East Road, along with several parking areas, trails, and

CUMULATIVE SCENARIO PROJECTS: PAST, PRESENT, AND FUTURE (CONTINUED)

Project Name (jurisdiction, if applicable)	Project Summary
Past Actions. Identified actions include (cont.)	
	drainage features. During construction of this phase, Conzelman Road was closed to the public between the McCullough Road / Conzelman Road intersection and the north and south US 101 ramps. Phase 2 reconstruction of Bunker Road, Mitchell Road, Old Bunker Road, Field Road, the Alexander Avenue & W. Bunker Road (Danes Drive) intersection, and several parking lots is anticipated to start in June 2012 and continue through fall 2013.
Present Actions. Present identified actions include:	
California Coastal Trail (Coastal Conservancy)	The project is to create a network of public trails along the coast for walker, bikers, equestrians, wheelchair users, and others.
Golden Gate Bridge Seismic Retrofit at Fort Baker	Phased construction of the seismic retrofit is proceeding in a manner that reflects the degrees of structural vulnerabilities. The seismic retrofit measures for these phases consist of strengthening foundations, installation of micropiles and rock bolts, construction of reinforced concrete shearwalls, replacement of the housing roof/roadway deck with a pre-cast concrete slab-on-steel stringer deck system involving nighttime lane closures, and other structural modifications. Phases 1 and 2 are complete. Phase 3A will include: retrofit of the North Anchorage Housing and Pylon N1. There will be retrofit work on the north side of the bridge under this phase until approximately October, 2012. Phase 3B work will include: Retrofit of the Main Suspension Span, Main Towers, South Tower Pier and Fender. Phase 3B will go out to bid in 2013 and take approximately 3.5 years to complete. Planned restoration of Mission blue butterfly habitat as mitigation for the seismic retrofit work at Fort Baker.
Fort Point Retrofits (GGNRA)	Fort Point is undergoing retrofits to improve accessibility.
GGNRA Habitat Restoration Programs	Park Resource Stewardship Programs include volunteer programs of the NPS, GGNPC, and Presidio Trust.
GGNRA Maintenance Operations	The maintenance division conducts many ongoing operations throughout GGNRA that may create cumulative impacts with other activities. Maintenance projects may include but are not limited to road, trail, and stormwater system maintenance.
Trails Forever Program (GGNRA)	The Trails Forever initiative renovates and expands park trails as necessary to build upon the existing trail system while protecting natural resources. Program assists in making GGNRA more welcoming and sustainable, and inspires stewardship. The initiative is sponsored by the Parks Conservancy, the NPS, and Presidio Trust. Program has included invasive species removal, installation of kiosk and trail signs, restoration/enhancement of trailside habitat, creation of educational programs and scenic overlooks, completion of new trails, and repair/improvements to existing trails.
NPS Inventory & Monitoring (I&M) Program	Collects, organizes, and makes available natural resource data and contributes to NPS' institutional knowledge by facilitating the transformation of data into information through analysis, synthesis, and modeling; includes an Early Detection of Invasive Plants program.
Recovery Plans for Listed Plant and Wildlife Species (NPS)	Protect, maintain, and enhance existing populations of listed species, including San Bruno elfin butterfly, Mission blue butterfly, northern spotted owl, western snowy plover, San Francisco garter snake, etc.
San Francisco Natural Areas Program	This program restores and enhances remnant natural areas and develops and supports community-based stewardship of these areas.

CUMULATIVE SCENARIO PROJECTS: PAST, PRESENT, AND FUTURE (CONTINUED)

Project Name (jurisdiction, if applicable)	Project Summary
Present Actions. Present identified actions include (cont.)	
Pier 22 ½ Fireboat Station Rehabilitation and Alteration (Port of San Francisco)	Rehabilitation and alteration of Fire Station 35 at pier 22 ½.
Pier 15 to 17, Exploratorium Relocation (Port of San Francisco)	Relocation of the Exploratorium from the Palace of Fine Arts to Piers 15 and 17 on the Embarcadero at Green Street.
Fisherman's Wharf Improvement Project	Planning effort consisting of transportation and public access improvements to stimulate economic revitalization at Fisherman's Wharf.
Fisherman's Wharf Public Realm Plan	Includes the following improvements: Jefferson Street Redesign, streetscape design improvements, a parking management plan, design guidelines, and an open space plan.
Maintenance Dredging (Port of San Francisco)	Maintenance dredging of sediments from Fisherman's Wharf, Hyde Street Harbor, Pier 9, Berth 27, Berths 35 East and West, Pier 40, Berths 80A through D, Islais Creek and Approach, Berths 92 East and West, Berth 94, Berth 96, Downtown Ferry Terminal and other similar sites at the Port of San Francisco waterfront.
Embarcadero Pedestrian Signage and Map Program (Port of San Francisco)	Installation of pedestrian signage and maps along the Embarcadero.
Proposition A Clean and Safe Parks Project (Port of San Francisco)	Open space improvements along the waterfront, including the Pier 43 Trail Promenade.
San Francisco Marina Renovation (SFRPD)	Construction of waterside improvements and landside improvements, such as installation of new breakwater segments, removal of an existing breakwater, reconfiguration of riprap slopes, increase in the number of boat slips, renovation of public restrooms, and other improvements.
Fort Mason Center Long-Term Lease (GGNRA)	Long-term 60-year lease agreement between NPS and the Fort Mason Foundation, a non-profit organization, for the continued renovation and maintenance of Fort Mason, as well as development and administration of the Fort Mason Center located in the lower part of Fort Mason.
Presidio Coastal Trail Project (GGNRA and Presidio Trust)	Near-term trail improvements in the Presidio include upgrade and widening the Presidio Coastal Trail, installation of a new trail bridge, construction of new Class II bicycle lanes on Lincoln Boulevard, tree pruning and tree removal.
Doyle Drive Phase II Construction (Caltrans and others)	Reconfiguration of Doyle Drive into the seismically improved Presidio Parkway, which would create a regional gateway between the Golden Gate Bridge and the city of San Francisco and provide direct access to the Presidio. Project construction is currently under way. Temporary road closures associated with this project include: Lincoln Boulevard from McDowell Ave. to Montgomery St. from Summer 2010 – Spring 2012, and Halleck Street, from Spring 2012 – 2015. Planned permanent road closures are: Marshall Street, beginning in Spring 2012, and Slip Ramp, beginning in Spring 2012.
San Francisco/ Oakland Bay Bridge Seismic Safety Projects	Seismic improvements to the San Francisco Bay Bridge, including construction of a new approach and seismic improvements to the west span of the bridge, reconstruction of the two-mile long east span, a new transition structure on Yerba Buena Island, among other improvements.
Transbay Transit Center	Currently under construction. Project would provide existing transit service at the temporary terminal, as well as Caltrain's Downtown Extension, and possibly intercity high-speed rail.

CUMULATIVE SCENARIO PROJECTS: PAST, PRESENT, AND FUTURE (CONTINUED)

Project Name (jurisdiction, if applicable)	Project Summary
Present Actions. Present identified actions include (cont.)	
GG Bridge Maintenance and Painting (Golden Gate Bridge, Highway and Transportation District)	A streets and grounds team keep the surrounding areas of the Bridge in proper repair and attractive for the over ten million visitors each year. Ironworkers replace corroding steel and rivets with high-strength steel bolts, make small fabrications for use on the Bridge, and assist painters with their rigging. Ironworkers also remove plates and bars to provide access for painters to the interiors of the columns and chords that make up the Bridge. Painters prepare all Bridge surfaces and repaint all corroded areas
Fort Baker Satterlee Road Improvement Project (Golden Gate National Parks Conservancy)	Satterlee Road will be rehabilitated for two-way traffic circulation with a cul-de-sac turnaround at the Point, as part of the planned Bay Trail at Fort Baker site improvements. This improvement will take traffic off the Satterlee alignment from the Point below Battery Cavallo allowing for conversion of the road to a multi-use trail to the BADM campus.
Fourth of July Celebration At PIER 39	In 2012, Pier 39 is hosting a Fourth of July Celebration, which is expected to attract a large number of visitors. Live entertainment and fireworks viewing is expected.
Fleet Week Events	Fleet Week is an annual air show and boat parade that occurs in the Central San Francisco Bay, roughly within the area offshore of Crissy Field and Marina Green. This four-day event attracts large numbers of visitors to parklands along the City's waterfront. The 2012 events are scheduled for October 6-11. The 2013 events are expected to occur in early October as well.
Reasonably Foreseeable Future Actions. In general, each resource section will evaluate projects identified in the following plans:	
GGNRA General Management Plan	Will provide for resource protection within the Park
Battery Cavallo Preservation and Interpretation Plan	In a future planning effort with separate environmental analysis, the NPS would develop a detailed multidisciplinary plan for the preservation and interpretation of Battery Cavallo, integrating requirements for historic preservation, natural resource protection, visitor use and interpretation. Project is mitigation for the Fort Baker Plan and EIS.
Pier 70 Area (Port of San Francisco)	Master planning effort for a 69-acre site located in the city's Central Waterfront (between Mariposa and 22nd Streets) which is proposed to rehabilitate historic resources, provide new shoreline open space, allow infill development, and conduct environmental remediation where required.
Pier 48/Seawall Lot 337 (Port of San Francisco)	Development of the 16-acre Seawall Lot 337, which includes improvements to Terry Francois Boulevard, partial conversion to open space, and possible rehabilitation of Pier 48.
Pier 40 – Phase II Rehabilitation (San Francisco Redevelopment Agency)	Rehabilitation work consisting of refurbishment of the historic Pier 40 shed, improved public access, and upgrades to the Pier 40 substructure.
Pier 36/Brannan Street Wharf Project (Port of San Francisco)	Construction of a 57,000 square-foot public park over the water and parallel to the Embarcadero Promenade consisting of a lawn, walkway with seating, and floating dock for kayaks.
Downtown Ferry Terminal Project (Port of San Francisco)	Plans for the Phase II development of the Downtown Ferry Terminal are currently being studied by the Water Emergency Transportation Authority (WETA).
Piers 19 to 23 Rehabilitation for Mixed Use Occupancy (Port of San Francisco)	Rehabilitation of Piers 19 to 23 for mixed use occupancy to meet compliance with the Secretary of Interior Standards.

CUMULATIVE SCENARIO PROJECTS: PAST, PRESENT, AND FUTURE (CONTINUED)

Project Name (jurisdiction, if applicable)	Project Summary
Reasonably Foreseeable Future Actions (cont.)	
Piers 31-33 Alcatraz Landing Improvements (Port of San Francisco)	Improvements and alterations to existing facilities to support existing ferry service under a contract with the National Park Service to Alcatraz Island National Park.
Ferry Building Area, Seawall Lot 351	Development of the existing 27,937 square-foot parking lot for restaurant/retail and parking uses in conjunction with 8 Washington Street.
Blue Greenway Project (Port of San Francisco)	Improvements to San Francisco's southern portion of the Bay Trail and the Bay Water Trail, which may include installation of tables, benches, lights, bollards, and bike racks.
Agriculture Building located on The Embarcadero at Mission Street	Rehabilitation and seismic upgrades to the existing Agriculture Building, which may include the following uses: support for expanded ferry services, restaurant, retail, and office.
Treasure Island/ Yerba Buena Island Redevelopment (Treasure Island Development Authority)	Development of up to 8,000 residential units; up to 140,000 square feet ("sq. ft.") of new commercial and retail space; up to 100,000 sq. ft. of new office space; adaptive reuse of about 311,000 sq. ft. for commercial, retail, and/or flex space uses in the historic buildings on Treasure Island; up to approximately 500 hotel rooms; rehabilitation of the historic buildings on Yerba Buena Island; new and/or upgraded public facilities and public utilities; about 300 acres of parks and public open space, including shoreline access and cultural uses such as a museum; new and upgraded streets and public ways; bicycle, transit, and pedestrian facilities; landside and waterside facilities for the existing Treasure Island Sailing Center; landside services for an expanded marina; and a new Ferry Terminal and intermodal Transit Hub.
Sausalito Harbor Improvements (Sausalito Harbor Improvement Project)	Creation of a new City harbor in front of Gabrielson Park, which includes constructing a new 20-foot wide stone seawall. The harbor would accommodate 50 to 70 boats.
Golden Gate Bridge 75th Anniversary events(Golden Gate Bridge, Highway and Transportation District and others)	A 2-day *Golden Gate Festival* will be held on May 26-27, 2012, which will include events and performances at waterfront venues including Fort Mason Center, Ghirardelli Square, San Francisco Maritime National Historical Park, Fisherman's Wharf, and Pier 39, among others. In addition to *The Golden Gate Festival*, the year-long 75th anniversary will feature: • 75 Tributes to the Bridge, a series of public programs being presented throughout the year by Bay Area museums, cultural centers, universities, arts organizations, children's groups, and others. • Construction of a new 3,500-square-foot Bridge Pavilion to serve as a welcome and interpretive center and museum store; • Renovation of the historic Round House into a program staging and visitor education center; • Upgrades to the Bridge Café; • New personally guided Bridge tours, including night tours; and • Enhancements to the Bridge Plaza and the adjacent national parklands, trails and overlooks within Golden Gate National Recreation Area (GGNRA).
Marin Headlands Water Lines Replacement	The water lines to be replaced under this project: (1) From Baker-Barry Tunnel to McCullough Road; 2) From McCollough Road to the Presidio Stables; and, (3) An optional third item of water line to be replaced from Fort Barry to Point Bonita.

CUMULATIVE SCENARIO PROJECTS: PAST, PRESENT, AND FUTURE (CONTINUED)

Project Name (jurisdiction, if applicable)	Project Summary
Reasonably Foreseeable Future Actions (cont.)	
James R. Herman Cruise Ship Terminal	The Port of San Francisco intends to develop a primary cruise terminal at Pier 27 to replace the existing facility at Pier 35. In concert with the cruise terminal facility, the Port proposes to create and construct the Northeast Wharf Plaza, an approximately 2.5 acre public open space to be located along the west end of Pier 27, along the Embarcadero Promenade.
34th America's Cup Events on Non-Federal Lands	The City and County of San Francisco propose numerous AC34 spectator activities and entertainment venues on non-federal lands along the City's waterfront, at locations including Marina Green and several waterfront piers. The events would occur between summer and early fall in 2012 and 2013.

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4.1 GEOLOGY, SOILS AND SEISMICITY

This section assesses the potential impact of the proposed project on geologic features and soil resources and the potential impact of geologic hazards on the proposed AC34 events.

4.1.1 Study Area/Context

The study area associated with the analysis of geology and soils impacts consists of all landside NPS lands upon which AC34 venues have been proposed or that would likely serve as secondary race viewing locations. This section focuses on locations in the study area where the AC34 project would have a physical footprint, either because temporary or permanent facilities would be built there or because the area would serve as a secondary viewing location.

4.1.2 Issues

For geology, soils, and seismicity, the issues to be examined in this EA are twofold:

- AC34 project impacts on geologic features, processes, and soil resources (as identified in Chapter 3) due to physical disturbance, soil compaction, or social trails; and
- Potential impacts of natural hazards on the AC34 events.

Submarine water quality impacts of race-related water-based improvements, such as dredging and other in-water construction at the piers and at Marina Green, are addressed in Section 4.2, Hydrology and Water Quality. This EA does not address the resistance of new permanent structures at Pier 27-29 to natural hazards because design and building codes are under separate local jurisdiction (Port of San Francisco). Likewise, temporary on- and in-water improvements in the Port of San Francisco and their ability to withstand anticipated loads and/or geologic and seismic hazards are issues subject to local permitting authority of the Port of San Francisco and therefore are not addressed in this EA.

4.1.3 Guiding Regulations and Policies

The NPS has several guiding principles with respect to geology and soils, as outlined in the "Geologic Resource Management" section of the NPS *Management Policies 2006* (NPS 2006). These include the following: (1) assess the impacts of natural processes and human activities on geologic resources, (2) maintain and restore the integrity of existing geologic resources, (3) integrate geologic resource management into NPS operations and planning, and (4) interpret geologic resources for park visitors.

It is NPS policy not to intervene or to permit intervention into natural geologic processes unless:

- Directed by Congress;
- Necessary in emergencies that threaten human life and property;

- There is no other feasible way to protect natural resources, park facilities, or historic properties or intervention is necessary to restore impacted conditions and processes, such as restoring habitat for threatened or endangered species.

Because the NPS is charged with preserving naturally occurring geologic processes—including processes such as earthquakes, volcanic eruptions, mudflows, landslides, floods, shoreline processes, and tsunamis that can be hazardous to humans and park infrastructure—the primary policy employed is first to understand the process and second to minimize its potential impact on visitor-serving facilities and park infrastructure by siting and designing new facilities and infrastructure in a manner that avoids or minimizes natural hazards. The protection of park resources and values is the primary consideration in facility development decisions, and thus construction of buildings, roads, and other development that would cause unacceptable impacts on park resource values will not be permitted. The NPS does, however, allow the construction of support facilities necessary to house, transport, inform, and serve visitors and staff, although it must be adequately demonstrated that the facility is necessary and appropriate, and that it would not be practicable for the facility to be developed or the service to be provided outside the park.

Management action is taken by NPS superintendents to prevent or at least minimize adverse, potentially irreversible impacts on soils. Soil conservation and soil amendment practices may be implemented to reduce impacts. When soil excavation is an unavoidable part of an approved facility development project, the NPS minimizes soil excavation, erosion, and offsite soil migration during and after the development activity.

Additionally, the *Presidio Trust Management Plan* (PTMP 2002) indicates that the Presidio Trust would protect and monitor geologic resources and functions. Natural soils and soil processes would be managed to minimize loss and disturbance. Consistent with NPS policy and wherever feasible, soils affected by construction would be salvaged for reuse in other Presidio site restoration activities (Presidio Trust 2002).

4.1.4 Assessment Methods/Thresholds

The assessment method for geology and soils considers potential impacts from two primary perspectives: (1) the effect of AC34 events, facilities, and visitors on geologic features and soil resources; and (2) the effect of natural hazards on AC34 events, facilities, and visitors.

4.1.4.1 Geologic Features and Soil Resources

Soil and geology impacts have been determined by examining the potential effects of AC34 race-related activities on soils or soil function, geologic features, or geologic processes as well as distribution, quality, and quantity of soils within the project area. The context of impacts on geologic features and/or soil resources is generally site-specific or local and reflects the direct degradation of the resource that would be caused by increased foot traffic and/or earth-moving and soil disturbances associated with installation of temporary spectator venues. For other types of project components, the context of the impacts on geology and soils may be large-scale and include adjacent areas if, for example, an activity, event, or structure would result in large-scale soil instability, such as landslide or

regional ground subsidence. However, none of the activities proposed as part of the AC34 project would undercut the base of steep slopes or otherwise increase the potential occurrence of a landslide. Installation of temporary facilities at spectator venues would occur on flat land within already-developed locales and would involve minor soil disturbances. For this reason, the potential adverse impacts of the AC34 project are restricted to the local/site-specific context.

The intensity of each adverse impact is judged as having a negligible, minor, moderate, or major effect that may be either adverse or beneficial. A finding of no impact on soils or geology may also be applicable for some alternatives and sites if race activities would be prohibited and overflow activity is not expected at the site. The following impact thresholds were established to describe the effects on soils and geology under the various alternatives being considered:

Negligible Impact: Negligible impacts would be at such low levels of detection that there would be no discernible effect on soils or soil function, geologic features, or geologic processes at a project site. Impacts would also be negligible at project sites where natural soil function has been lost previously due to development or use (parking lots, roads, compacted trails, picnic areas, lawn areas). Negligible impacts would be short-term, highly localized, and low in severity.

Minor Impact: Minor impacts would be detectable, but they would not be large enough to cause appreciable changes in soils or soil function, geologic features, or geologic processes at a project site. Changes would not be expected to be outside the natural range of variability and would not be expected to have any long-term effects on soils or geologic processes.

Moderate Impact: Moderate impacts would be long-term and readily apparent and would cause visible changes in soils or soil function, geologic features, or geologic processes at a project site. Moderate impacts would affect the ability of the soil to support the growth of vegetation through erosion, compaction or loss of organic material. Moderate impacts would be long-term but localized, and prior conditions could eventually be restored.

Major Impact: Major impacts on soils or soil function, geologic features, or geologic processes at a project site would be substantial, highly noticeable, and permanent. Major impacts would affect large areas and would permanently degrade the quality and function of the soil. The ability of the soil to be successfully restored in the long run would be either questionable or unfeasible.

4.1.4.2 Natural Hazards

The impacts of natural hazards will be determined based on their potential effects on visitor safety, race-related activities, and facilities. The context within which natural hazards are examined is regional. AC34 events would not in any way affect the probability of a natural hazard (such as an earthquake, slope failure, or earthquake-induced hazard such as liquefaction, landslides, or tsunami) occurring, but the events could possibly result in a larger number of visitors and structures being exposed to loss, injury, or damage from such an event. The degree of impact considers both the frequency and/or probability of a natural hazard occurring or affecting the AC34 events, combined with the consequences to AC34 visitor safety, race-related activities, and facilities that can be reasonably anticipated. The following impact thresholds were established to describe the effects of natural hazards under the various alternatives being considered:

Negligible Impacts: Negligible impacts would result from natural hazards that have both a low probability of occurring as well as low consequences with respect to AC34 visitor safety, race-related activities, and facilities. The probability of occurrence is viewed in the context of the timeframe during which programmed event activities would be scheduled (rather than the long-term probability). Examples of low consequences might include minor, quickly repairable damage to event facilities, minor treatable injuries to the public, and no need to delay, reschedule, or cancel AC34 race events.

Minor Impact: Minor impacts would result from natural hazards that have either (1) a low probability of occurring but moderate consequences with respect to AC34 visitor safety, race-related activities, and facilities; or (2) a moderate probability but low consequences

Moderate Impact: Moderate impacts would result from natural hazards that have either (1) a low probability of occurring but high consequences with respect to AC34 visitor safety, race-related activities, and facilities; (2) a moderate probability and moderate consequences; or (2) a high probability but low consequences. Examples of moderate consequences might include some substantial damage to unanchored or uninhabited structures, potential injury and harm to the public, and possible delay and rescheduling of AC34 race events.

Major Impact: Major impacts would result from natural hazards that have either (1) a high probability of occurring, as well as high consequences; (2) a high probability of occurring and moderate consequences; or (3) a moderate probability of occurring and high consequences. Examples of high consequences might include substantial damage to structures for human occupancy, potential for injury or death to the public, and the need for substantial delay or outright cancellation of AC34 events.

4.1.5 Impacts of Alternative A—No Action

Under Alternative A–No Action, the day-to-day operations of the federal agencies would continue, consistent with legal mandates for each agency in carrying out its responsibilities to manage park geological and soil resources and implement existing plans and projects. There would be no environmental consequences beyond those typical in the oversight of maritime activity (USCG) and the stewardship of sensitive resources in an urbanized region (NPS). Events that lead to crowding conditions, while not as intense as those anticipated under the AC34 project, could continue to occur. These types of events include firework displays for New Years or Independence Day, as well as Fleet Week. During such events, members of the public seek advantageous vantage points, which may or may not be on established trails or viewing areas. The existing level of impact on geology and soil resources would continue under Alternative A. These impacts are evident in the current condition of park resources, which in some places are well protected and in others are heavily used and disturbed, especially in highly trafficked areas such as the areas surrounding the Golden Gate Bridge and areas surrounding coastal batteries.

Under Alternative A, there would be no project activities, and therefore there would be no impacts associated with AC34 events, as described under the action alternatives. There would be no project-related impacts in areas outside federal lands/resources, and Alternative A would not contribute to cumulative impacts associated with ongoing activities on NPS lands unrelated to the AC34 event (see Section 4.1.7.2). However, as described in the paragraph above, impacts on geology and soil resources would continue at approximately its current level.

4.1.6 Impacts Common to All Action Alternatives

Increased visitation to federal lands would occur under all proposed action alternatives.

4.1.6.1 Geologic Features and Soil Resources

Temporary disturbance of sensitive soil resources could occur to some degree in all action alternatives due to the generally increased visitation to federal lands that would result from the AC34 events. The primary concern for all action alternatives is the potential for visitors within secondary viewing locations to cause incidental damage to sensitive soil resources through the creation of informal trails and/or increased use of off-trail areas. The location of potential impacts on sensitive soils is within the northern Presidio, Marin Headlands, and Fort Baker/Cavallo Point. Among the action alternatives, the degree of impact differs only by the location of the most desirable secondary viewing areas. The impacts to soils at secondary viewing locations for each alternative are discussed in Section 4.1.7 to Section 4.1.10. For all alternatives other than Alternative C - No Organized Events on NPS Lands, installation of temporary facilities at established spectator venues would occur within areas that are already developed (e.g., paved or built up), or that are underlain by fills, beach sand, or turf, none of which are sensitive geologic or soil resources. For this reason, impacts on soil resources at spectator venues and in- or on-water facilities would be negligible.

4.1.6.2 Natural Hazards

The probability of an earthquake, tsunami, or other natural disaster coinciding with the peak of AC34 events is extremely low. The United States Geological Survey (USGS) estimates that there is a 63% probability of a strong earthquake (moment magnitude [Mw] 6.7 or higher) occurring on one of the regional faults in the 30-year period between 2007 and 2036. Year 2012 events would occur from August 11 through August 19, 2012, and from August 27 through September 2, 2012. In 2013, the total number of race days is not known precisely, but it is expected there could be as many as 45 race days and 40 non-racing days during the July-September period. Given the episodic and temporary nature of planned events (which would be on the order of days or weeks) relative to the 30-year timeframe for which earthquake probabilities are calculated, the chance of a strong earthquake (Mw 6.7 or higher) coinciding with the AC34 event is remote, or next to none.

It is nevertheless conceivable that a strong earthquake could affect the AC34 races, in which case the San Francisco Emergency Response Plan would be immediately put into effect to attempt to minimize further risks to public safety by:

- Rapidly establishing a reliable communications system (using backup systems if needed) among emergency response teams (police, fire, Neighborhood Emergency Response Teams [NERTs], City and County of San Francisco officials, etc.) and to the public at large (through outdoor warning system, radio, TV, and/or loudspeakers);
- Setting priorities for response to specific life-safety emergencies such as toppled buildings, fire, or the threat of a tsunami;
- Clearing roads, establishing evacuation and emergency response routes, and communicating instructions to the public;

- Establishing perimeter control around areas made hazardous due to the earthquake; and
- Assessing and repairing critical systems (e.g., water, electrical, and transportation systems).

Given that most event spectators on federal lands would be outdoors, significant numbers of injuries or casualties resulting directly from failure or collapse of structures would be unlikely. However, many variables govern the specific effects of an earthquake, from the amount of energy it releases and the location of its origin to the specific qualities of the soil and rock upon which facilities are built. Given these variables, the complexity of earthquake effects, and the size and density of the Bay Area, predicting the exact effects of an earthquake would be speculative. Given the high number of spectators expected on federal lands, the possibility of damage to or toppling of temporary spectator facilities (not applicable to Alternative C), and the general level of disorder or panic that may arise, it is reasonable to assume that a large earthquake occurring during the AC34 events could result in injuries or even casualties for event spectators, or damage to temporary spectator venues. The AC34 events would require cancellation and delay until infrastructure and public services are surveyed, restored (if necessary) and available. The activation of the San Francisco Emergency Response Plan and Emergency Operations Center, however, would serve to minimize the adverse consequences for public safety that could result from a large earthquake.

In the event that an earthquake occurred that would be capable of producing a tsunami that could affect San Francisco, the National Warning System would provide warning to the city. The San Francisco outdoor warning system (sirens and loudspeakers, tested each Tuesday at 12:00 p.m.) would then be initiated, sounding an alarm that would alert the public to tune into local TV, cable TV, or radio stations, which would carry instructions for appropriate actions to be taken as part of the Emergency Alert System. Police would also canvas the neighborhoods sounding sirens and bullhorns to provide emergency instructions. Evacuation centers would be set up if required. The advance warning system would allow for evacuation of people prior to a tsunami and would provide a high level of protection to public safety.

Natural hazards are always a possibility in the region, regardless of the implementation of the AC34 events. The existing warning, evacuation, and safety plans that are in place are adequately protective of public safety, and no additional mitigation measures for this issue are required. Because the probability of natural hazards affecting the AC34 event is very low, and the consequences to the public would be moderate, the impact with respect to this issue is minor.

4.1.6.3 Conclusion

Impacts common to all of the action alternatives include the potential for disturbance of sensitive soil resources located outside of formal paths, trails, and established venues that may occur due to large gatherings of spectators viewing the AC34 races. Management actions included with each of the action alternatives and implementation of protection measures, as further described under the discussion of individual alternatives below, would serve to eliminate or reduce effects on sensitive soil resources to minor levels.

Due to the temporary nature of the AC34 races, the degree of impact due to natural hazards is considered minor for all alternatives.

4.1.7 Impacts of Alternative B—Sponsor Proposed Project

4.1.7.1 Geologic Features and Soil Resources

Under Alternative B–Sponsor Proposed Project, minor ground disturbance may occur at programmed event venues, such as use of tent weights/stakes, installation of temporary bleachers and portable restrooms, and general turf trampling and erosion resulting from large crowds of spectators. These disturbances would affect no more than the top 6 inches of soil and would be most concentrated in areas that are covered with imported fill. For proposed spectator venue locations such as Crissy Field and Aquatic Park, installation of facilities would occur within existing developed areas or those mapped as being underlain by either artificial fills or beach sand. Therefore, installation of spectator facilities would not affect sensitive soil resources, such as wetland soils or serpentine soils, identified in Chapter 3.

However, increased public visitation at secondary viewing areas, such as numerous locations in the northern Presidio, the Marin Headlands, and Fort Baker could result in incidental trampling of soils that have previously had low levels of disturbance. These areas are generally open space/park areas accessible to the public but are not designed for the very high levels of public use that are likely to accompany the AC34 events during peak race weekends and weekdays. The level of visitors at the secondary viewing areas during non-peak periods is expected to be within the range of existing use levels. Spectator crowding during periods of very high visitation may encourage members of the public to seek alternative foot-routes to popular and high quality viewing locations. These locations likely include numerous overlooks within GGNRA lands, such as Crissy Field Overlook, the Presidio Parade Grounds and Transit Center, San Francisco National Cemetery and Golden Gate Club, Fort Scott ball fields, Battery East, Conzleman Road, Battery Spencer, Battery Kirby, Hawk Hill, Fort Baker and Cavallo Point, and East Road pullouts. The location and characteristics of these areas in terms of desirability and view quality are further described in Section 3.9, Visual Resources.

Trampling, i.e., walking upon a natural substrate, can inadvertently reduce both plant populations (e.g., Cole 1995) and degrade the soils that support them through a combination of vegetation trampling; soil compaction; water contamination and soil erosion at the local scale; and/or spread of weeds. Soil compaction is common along informal trails (i.e., "social" trails) that have been created by—and are heavily used by—bikers, hikers, runners, and dog walkers. Existing trails, boardwalks, and other public access routes in the study area generally have sufficient capacity to handle high volumes of visitation that are typical during peak seasonal periods (i.e., summer tourism), although a minor level of off-trail soil disturbance is not completely avoidable even under normal circumstances. During peak race weekends during the AC34 events, however, it is reasonable to expect a higher magnitude of off-trail use as visitors seek to gain better views and avoid crowded conditions.

The use of informal routes by the public and the resulting compaction and disturbance of soils would be temporary and limited to the peak visitation periods; however, depending on the magnitude of disturbance and use, the effects could be long-lasting. Soils require long periods of time (i.e., decades or more) to develop organic rich surfaces and subsurface soil horizons under natural conditions and are difficult to restore once disturbed. While soils protected by vegetation can recover fairly quickly

from light foot traffic, extensive disturbances by high volumes of visitors can irreversibly degrade soil quality and function.

The locations of serpentine soils discussed in Section 3.1 coincide with steeply sloped and highly vegetated areas that visitors are unlikely to serve as an attractive alternative route option. Other areas within the northern Presidio are mostly either developed or underlain by imported fills, sandy soils, or slope deposits and ravine fill that are not considered unique, rare, or sensitive soil resources. However, as described in Section 4.5, Biological Resources, potential impacts on special-status species and the soils that support their habitats could occur from heavy visitation in localized areas in the northern Presidio, at Fort Baker (Battery Cavallo, Battery Yates, and the upland area between the lodge and East Road), and along Conzelman Road in the Marin Headlands.

As shown in Figures ALT-9, ALT-10, ALT-13, and ALT-14, new fencing and gates are proposed at numerous locations to protect sensitive natural resources, including those discussed above. Existing fences are located in several sensitive and highly visited areas, such as the Crissy Field dunes. However, the fencing proposed may not necessarily be sufficient to totally avoid trampling and compaction of soils outside of designated routes, and fencing has not been proposed along several trails/routes that are in proximity to sensitive serpentine soils. These include locations in and around Fort Point National Historic Site and the intervening area between the spectator venues at the western end of Crissy Field and the top of the Presidio bluffs along Lincoln Boulevard. If the fencing and resource monitoring plans are developed without considering the value of serpentine soils, dune sands, and wetland soils, short-term, highly localized (i.e., confined to narrow informal trails) damage to soil structure and function could occur. While direct disturbance activity would be short-term and localized, the resulting damage could have long-term effects that would be difficult to reverse due to the uniqueness of serpentine soils, coastal dune sands, and wetland soils. For this reason, adverse impacts on a sensitive soil resource could occur in localized areas in the northern Presidio where fencing is not proposed, and would be moderate in intensity because the short-term direct disturbances caused by use of social trails could result in long-term effects on soil structure and function.

Protection measures relevant to geologic and soil resources associated with this alternative include the installation of fencing, resource monitors, and additional trail/area closures to protect sensitive natural communities and wetland sites (Protection Measures GEO-1, BIO-2, BIO-3 and BIO-5). The installation of additional fencing and gates, especially combined with the presence of resource monitors, would be effective in encouraging visitors to stay on established trails and designated public routes. Serpentine soils, wetland soils and coastal dune sands are considered geologic resources because of the rare and/or unique plants they support. The natural communities identified in Section 3.2, Hydrology and Water Quality, and Section 3.5, Biological Resources, are coincident with the presence of sensitive soils (i.e., dunes, serpentine soils, and wetlands). Thus, implementation of biological protection measures for special-status plants and federally protected wetlands (Protection Measure BIO-5) would be sufficient to ensure that incidental and off-trail impacts on soil resources during peak visitation for the AC34 events are minor.

4.1.7.2 Cumulative Impacts

Potentially adverse impacts could occur through development both within and adjacent to the federal lands, including development associated with various transportation plans and trail plans. These efforts would involve ground disturbance that could add to or exacerbate existing erosion problems and the spread of invasive species along road and trail corridors. However, standard management actions (e.g., stockpiling topsoil and covering stockpiles) as well as implementation of additional management measures that are identified as part of the NEPA process (e.g., soil management plans and revegetation plans) would reduce the potential for impacts. Current transportation and development planning efforts both within federal lands and beyond park boundaries would affect soils, but mitigations for these projects would reduce the potential for impacts.

Current and reasonably foreseeable future actions positively affecting soils in the study area are activities that restore and enhance habitat and reduce erosion problems. These projects include habitat protections and closures, education and outreach, and wetland restoration, as well as removal of nonnative plants and reestablishment of native plant communities. These efforts have direct benefits to soils. Completed, current, and future projects that will have a beneficial impact on soils and geology within the GGNRA sites are as follows:

- Park stewardship programs that have worked with the GGNRA on trail rehabilitation, nonnative plant removal, and revegetation with native species have resulted in reduced erosion and increased soil quality and also focus on restoration and enhancement efforts.
- San Francisco Natural Areas Program and NPS recovery plans address listed plant and wildlife species.
- The GGNRA Maintenance Division is responsible for many projects that include road, trail, and stormwater system maintenance.
- The Wildland/Urban Interface Initiative funds projects that benefit restoration and enhancement of natural areas.
- The removal of hazardous waste in 1997 and creation of tidal marsh and dune habitats at Crissy Field resulted in remediation and beneficial restoration of the area.
- 73,000 tons of landfill debris were removed from the steep slope above Baker Beach in 2007 as part of restoration and remediation efforts.

Some present and future actions include maintenance, replacement and/or retrofit of facilities, such as the Golden Gate Bridge Seismic Retrofit at Fort Baker, Fort Point retrofits, Doyle Drive Construction, and trail and road widening or improvements. These types of projects can have short-term consequences for soil resources as a result of soil disturbance from grading and excavation. However, such projects typically require restoration of temporarily disturbed areas following project completion, and in some cases, mitigation for loss of sensitive habitat (e.g., planned restoration of Mission blue butterfly habitat as mitigation for the seismic retrofit work at Fort Baker). Cumulative projects on NPS lands with potentially adverse consequences for soil resources must include measures to avoid, minimize or mitigate impacts on natural resources pursuant to NPS policy. Combined with projects in the cumulative scenario whose primary purpose is to protect and/or restore natural

resources on park lands, the overall cumulative impacts on geologic and soil resources in the study area are considered beneficial.

4.1.7.3 Conclusion

Project activities under Alternative B would cause short-term, temporary, and localized impacts on non-sensitive soil resources associated with land-based construction activities at spectator venues. Due to the existing lack of natural soil function caused by previous disturbances (i.e., soils would be imported fills, landscaped, or sand), the impacts in these areas would be negligible. For secondary viewing areas in proximity to sensitive soil resources, however, foot traffic, soil compaction, and soil disturbance outside of formal trails could result in impacts that are short-term and localized but moderate in intensity (because impacts would be long-lasting and difficult to reverse). Implementation of Protection Measures GEO-1, BIO-2, BIO-3 and BIO-5 would ensure that the fencing and signage plan would consider the location and extent of sensitive soil resources and include access restrictions that are protective of sensitive soils. Protection Measures GEO-1, BIO-2, BIO-3 and BIO-5 would reduce the intensity of impacts on soil resources to minor levels. Cumulative effects of Alternative B would be short-term and minor.

4.1.8 Impacts of Alternative C—No Organized Events on NPS Lands

Under Alternative C – No Organized Events on NPS Lands, AC34 race events would occur in Central San Francisco Bay in 2012 and 2013. The race areas would be similar in design and location to those of Alternative B. This alternative would remove all special event-related features from landside spectator sites on NPS lands. Although people would be attracted to these sites for race viewing, there would be no tents, hospitality services, sponsor displays, bleachers, event stage, or amplified sound.

Impacts on geologic and soil resources would be similar to those discussed for Alternative B because the race area would remain the same, and therefore spectators could still be attracted to the same secondary viewing areas, which are in proximity to sensitive soil resources. Alternative C would eliminate the minor impacts associated with facility construction at spectator venues on NPS lands, but otherwise impacts under this alternative would be the same as those under Alternative B.

4.1.9 Impacts of Alternative D—Modified Program Alternative

Under Alternative D - Modified Program Alternative, AC34 race events would occur in Central San Francisco Bay in 2012 and 2013. The AC34 2012 primary race area would be shifted east from its Alternative B counterpart, away from Crissy Field, while remaining out of the shipping lane that runs between San Francisco and Treasure Island. The AC34 2013 primary race area would be similar in design and location to that in Alternative B.

For the 2012 races, impacts on geologic and soil resources would be similar to but slightly reduced in intensity compared to those discussed for Alternative B, because peak visitation to the northern Presidio would decrease in magnitude. This decrease in visitation would be due to the shifting of the primary race area to the east, which would make secondary viewing areas on federal lands less

desirable. In 2013, however, the same impacts as discussed for Alternative B would occur, and therefore impacts of this alternative would be considered the same as those of Alternative B.

4.1.10 Impacts of Alternative E—Preferred Alternative

Under Alternative E - Preferred Alternative, land-based facilities and activities (including at spectator venues and secondary viewing or incidental use areas) could be similar to or the same as those under Alternative C in terms of effects on soil resources. The primary differences between Alternative E and Alternative C are in the number and type of water-based developments, and a small change in the 2012 race area. None of the differences would change impacts with respect to soil resources. As a result, all conclusions with respect to impacts of Alternative E on soil resources are the same as those identified for Alternative C.

4.1.11 Cumulative

Cumulative effects of Alternative E with the addition of Fleet Week activities would be similar to that of peak conditions under Alternative B and thus would be short-term and minor.

4.1.12 Mitigation Measures

No mitigation measures for geology or soils impacts would be warranted under any of the project alternatives. As discussed in this section, Protection Measures GEO-1, BIO-2, BIO-3 and BIO-5, proposed as part of the protection of sensitive natural communities, would likewise protect serpentine soils and/or wetland soils that support those communities. The fencing and signage plan, in addition to the natural resource monitors that would be present, would be adequate to reduce potentially moderate impacts on soil resources to minor levels.

4.1.13 References

Joslin, G., and H. Youmans, coordinators

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2006 *Management Policies 2006*.

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2002 *Presidio Trust Management Plan*. May 2002.

United States Fish and Wildlife Service (USFWS)

2003 *Recovery Plan for Coastal Plants of the Northern San Francisco Peninsula*. Region 1, Portland, Oregon. August 2003.

4.2 HYDROLOGY AND WATER QUALITY

This section assesses the hydrology and water quality impacts of the proposed project, including changes in stormwater drainage and effects on water quality from project activities.

4.2.1 Study Area/Context

The study area includes all locations that may be affected directly or indirectly by the proposed project and are subject to federal jurisdiction. Accordingly, the study area includes NPS lands and portions of the Central Bay from Fort Baker and the Marin Headlands in the north, extending south to Crissy Field and Aquatic Park and to shoreline areas on the eastern San Francisco waterfront and Alcatraz Island.

4.2.2 Issues

The key hydrology and water quality issues for the proposed project would be related to direct impacts on NPS lands such as Crissy Field and Aquatic Park from land-based construction or setup activities for the AC34 events, and impacts on water quality in the Bay from water-based construction, dredging, discharges, spills, and littering from race-related and spectator boats associated with the AC34 events. Compliance with regulatory requirements for the activities under review, and implementation of project-specific water quality control plans and construction specifications prepared for the AC34 events, would help to ensure that both direct and indirect water quality-related impacts are minor. Although portions of the study area can be subject to flooding in the winter, given the temporary nature of the project activities associated with the AC34 events that would occur during the summers of 2012 and 2013, the likelihood of the study area experiencing flooding during the course of the project is extremely low; hence the project would have a very low likelihood of causing hazardous conditions associated with flooding.

4.2.3 Guiding Regulations and Policies

Table HYD-1 below lists the regulations and policies specific to hydrology and water quality that would apply to the proposed project.

4.2.4 Assessment Methods/Thresholds

The hydrology and water quality impacts caused by the proposed project are assessed for land-based and in-water project activities based on the NPS *Director's Order 77* and *2006 Management Policies* and using the following criteria:

- **Context:** The context of the impact considers the hydrologic setting (baseline conditions), including both surface waters and groundwater, in which the project impact would occur as well as the extent of the impact (e.g., whether the impact would be localized to the hydrologic resources of the project area or would extend outside the project area). For the purpose of this

TABLE HYD-1: GUIDING REGULATIONS AND POLICIES APPLICABLE TO THE PROPOSED PROJECT

Regulation or Policy	Related Requirements
Regulations Applicable to Construction Activities and Activities during AC34 Events on or around NPS Lands/Resources	
NPS Policies	The National Park Service *Freshwater Resource Management Guidelines* (found in NPS-77) requires the National Park Service (NPS) to "maintain, rehabilitate, and perpetuate the inherent integrity of water resources and aquatic ecosystems." NPS *Management Policies 2006, 4.6.3 Water Quality and 9.1.6, Waste Management and Contamination Issues* states as follows: "The Service will determine the quality of park surface and groundwater resources and avoid, whenever possible, the pollution of park waters by human activities occurring within and outside the parks. The Service will therefore demonstrate environmental leadership and serve as a model for others to follow in managing wastes and contaminants." *NPS Management Policies 2006* also states that the park's resources or values include "…the park's scenery, natural and historic objects, the ecological, biological, and physical processes and conditions that sustain them, including natural landscapes ….and ….water resources."
Clean Water Act	Sections 301 and 402 establish permit requirements for discharge of pollutants from point sources such as vessels, although the U.S. EPA regulations specify that National Pollutant Discharge Elimination System (NPDES) permits are not required for any discharge of sewage from vessels; effluent from properly functioning marine engines, laundry, shower, and galley sink wastes; or any other discharge incidental to the normal operation of a vessel. Section 311 prohibits the discharge of fuel, oil, oily wastes, and hazardous substances into or upon the navigable waters of the United States or the waters of the contiguous zone if such discharge causes a film or sheen upon, or discoloration of the surface of the water, or causes a sludge or emulsion beneath the surface of the water. All boats 26 feet or longer are required to display an oily waste discharge placard in the engine compartment or near fuel pumping stations that notifies passengers and crew about discharge restrictions. Section 312 establishes effluent standards for marine sanitation devices (MSDs), i.e., on-board sewage treatment equipment, and also identifies procedures for establishing "no discharge" zones for vessel sewage. The Clean Water Act (CWA) (generally codified among other amendments at 33 U.S.C. §§ 1251-1387). The CWA prohibits the discharge of hazardous substances in a harmful quantity into all waters within 12 Nautical Mile of the U.S. coast, or in a quantity which may affect the natural resources of the U.S. in the U.S. Exclusive Economic Zone. Sewage is specifically addressed at 33 U.S.C. § 1322.
Regulations Applicable to the In-Water Activities (Discharges Associated with Boating and Vessel Use)	
International Convention for the Prevention of Pollution from Ships (MARPOL) Title 33 CFR, Chapter 33.	The treaty addresses discharges of oil, noxious liquids, harmful substances, and garbage (including plastics). Annex V of MARPOL prohibits dumping plastic into the water anywhere and restricts dumping of other forms of garbage within specified distance from the shore. Annex V restrictions apply to all ocean-going vessels, recreational and commercial. MARPOL. Annex IV (Prevention of Pollution by Sewage from Ships) contains requirements to control pollution of the sea by sewage; the discharge of sewage into the sea is prohibited, except when the ship has in operation an approved sewage treatment plant or when the ship is discharging comminuted and disinfected sewage using an approved system at a distance of more than three nautical miles from the nearest land; sewage which is not comminuted or disinfected has to be discharged at a distance of more than 12 nautical miles from the nearest land.

TABLE HYD-1: GUIDING REGULATIONS AND POLICIES APPLICABLE TO THE PROPOSED PROJECT (CONTINUED)

Regulation or Policy	Related Requirements
Regulations Applicable to the In-Water Activities (Discharges Associated with Boating and Vessel Use) (cont.)	
Federal Refuse Act (1899 33 USC 407)	This act prohibits the discharge or deposition of any refuse matter of any kind into United States waters. Refuse includes garbage, trash, oil and other liquid pollutants (California Department of Boating and Waterways and California Coastal Commission 2010).
Code of Federal Regulations Title 33	33 C.F.R. § 159. This part prescribes regulations governing the design and construction of marine sanitation devices (MSDs) and procedures for certifying marine sanitation devices. Subpart A of this part contains regulations governing the manufacture and operation of vessels equipped with marine sanitation devices.
Federal Ocean Dumping Act	This act prohibits the dumping of any material transported from a location outside the United States (1) into the territorial sea of the United States, or (2) into a zone contiguous to the territorial sea of the United States to the extent that it may affect the territorial sea or the territory of the United States. The USCG has enforcement authority over vessels within U.S. waters.
Marine Plastic Pollution Research and Control Act (33 CFR 151.59),	This act requires a Garbage Disposal Placard for vessels 26 feet or longer on federal waters. It requires the aforementioned placard for vessels 40 feet or longer, along with preparation and implementation of a written Waste Management Plan describing the procedures for collecting, processing, storing, and properly disposing of garbage in a way that will not violate the MARPOL convention requirement. Vessels 40 feet and longer that operate beyond 3 nautical miles from shore must not only display the aforementioned placard but must also prepare and carry a written Waste Management Plan describing the procedures for collecting, processing, storing, and properly disposing of garbage in a way that will not violate the MARPOL convention requirements.
Ballast Water Management Act	To protect waters, such as the Bay, from invasive species from visiting vessel ballast, the Ballast Water Management Act requires that all vessels carrying ballast water either conduct a mid-ocean exchange of ballast water or retain all ballast water on board the vessel to prevent or reduce the introduction and spread of non-indigenous aquatic species into the state waters.

analysis, local impacts would be impacts that occur within a confined localized project area to where construction and use occurs; nonlocal or other impacts would be impacts that would occur beyond the areas where project activity (construction or use) occurs, such as those that are hydraulically connected. The proposed project would be implemented mostly along the northern San Francisco waterfront, which has been highly modified by urban development. The study area includes sensitive areas such as the Crissy Field marsh and portions of the Central Bay, which is impaired under Section 303(d) list of the Clean Water Act.

- **Direct or Indirect Impact:** The impact analysis considers whether the impact would occur directly from the action in the project area or indirectly from an action outside the project area. Some hydrology and water quality impacts may occur from a project activity, facility, use, or influence of project-related watercraft on an NPS resource or from indirect activities such as intense use of some secondary viewing areas for the AC34 event.

- **Duration:** The duration of an impact on hydrology and water quality would depend on the nature of the project activity and whether the impact would occur in the short term or persist

over the long term. For the purpose of this analysis, short-term impacts are impacts that would result from or occur during the course of short-term project activities such as construction or dredging and installation of facilities for the AC34 event (maximum of 8 weeks) or use of the lands and activities in the Central Bay during the course of event. Long-term impacts are impacts that would persist beyond the activities associated with the AC34 events (i.e., following construction and/or following the AC34 events).

The hydrology and water quality impacts of the project are assessed for the land-based and in-water activities described under various project alternatives (see Chapter 2 – Alternatives for a detailed description). The intensity of the impacts is evaluated based on the context and duration of the impacts. Impact intensity is divided into four categories as shown below. These impact intensity categories would apply to all activities within federal jurisdiction.

Negligible impacts would be defined as no detectable water quality changes occurring due to land- or water-based activities.

Minor impacts would be short-term and localized and would be related to detectable local changes to the natural surface, such as increases in erosion. Detectable water quality changes would be below water quality standards or criteria and within historical or desired water quality standards.

Moderate impacts would be long-term and localized. Detectable local changes to the natural surface, such as increase in erosion, would occur following the project activity, but project design and control measures would lessen the changes such that the water quality would remain within the existing water quality conditions and within the water quality standards/ criteria. Measurable local changes in water quality would occur following the project activity, but project design and control measures would lessen the changes such that the water quality would remain within the existing water quality conditions and within the water quality standards/ criteria.

Major impacts would be long-term and widespread. Detectable local changes to the natural surface, such as increase in erosion beyond the project activity site, would occur following the project activity, but project design and control measures would lessen the changes such that the water quality would remain within the existing water quality conditions and within the water quality standards/ criteria. Measurable and widespread changes and frequent alterations in water quality conditions from the baseline or desired water quality conditions would occur; the changes would exceed water quality standards/criteria; the changes would persist following the project activity; and mitigation measures would not minimize the changes.

4.2.5 Impacts of Alternative A—No Action

Under Alternative A–No Action, there would be no AC34 races or associated water-based or landside activities that would take place on the NPS lands, and no associated in-water construction. Ongoing landside events (i.e., concerts and festivals) and water-based activities (i.e., shipping, recreational boating, dredging, etc.) would continue as under present conditions. These activities would continue to have an effect on the hydrology and quality of waters within the project area. The continuation of these activities would constitute a long-term minor impact.

4.2.5.1 Conclusion

Under Alternative A, there would be no AC34 races or associated water-based or landside activities, and therefore there would be no impacts on hydrologic resources attributable to Alternative A. Unrelated incidents such as closure of Crissy Beach due to high bacterial counts may still occur, but there would be no contributions from Alternative A that would be considered cumulatively considerable. As such, cumulative effect of the project, when combined with those of existing activities within the Bay would remain long-term and minor.

4.2.6 Impacts Common to All Action Alternatives

Impacts common to all action alternatives would relate to the short-term activities associated with AC34 events preparations, as well as the execution of AC34 events and activities associated therewith.

4.2.6.1 AC34 Activities on NPS Lands

The activities following setup of support facilities on NPS lands would vary among action alternatives but would all involve increased use and human activity during the AC34 events, including transportation and parking for thousands of spectators in the vicinity of Crissy Field and Aquatic Park. Secondary viewing areas such as Fort Mason, the Marin Headlands, and Fort Baker would also be used heavily by spectators during the AC34 event. Due to the steeper topography in areas such as Fort Baker and the Marin Headlands, or the shoreline at Crissy Field and Aquatic Park, heavy usage could cause erosion, which may contribute to increased sedimentation of Bay waters. As described in Chapter 2 – Alternatives, however, landside protection measures such as fencing and monitoring for natural resource protection, buffer zones for sensitive areas such as Crissy Field Wildlife Protection Area (WPA), controlled transportation and parking, and education on NPS resource areas would control and minimize such effects.

Due to the proximity of activities and venues to the Bay, litter could be directly discarded into the Bay, carried to the Bay by wind, or even carried by gulls. Materials likely to be included in refuse such as trash and degraded plastic can be harmful to aquatic life. However, waste management requirements of any NPS permits (i.e., Protection Measure VUE-16), and implementation of the City of San Francisco's Zero Waste Plan, would ensure that there would be adequate receptacles and waste management measures in place to meet demand for the expected crowds at all of the primary AC34 venues. None of the activities planned at the AC34 venues described in this EA would include the use of hazardous materials or other potential stormwater pollutants that could degrade water quality during the AC34 events. Therefore, because the increased human activity would be temporary (limited to the duration of the AC34 events) and landside resource protection measures would be implemented to protect sensitive areas and manage waste, water quality impacts from land-based activities following setup would be short-term and minor.

4.2.6.2 AC34 Events in NPS Managed Waters

In-water project activities that could affect NPS managed waters during AC34 events would involve heavy use by race and spectator boats, and would extending into the northern and western portions of the Central Bay. This would include the Bay waterfront areas (i.e., near Fort Baker, Crissy Field, and Aquatic Park). Increased vessel traffic, including both race-related and spectator vessel traffic, could adversely affect water quality within the Central Bay, due to potential bilge water discharges, hazardous materials spills, and sewage discharges, and disturbances to sediments from anchoring activities. The vessels would be subject to regulatory requirements (listed in Table HYD-1) related to ballast water discharges, sewage discharges, spills of hazardous materials, and waste management. The requirements would also be related to invasive species that may be introduced to the Bay through discharges of ballast water as well as from anchor chain lockers, anchors, anchor chains, anchor lines, ship bilges, drains, and through-hull connections. Protection measures such as HYD-4, included in all project alternatives would ensure that mariners, including those on international visiting vessels, would be educated about environmentally sound boating practices and laws and access to environmental services to ensure employment of clean boating habits, including proper sewage disposal. Implementation of an education and public outreach program would ensure maximum protection of Bay water quality during AC34 events. Waste management requirements also included in project alternatives would include provisions to minimize the potential for the discard of wastes such as electronic devices, batteries, used oil, paints, caulk, adhesives, solvents, and wastes associated with food preparation into the Bay during boat operation, berthing, or mooring.

Compliance with regulations regarding operations of vessels within U.S. waters and adherence to waste management requirements would ensure that impacts on water quality as a result of the increased potential for ballast water discharges, bilge water discharges, oily water discharges and hazardous materials spills, sewage discharges, and littering in the Bay would be short-term in nature relative to the Central Bay water quality conditions and would therefore be considered minor.

4.2.6.3 Federally Regulated AC34 Activities Outside NPS Managed Areas

Dredging would occur as part of all the project alternatives. Dredging would be required within the Brannan Street Wharf (Piers 32-36) Open Water Basin, in the Piers 28-30 water area (although no dredging at Pier 28 under Alternative E), at Pier 9 south, and at Pier 14 north and south to accommodate sufficient depth for berthing AC34 boats (sponsor and/or spectator boats). The in-water activities would disturb and resuspend mud and sediment, which could affect the water quality conditions. Dredging and disposal operations may affect water quality variables such as dissolved oxygen (DO), pH, salinity, total suspended solids (TSS), and turbidity. Turbidity near the dredging and disposal sites would increase from sediment released to the water column. DO levels in the lower water column may decrease during disposal events for short time periods (minutes) from reduced sediments with increased oxygen demand upon release to the water column. These activities would be subject to Regional Water Quality Control Board (RWQCB) Section 401 water quality certification. The water quality certification would require implementation of best management practices (BMPs) and specific measures for the protection of water quality during construction, some of which are identified in Protection Measures BIO-17 and HYD-2). As part of these practices, all floating debris would be removed and disposed of at an approved upland location.

All sediments proposed to be dredged at this and other locations have been characterized and tested for multiple disposal options through the Dredged Material Management Office (DMMO) process. Sediments historically dredged from Piers 30-32 and Pier 27 under the Port's maintenance dredging program have been suitable for in-Bay disposal at the Alcatraz disposal site. Disposal could also occur at either the San Francisco Deep Ocean Disposal Site (SF-DODS) or upland disposal sites. The SF-DODS is located approximately 50 miles offshore of San Francisco in depths of 8,200 to 9,840 feet (2,500 to 3,000 meters) and was established in 1994 to provide an environmentally superior alternative to disposal in San Francisco Bay.

The project sponsor would be required to obtain a new Section 10 permit from the United States Army Corps of Engineers (Corps) and a RWQCB water quality certification for the construction dredging. Disposal at SF-DODS would be subject to the requirements of the DMMO with respect to suitability of sediments, Corps requirements, and requirements of the RWQCB through its water quality certification process. Any upland disposal of sediments would need to be conducted in accordance with waste discharge requirements issued to the designated disposal site.

As part of the permitting process, the project sponsor would be required to:

- Prepare a sampling and analysis plan (or quality assurance project plan) describing any sampling that would be conducted and quality assurance procedures that would be implemented to ensure the collection of data of appropriate quality to support a decision regarding a suitable disposal method. The sampling and analysis plan and quality assurance project plan must be prepared in accordance with U.S. EPA/Corps guidance and approved by the DMMO. Additional components can be required for complex dredging projects or those that include dredging of contaminated sediments. Guidance for preparation of sampling and analysis plans and quality assurance project plans is provided in the DMMO document *Sampling and Analysis Plan (Quality Assurance Project Plan) Guidance for Dredging Projects Within the San Francisco District* (DMMO 1999).

- Sample the sediments in accordance with the approved sampling and analysis plan or quality assurance project plan.

- Submit a report to the DMMO documenting the sampling event and providing adequate information to make a decision regarding suitability of the material tested. Based on this report, the DMMO would determine the suitable disposal method for the dredged sediments.

- Submit a Consolidated Dredging-Dredged Material Reuse/Disposal Application to the DMMO specifying the planned disposal method and the specific site planned for disposal. The application must be accompanied by the sampling and analysis plan, testing data, calculations, and the environmental document, as well as other supporting documentation.

The DMMO agencies would review the permit application and approve or deny the permit. The RWQCB water quality certification would specify methods for ensuring the protection of water quality during construction activities in the Bay. In place of this water quality certification, the RWQCB could, at its discretion, issue waste discharge requirements specifying equivalent measures for the protection of water quality during construction. Also, the project sponsor would be required to adhere to policies and requirements set forth by the Bay Conservation and Development Commission (BCDC) in order to obtain a BCDC Major Permit to conduct construction and dredge and fill operations within

BCDC's jurisdiction. The sediment would be characterized and tested for multiple disposal options through the DMMO process which could include ocean disposal. The Marine Protection, Research, and Sanctuaries Act (MPRSA), also known as the Ocean Dumping Act, prohibits the dumping of material into the ocean that would unreasonably degrade or endanger human health or the marine environment. Section 103 of this act regulates the transportation for disposal of dredged materials in open seas, from the baseline of the territorial sea and seaward. Permits for the transportation of dredged material for ocean disposal are issued by the Corps and are subject to EPA concurrence.

Other in-water work such as installation of several temporary and a few permanent in-water improvements (e.g., mooring anchors and piles) would be undertaken to provide for the berthing and mooring of race boats, exhibit boats, and large spectator boats which would result in short-term disturbance of localized Bay sediments. This could also adversely affect water quality. Construction activities within the Bay and would require a Clean Water Act Section 401 water quality certification from the RWQCB, as well as a BCDC Major Permit. The regulatory requirements would specify BMPs for the protection of water quality to reduce disturbance of bottom sediments. Therefore, due to the limited extent and temporary nature of potential disturbances to sediments, and implementation of water quality control measures as part of compliance with permit requirements for any construction activities, water quality impacts related to construction activities in the Bay would be minor.

Use of construction equipment for in-water construction activities such as the installation of floating docks and anchoring systems would involve the use of diesel-fueled construction equipment, and potentially require the use of some hazardous materials such as oils and lubricants. If released to the Bay, these materials would degrade water quality. However with implementation of protection measures such as using well maintained equipment and placing restrictions on maintenance of this equipment, placing restrictions on fueling activities and storage of hazardous materials, requiring specific measures for responding to spills (i.e., HYD-1), this impact would be minimal. The impacts from such activities would therefore be short-term, localized and considered minor.

4.2.7 Impacts of Alternative B—Sponsor Proposed Project

4.2.7.1 AC34 Activities on NPS Lands

Under Alternative B–Sponsor Proposed Project, venue sites at Aquatic Park and Crissy Field would include limited land-based installations, such as such as spectator seating, tents, and a events stage at Crissy Field. Standard BMPs to minimize erosion from soil disturbance are included in all alternatives so as to protect the shoreline and water quality in the Bay. Construction specifications would also include requirements to capture and contain the debris generated during construction work, particularly to protect sensitive areas from erosion and potential sedimentation. In the event that debris does reach the Bay and has the potential to affect the NPS lands, personnel in workboats within the work area would be required to immediately retrieve the debris for proper handling and disposal (See Protection Measure HYD-1). Impacts associated with landside activities during the AC34 events would be as described for all action alternatives, above. With regulatory compliance, implementation of BMPs and construction specifications for water quality control, and the specified protection measures, the impacts from these activities on hydrologic resources would be short-term, localized, and would be minor.

4.2.7.2 AC34 Activities in NPS Managed Waters

Impacts associated with activities in the NPS managed waters under Alternative B would be as described for all action alternatives, above. In addition, anchoring in certain near shore areas (i.e., display boats in Aquatic Cove) would result in short-term disturbance of localized Bay sediments. This could adversely affect water quality because the sediments may contain chemicals from historic activities, and disturbance of the sediments could temporarily increase turbidity and resuspend these sediments in Bay waters. While the anchoring activities would be increased over existing conditions, the proposed race activities would be relatively short and would not cause a substantial increase in sediment disturbances. In addition, Protection Measure NAV-5 would provide some restrictions on unauthorized vessel traffic. Therefore, due to the limited extent and temporary nature of potential disturbances to sediments located in NPS managed waters, water quality impacts related to activities in NPS managed waters would be minor.

4.2.7.3 Federally Regulated AC34Activities Outside NPS Managed Areas

Refer to the above discussion of impacts that would be common to all alternatives.

4.2.7.4 Cumulative

The impacts on hydrological resources from Alternative B would combine with other effects from past, present, and reasonably foreseeable future projects on lands within GGNRA, Presidio Trust, or San Francisco Maritime National Historical Park (SAFR) jurisdiction.[1] However, because all impacts associated with Alternative B have been eliminated or reduced to a level of negligible or minor effects, and because all projects on federal lands have been or would be subject to project conditions or protection measures to reduce effects on hydrological resources as much as feasible through compliance with the regulations and policies stated above, the combined impacts would not be cumulatively considerable. For any other non-federal projects, it is unlikely that the short-term effects from AC34 would be cumulatively considerable when construction begins. Therefore the cumulative effects of Alternative B, when combined with other projects in the area, would be short-term and minor.

4.2.7.5 Conclusion

Project activities under Alternative B would cause short-term, localized impacts associated with land-based and in-water activities. The impacts would be minor. The heavy use due to thousands of spectators and race-related vessels on land and in water would have water quality impacts associated with littering, boat discharges, or potential spills from race-related temporary facilities. These impacts would be minimized and limited in duration through compliance with applicable regulatory controls, such as the Section 10 and Section 103 permits from the Corps, Section 401 water quality certification from the RWQCB, and protective measures identified in Chapter 2—Alternatives, which would be applied as conditions of federal agency permit approval. The impacts would be considered minor.

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[1] Cumulative projects for this analysis include the Marin Headlands and Fort Baker Transportation Infrastructure and Management Plan, the GGNRA and Presidio Trust Presidio Coastal Trail Project, Treasure Island/Yerba Buena Island Redevelopment, Doyle Drive Phase II Construction, and other ongoing general disturbances in the project area including special events such as Fleet Week.

4.2.8 Impacts of Alternative C—No Organized Events on NPS Lands

Under Alternative C–No Organized Events on NPS Lands, there would be no programmed AC34 events on NPS lands. However, the location, format, and duration of on-water race activities would be similar to those of the Sponsor Proposed Project. Dredging and other in-water work described for Alternative B would still be conducted in the vicinity of certain San Francisco waterfront piers.

4.2.8.1 AC34 Activities on NPS Lands

Under Alternative C, there would be no AC34 programmed activities on NPS lands, and therefore no direct hydrology and water quality impacts that would be associated with the construction or break-down of such venues. However, people would still be drawn to NPS lands to view the races, and viewing areas that have steeper topography, such as Fort Mason, areas of the Presidio, and the Marin Headlands, may experience erosion due to increased visitation. Land-based management and protection measures such as fencing and resource monitors (e.g., BIO-1, BIO-3, CUL-3, GEO-1) would provide protection from erosion and resultant sedimentation. This effect on hydrologic resources on NPS lands would therefore be short-term minor.

4.2.8.2 AC34 Activities in NPS Managed Waters

Impacts associated with activities in the NPS managed waters under Alternative C would be as described for all action alternatives, above. There would be no display boats anchored in Aquatic Cove under Alternative C. However, additional anchoring would still be expected in certain near shore areas, and would result in short-term disturbance of localized Bay sediments. Noted above, this could adversely affect water quality because the sediments may contain chemicals from historic activities, and disturbance of the sediments could temporarily increase turbidity and resuspend these sediments in Bay waters. While the anchoring activities would be increased over existing conditions, the proposed race activities would be relatively short and would not cause a substantial increase in sediment disturbances. In addition, Protection Measure NAV-5 would provide some restrictions on unauthorized vessel traffic. Therefore, due to the limited extent and temporary nature of potential disturbances to sediments located in NPS managed waters, water quality impacts related to activities within NPS managed waters would be minor.

4.2.8.3 Federally Regulated AC34 Activities Outside NPS Managed Areas

Refer to the above discussion of impacts common to all alternatives. The impact would be short-term and considered minor.

4.2.8.4 Cumulative

Cumulative effects of Alternative C would be similar to those of Alternative B discussed above and would be short-term and minor.

4.2.8.5 Conclusion

Project activities under Alternative C would cause short-term, localized impacts associated with land-based and in-water construction activities outside NPS lands. The impacts would be minor. Since there would be no programmed events on NPS lands, this alternative would avoid any direct hydrology and water quality impacts on the NPS resource. However, the heavy use due to thousands of spectators on land and race-related vessels on land and in water in the vicinity of the NPS lands could have indirect water quality impacts associated with littering, boat discharges, or potential spills from race-related temporary facilities. These impacts would be short-term, would occur only during the AC34 event, and would be considered minor. The impacts on areas outside the NPS jurisdiction would be minor.

4.2.9 Impacts of Alternative D—Modified Program Alternative

Under Alternative D–Modified Program Alternative, the race area would be similar to that under Alternative B, except that the 2012 race area would be shifted east by approximately one-quarter mile, and there would be reduced use of the NPS lands, such as no event stage at Crissy Field.

4.2.9.1 AC34 Activities on NPS Lands

Impacts from land-based activities on NPS lands would be similar to those described for Alternative B, except that the impacts would be less intense due to the limited venue installation activities at Crissy Field and Aquatic Park. The impacts on hydrologic resources would be short-term and minor.

4.2.9.2 AC3 Activities in NPS Managed Waters

While the 2012 race area would shift east under Alternative D, impacts associated with activities in NPS managed waters under this alternative would remain as described for all action alternatives, above. There would be no display boats anchored in Aquatic Cove under Alternative D. However, additional anchoring would still be expected in certain near shore areas, and would result in short-term disturbance of localized Bay sediments. Noted above, this could adversely affect water quality because the sediments may contain chemicals from historic activities, and disturbance of the sediments could temporarily increase turbidity and resuspend these sediments in Bay waters. While the anchoring activities would be increased over existing conditions, the proposed race activities would be relatively short and would not cause a substantial increase in sediment disturbances. In addition, Protection Measure NAV-5 would provide some restrictions on unauthorized vessel traffic. Therefore, due to the limited extent and temporary nature of potential disturbances to sediments located in NPS managed waters, water quality impacts related to activities within NPS managed waters would be minor.

4.2.9.3 Federally Regulated AC34 Activities Outside NPS Managed Areas

Refer to the above discussion of impacts common to all alternatives. The impact would be temporary and short-term and considered minor.

4.2.9.4 Cumulative

Cumulative effects of Alternative D would be similar to those of Alternative B and therefore short-term and minor.

4.2.9.5 Conclusion

Project activities under Alternative D would cause short-term and localized impacts associated with land-based and in-water activities within NPS jurisdiction. The activities would be farther from the NPS lands such as Crissy Field and Fort Baker, as compared to Alternative B. The impacts on hydrologic resources would be minor. The heavy use due to thousands of spectators on land and race-related vessels in water and water quality impacts from littering, boat discharges, or potential spills from race-related temporary facilities would be short-term and would occur during the AC34 event, and are considered minor. The impacts in areas outside the NPS jurisdiction would be minor.

4.2.10 Impacts of Alternative E—Preferred Alternative

Under Alternative E–Preferred Alternative, the first ACWS 2012 race area would be shifted east from its Alternative B counterpart by approximately one-half mile, while the location of the second would be limited to the Fleet Week safety zone (an additional one-half mile to the east). The AC72 exhibition races would occur within a larger area, similar to that of Alternative B for 2013. The 2013 race area would be the same as that of Alternative B. Spectator venues would be similar to those of Alternative C, with the potential for some limited activities, similar to those of Alternative D, at Aquatic Park and Alcatraz Island.

4.2.10.1 AC34 Activities on NPS Lands

Impacts from activities on NPS lands would be similar to those described for Alternative D, except that the impacts would be less intense due to the eastward shift of the race area and elimination of programming at Crissy Field, both of which would reduce spectator visitation. However, large numbers of spectators would still be expected to visit the waterfront parklands. For this reason, impacts to hydrologic resources would remain be short-term and minor.

4.2.10.2 AC34 Activities in NPS Managed Waters

Impacts associated with activities in the NPS managed waters under Alternative E would be as described for all action alternatives, above. In addition, anchoring in certain near shore areas (i.e., potential anchorage of display boats in Aquatic Cove) would result in short-term disturbance of localized Bay sediments. This could adversely affect water quality because the sediments may contain chemicals from historic activities, and disturbance of the sediments could temporarily increase turbidity and resuspend these sediments in Bay waters. While the anchoring activities would be increased over existing conditions, the proposed race activities would be relatively short and would not cause a substantial increase in sediment disturbances. In addition, Protection Measure NAV-5 would provide some restrictions on unauthorized vessel traffic. Therefore, due to the limited extent

and temporary nature of potential disturbances to sediments located in NPS managed waters, water quality impacts related to activities in NPS managed waters would be minor.

4.2.10.3 Federally Regulated Project Activities Outside NPS Managed Areas

Noted above, water-based work under Alternative E, namely that of dredging, pile driving, and installation of anchor blocks, would be reduced from that described for Alternative B. Due to the nature of this work, and the environmental controls placed on all such work within the Bay, the hydrologic impacts would be reduced, but remain similar to that described for all action alternatives, above. As such, the impact would be temporary and short-term and considered minor.

4.2.10.4 Cumulative

Cumulative effects of Alternative E with the addition of Fleet Week activities would be similar to that of peak conditions under Alternative B and thus would be short-term and minor.

4.2.10.5 Conclusion

Project activities under Alternative E – Preferred Alternative would cause short-term and localized impacts associated with land-based and in-water activities on NPS resource areas. The activities would be generally less intense as compared to Alternative B. The impacts to hydrologic resources would be minor. The heavy use due to thousands of spectators on land and race-related vessels in water and water quality impacts from littering, boat discharges, or potential spills from race-related temporary facilities would be short-term and would occur during the AC34 event, and are considered minor. The impacts in areas outside the NPS lands/resources would be minor.

4.2.11 Mitigation Measures

No hydrology or water quality mitigation would be warranted under any of the project alternatives. All potential effects on hydrology and water quality have been addressed through implementation of site-specific protection measures and management actions presented in Table ALT-2.

4.2.12 References

BoatEd

2011 Official California Boating Course, Chapter 4: The Legal Requirements of Boating Waste, Oil, and Trash Disposal in California and Federal Waters, Viewed on the Internet at <http://www.boat-ed.com/ca/course/p4-13_wastedischarge.htm>, March 31, 2011.

California Department of Boating and Waterways and California Coastal Commission

2010 "Environmental Boating Laws Every Recreational Boater Should Know." December 2010. Viewed on the Internet at <http://www.coastal.ca.gov/ccbn/Environmental LawsBrochure.pdf>, March 31, 2011.

Dredged Material Management Office (DMMO)

1999 *Sampling and Analysis Plan (Quality Assurance Project Plan) Guidance for Dredging Projects Within the San Francisco District*. July 1, 1999.

National Park Service (NPS)

2003 *Director's Order 77, Policies and Guidance*.

2006 *Management Policies*.

San Francisco Department of Public Health (SFDPH)

2011 *Pollution Prevention Toolkit for Maritime Industries*. Prepared by Virginia St. Dean. Prepared for the California Department of Toxic Substances Control under Contract #08-T3625-A2. January 2011.

United States Department of the Interior

2011 Guidance on Impairment Determination.

United States Environmental Protection Agency (U.S. EPA)

2008 *Cruise Ship Discharge Assessment Report*. U.S. EPA Oceans and Coastal Protection Division, Office of Wetlands, Oceans, and Watersheds. December 29, 2008.

4.3 AIR QUALITY

This section assesses the air quality impacts of the proposed project by evaluating air emissions from project-related construction, traffic, and other sources.

4.3.1 Study Area/Context

The project area is located within the San Francisco Bay Area Air Basin, which is designated as a nonattainment area for the federal 8-hour ozone standard and the federal fine particulate matter ($PM_{2.5}$) standard. The air basin includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo and Santa Clara counties and the southern portions of Solano and Sonoma counties. An area is designated nonattainment when the concentration of one or more criteria pollutants in the area is found to exceed the regulated or threshold level for one or more of the National Ambient Air Quality Standards (NAAQS). The air basin is designated as a maintenance area with respect to the federal carbon monoxide (CO) standards. The term "maintenance" refers to areas that were once designated nonattainment but are now achieving the National Ambient Air Quality Standards (NAAQS).

4.3.2 Issues

Alternative B,–Sponsor Proposed Project, and all of the other alternatives except for Alternative A–No Action, would generate ozone precursors, $PM_{2.5}$, and CO through a number of sources. A number of temporary and some permanent facilities would be constructed in preparation for the America's Cup events at various locations as described in Chapter 2 – Alternatives. Criteria and ozone precursor pollutant (NOx, ROG, CO, $PM_{2.5}$) emissions from construction equipment exhaust would incrementally add to the regional atmospheric loading of these pollutants and precursors during project construction activities. These construction-related emissions would be generated by many different construction sources, including off-road construction equipment such as loaders, backhoes, pile drivers, and cranes; in-water construction sources such as assist tugs, barges, and dredge equipment; and on-road trucks.

Operations of the America's Cup events during 2012 and 2013 would involve a wide variety of activities, both in water and on land, as well as helicopter activities. In-water activities would include boat and yacht trips (e.g., race-sponsored spectator vessels, race support vessels, small and large private spectator boats, and assist tugs). On-land activities would include generators and other equipment used at race-sponsored viewing sites and on-road vehicle trips. Helicopters would be used for broadcasting and media operations and would follow each race route. In addition, an increase in cruise ship emissions at Pier 27 during 2013 associated with the loss of the shore power hookup (which would be relocated and disconnected until completion of the AC34 events at Piers 27-29) during the America's Cup would occur.

4.3.3 Guiding Regulations and Policies

The predominant regulation that guides assessment of air quality impacts of federal actions is the General Conformity Rule, established under the Clean Air Act (Section 176(c)(4)). The General Conformity Rule ensures that the actions taken by federal agencies in nonattainment and maintenance areas do not interfere with a state's plans to meet national standards for air quality.

Under the General Conformity Rule federal agencies must work with state and local governments in a nonattainment or maintenance area to ensure that federal actions conform to the air quality plans established in the applicable state implementation plan (SIP). This process requires that federal agencies must first show that a proposed action will meet all SIP control requirements such as reasonably available control measures, and that the emissions from the proposed action will not cause a new violation of a standard or interfere with the timely attainment of the standard, the maintenance of the standard, or the area's ability to achieve an interim emission reduction milestone. Federal agencies then must demonstrate conformity by meeting one or more of the methods specified in the regulation for determining conformity:

1. Demonstrating that the total direct and indirect emissions are specifically identified and accounted for in the applicable SIP;
2. Obtaining a written statement from the state, tribe, or local agency responsible for the SIP documenting that the total direct and indirect emissions from the action along with all other emissions in the area will not exceed the SIP emission budget;
3. Obtaining a written commitment from the state or tribe to revise the SIP to include the emissions from the action;
4. Obtaining a statement from the metropolitan planning organization (MPO) for the area documenting that any on-road motor vehicle emissions are included in the current regional emissions analysis for the area's transportation plan or transportation improvement program;
5. Fully offsetting the total direct and indirect emissions by reducing emissions of the same pollutant or precursor in the same nonattainment or maintenance area; or
6. Conducting air quality modeling that demonstrates that the emissions will not cause or contribute to new violations of the standards, or increase the frequency or severity of any existing violations of the standards.

As public bodies, federal agencies must make their conformity determinations through a public process. The General Conformity Rule requires federal agencies to provide notice of the draft determination to the applicable U.S. EPA regional office, the state and local air quality agencies, the local MPO and, where applicable, the Federal Land Manager. In addition, the regulations require federal agencies to provide at least a 30-day comment period on the draft determination and make the final determination public.

The primary functions of the General Conformity Rule are to ensure that federal activities do not: (1) cause or contribute to a new violation of the National Ambient Air Quality Standards (NAAQS); (2) ensure that federal actions do not worsen existing violations of the NAAQS; and (3) to ensure that attainment of the NAAQS is not delayed. The NPS identifies the General Conformity Rule process in

its document entitled *Technical Guidance on Assessing Impacts to Air Quality in NEPA and Planning Documents*. This *Technical Guidance* is used for projects in parks located in designated nonattainment areas. The USCG also has guiding principles for air quality issues in urban areas that are nonattainment areas for ozone and PM2.5, as listed in the *Commandant Instruction M16475.1D*. This USCG guidance identifies air quality standards as "comments or determinations of the offices charged with administration of the State's implementation Plan for air quality as to the consistency of the project with State plans for implementation of ambient air quality standards."

In its guidance document, the NPS makes a distinction between assessment of impacts based on human health and assessment of impacts on air quality-related values. The NPS provides further detail on air quality-related values in its November 2010 Phase 1 Report from its Federal Land Managers' Air Quality Related Values Work Group. This document focuses on impacts from new or modified permitted stationary sources that would not be proposed under any of the project alternatives. Impacts on air quality-related values are also focused on what are termed Class I Park and wilderness areas; the nearest of these (Point Reyes National Seashore) is located more than 30 miles away from all project venues, is largely influenced by predominant coastal northwest winds that maintain good air quality, and is separated from the project area by Mount Tamalpais and other intervening topography. Therefore, because there would be no air pollutant sources (permitted or otherwise) within Point Reyes National Seashore and because of the intervening distance and topography as well as prevailing meteorological conditions, impact level assessment for the proposed alternatives was developed with respect to human health impacts only and not with regard to air quality-related values.

Health effect thresholds developed by the NPS in its guidance document are based on the assumption that the federal park land potentially affected by its action is currently in attainment of the NAAQS. However, park lands under NPS jurisdiction in the project area are located in an urban environment that is designated nonattainment for ozone and PM2.5 standards. Therefore, impact level assessment for the ozone precursors (VOC and NOx) and PM2.5 in this assessment was developed using USCG Commandant Instruction M16475.1D.

4.3.4 Assessment Methods/Thresholds

Air quality assessment methodologies in this section conform to those identified by the NPS in its 2011 *Technical Guidance on Assessing Impacts to Air Quality in NEPA and Planning Documents* and those identified by the USCG in Commandant Instruction M16475.1D.

Project-related air quality assessment is performed for two emission categories: emissions due to construction and emissions due to project operation. Construction-related emissions are analyzed relative to the increase in regional pollutants of reactive organic gases (ROG; also called volatile organic gases or VOC in the federal lexicon) and oxides of nitrogen (NOx) as well as local particulate concentrations due to fugitive dust and diesel construction equipment sources. Operational emissions are assessed with regard to the increase in pollutants primarily due to temporary increases in marine operations of race-sponsored passenger vessels, race-support vessels, and spectator vessels, including superyachts. Other operational emission sources assessed include increased motor vehicle trips, operation of diesel-powered generators, and an increase in cruise ship "hoteling" emissions as the result of the temporary decommissioning of shoreside power at Pier 27 so that the pier may be used

for the America's Cup Village in 2013. The project would not include any on-site permitted stationary sources or area sources.

Emissions were estimated based on activity data provided by the project sponsor. Emissions from spectator and other boats, boat lifts, generators, and other power equipment to be used at race venues were estimated from these activity levels and applicable emission factors were derived from the OFFROAD emissions inventory model developed by the California Air Resources Board (CARB). Emissions from trucks that would be used to deliver supplies and equipment for race events were estimated based on numbers of trips for each truck type at each race venue as supplied by the project sponsor combined with trip emissions generated by the CARB EMFAC 2007 BURDEN model. Emissions from increased traffic from spectators and the relocation of the Bauer Transportation warehouse from Pier 27 to Pier 50 were also estimated using EMFAC2007 BURDEN model. The analysis also accounted for incremental cruise ship hoteling[1] emissions at Pier 27 resulting from the removal of the shoreside power system at Pier 27 to accommodate construction activities currently underway for the Cruise Ship Terminal shell structure that will serve as the America's Cup Village in 2013. Emissions associated with helicopters frequenting the helipad on Treasure Island during AC34 races were estimated using data provided by the project sponsor and the Emissions and Dispersion Modeling System (EDMS) software, developed by the United States Federal Aviation Administration (FAA).

In keeping with the General Conformity Rule process, this assessment applies the appropriate *de minimis* thresholds of the Rule as they apply to the San Francisco Bay Area Air Basin for ozone precursors, PM2.5, and CO. The *de minimis* thresholds for these three pollutants in the San Francisco Bay Area Air Basin are 100 tons per year for each pollutant. Since the events are not permanent and are of a relatively short duration (15 days in 2012 and 45 days in 2012), dispersion modeling was used to determine maximum future concentrations of any of these pollutants if they exceeded this *de minimus* threshold.

Preliminary modeling showed that the amounts of CO could exceed this *de minimus* threshold. Therefore, the near-field air dispersion modeling of CO from AC34 construction and operational emission sources was conducted using the U.S. EPA's American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD), version 11059 (U.S. EPA 2004). Data was used from the Mission Bay meteorological site operated by the BAAQMD to provide the most representative data set for this analysis. The project incremental CO concentrations were summed with their respective background CO concentrations for San Francisco to determine the total maximum 1-hour and 8-hour CO concentrations.

The NPS' 2011 *Technical Guidance on Assessing Impacts to Air Quality in NEPA and Planning Documents* identifies an 8-hour CO concentration of 7.2 ppm or greater or a 1-hour CO concentration of 28.0 ppm or greater as resulting in a major adverse impact on air quality. A moderate adverse impact would result if 8-hour CO concentrations were between 4.5 and 7.1 parts per million (ppm) or 1-hour CO concentrations were between 17.6 and 27.9 ppm. A minor adverse impact would result if 8-hour

[1] "Hoteling" refers to the period of time a cruise ship is at dock and generating its own power for lighting, heating, and other necessary functions while at port in the absence of shoreside power.

CO concentrations were between 0.3 and 4.4 ppm or 1-hour CO concentrations were between 0.3 and 17.5 ppm. Concentrations below these are identified as negligible.

4.3.4.1 Construction-related Impacts

Construction phase-related emissions would occur during 2012 and 2013, the same years as the operation of AC34 events. Consequently, construction emissions are quantified and added to operational emissions for the same year for the purposes of assessing air quality impacts.

4.3.4.2 Operation-related Impacts

The project would result in an increase in emissions from vessels and motor vehicles and helicopters as well as an increase in cruise ship emissions resulting from the loss of the shoreside power facility at Pier 27. Other emissions would be generated by the temporary operation of generators for local power at the venue and support areas for AC34. This increase in emissions would occur within the San Francisco Bay Area Air Basin, which is designated as a nonattainment area with respect to the national ambient air quality standard (NAAQS) for ozone and $PM_{2.5}$ and as a maintenance area with respect to the NAAQS for CO.

Overall, the following thresholds were used to assess the severity of potential adverse air quality impacts based on guidance of NPS and USCG as well as the requirements of the General Conformity Rule:

Negligible impacts from an alternative would change emissions of nonattainment pollutants VOC, NOx, or $PM_{2.5}$ by less than 10 tons per year for each pollutant (10 % of *de minimis* levels). For impacts related to CO emissions, a negligible impact from the alternative would occur if maximum modeled 8-hour CO concentrations were between 0 and 0.2 parts per million (ppm) or modeled 1-hour concentrations were between 0 and 0.2 ppm.

Minor impacts from an alternative would change daily emissions of VOC, NOx, or $PM_{2.5}$ by between 11 and 50 tons per year for each pollutant (11% to 50% of *de minimis* levels). For impacts related to CO emissions, a minor impact from the alternative would occur if maximum modeled 8-hour CO concentrations were between 0.3 and 4.4 ppm or modeled 1-hour concentrations were between 0.3 and 17.5 ppm.

Moderate impacts from an alternative would change daily emissions of VOC, NOx, or $PM_{2.5}$ by between 51 and 99 tons per year for each pollutant (51% to 99% of *de minimis* levels). For impacts related to CO emissions, a moderate impact from the alternative would occur if maximum modeled 8-hour CO concentrations were between 4.5 and 7.1 ppm or modeled 1-hour concentrations were between 17.6 and 27.9 ppm.

Major impacts from an alternative would change daily emissions of VOC, NOx, or $PM_{2.5}$ by 100 tons per year or more for each pollutant (100% of *de minimis* levels). For impacts related to CO emissions, a major impact from the alternative would occur if maximum modeled 8-hour CO concentrations were between 7.2 and 9.0 ppm or modeled 1-hour concentrations were between 28.0 and 35.0 ppm

4.3.5 Impacts of Alternative A—No Action

Under Alternative A–No Action, no new AC34 related developments would occur that would increase the degradation of air quality within the San Francisco Bay Area Air Basin. Operations on NPS lands currently have a minimal effect on air quality, with visitor and employee vehicle emissions and park maintenance operations being primary contributors.

Existing sources of emissions within federal lands include motor vehicles traveling on roadways within federal lands, maritime emissions occurring in the jurisdiction of the USCG, and permitted stationary sources of the USCG and NPS at Fort Baker and Alcatraz Island, respectively. All of these sources contribute to the existing nonattainment status of the air basin.

There would also be no increase in maritime emissions under the jurisdiction of the USCG under Alternative A. Maritime emissions in San Francisco Bay and environs are the predominant source of existing emissions within the Bay. The emissions from commercial harbor craft operated in California Regulated Waters are regulated by the CARB, while emissions from ocean vessels and large ships are regulated by the U.S. EPA. Existing maritime emissions would continue to collectively contribute to regional emissions of ozone precursors and $PM_{2.5}$ but would not result in an increase in these emissions from current conditions and would therefore represent a negligible adverse air quality impact.

4.3.6 Impacts Common to All Action Alternatives

Emission sources resulting from the proposed project would be the same for all action alternatives, which would vary only in the location and number of emissions sources at certain venue locations. Emissions resulting from the action alternatives would include the following:

- *Emissions from Construction Sources*. These would include emissions from construction equipment and support vessels at piers used to support AC34 events as well as venue locations that would be applicable to each alternative. Emissions from on-road truck deliveries for construction materials are also assumed to occur.
- *Emissions from In-air Sources*. These would include emissions from helicopters used to film race activities.
- *Emissions from In-water Sources*. These would include emissions from vessels used for a variety of reasons. In this analysis, in-water sources are separated into five categories of vessels: race-sponsored spectator, race support, large private spectator (superyachts), small private, and support tugs.
- *Emissions from On-road Trucks*. These emissions would be generated by trucks performing equipment and supply delivery to AC34 support and venue locations.
- *Emissions from Off-road Sources*. These emissions would result from a variety of off-road equipment sources at AC34 support and venue locations. They would primarily be emitted by generators supplying electrical power to locations where utility power is not available, diesel-powered light standards, forklifts, and boat lifts.

- *Emissions from On-road Spectator Traffic*. Spectator vehicles traveling to and from AC34 events would generate emissions.
- *Emissions Related to Decommissioning of Shoreside Power at Pier 27*. These emissions would occur from operation of diesel-powered generators and an increase in cruise ship "hoteling" emissions as the result of the temporary decommissioning of shoreside power at Pier 27 so that the pier may be used for the America's Cup Village in 2013.

The project would not include any onsite permitted stationary sources or area sources. All action alternatives would also result in the following air quality benefit from the provision of shoreside power at Pier 70:

- *Installation of Shoreside Power at Pier 70*. This project element would develop shoreside power at an off-site location that would consist of constructing 12 megawatts of shoreside power at the Port's Drydock #2 at Pier 70 to serve large cruise, military, and other vessels while they are in drydock. Emission reduction from this project element would more than offset emissions generated by the loss of shoreside power at Pier 27.

4.3.7 Impacts of Alternative B—Sponsor Proposed Project

Alternative B - The Sponsor Proposed Project would generate air emissions from a variety of different sources. Project construction would generate emissions of NOx, VOC, $PM_{2.5}$, and CO from construction equipment and support vessels used in construction activities. Over the two-year intermittent operation period, the project would result in an increase in emissions primarily due to temporary increases in marine operations of race-sponsored passenger vessels, race-support vessels, and spectator vessels, including superyachts. Other emissions associated with Alternative B would include increased motor vehicle trips, operation of diesel-powered generators, and an increase in cruise ship "hoteling" emissions as the result of the temporary decommissioning of shoreside power at Pier 27 so that the pier may be used for the America's Cup Village in 2013. Emissions generated from the loss of shoreside power at Pier 27 would be more than offset by the proposed installation of shoreside power at Pier 70.

As stated in Section 4.3.4.2, all of the emissions sources associated with Alternative B would generate emissions of ozone precursors (VOC and NOx) and $PM_{2.5}$ in an air basin designated as a nonattainment area for these pollutants. Additionally, Alternative B would result in an increase in CO emissions in an air basin designated as a maintenance area for CO. Consequently, these emissions must be evaluated with respect to the General Conformity Rule process to determine the potential for adverse impacts related to air quality. Pursuant to this process, a separate General Conformity Rule determination has been prepared and submitted to the lead agencies for approval.

Table AIR-4 presents an estimate of the totality of maximum annual air emissions of VOC, NOx, $PM_{2.5}$, and CO and offsets of these pollutants that would occur as a result of Alternative B. The table lists construction emissions and operational emissions for 2012 and 2013. Emissions are listed in tons per year for comparison to *de minimis* thresholds established by the 1990 amendments to the Clean Air Act (CAA) for the purposes of general conformity assessment. Emissions estimates in Table AIR-4 include the incorporation of Protection Measures AIR-1 through AIR-5 that were identified in Table ALT-2. Appendix E contains the General Conformity analysis and supporting documentation including air quality modeling assumptions and activity data.

TABLE AIR-4: AC34 MAXIMUM ANNUAL OPERATIONAL EMISSIONS FOR THE SPONSOR PROPOSED PROJECT (ALTERNATIVE B)

	Maximum Annual Emissions (tons/year)			
	VOC	NOx	CO	PM2.5
2012				
AC34 Construction	0.31	2	1	0
Race-Sponsored Vessels	1	6	2	0
Race Support Vessels	11	5	122 [b]	0
Small Private Vessels	8	1	13	0
Large Private Vessels	0	0	0	0
Assist Tugs	0	0	0	0
Other Sources[a]	1	8	13	0
Spectator Traffic	2	4	42	0
Pier 70 Shoreside Power Installation	- 9	-176	-15	-5
Protection Measures	-2	-5	<1	<1
2012 Total	**12**	**-155**	**178**	**-5**
De minimis Threshold for San Francisco Bay Area	100	100	100	100
Above Threshold?	**No**	**No**	**Yes** [c]	**No**
2013				
AC34 Construction	2	16	6	1
Race-Sponsored Vessels	1	17	5	1
Race Support Vessels	53	22	590[b]	1
Small Private Vessels	28	3	45	1
Large Private Vessels	5	54	15	2
Assist Tugs	0	0	0	0
Other Sources[a]	4	31	37	1
Shoreside Power Temporary Decommissioning (2013) ("hoteling" of cruise ships)	2	49	4	1
Pier 70 Shoreside Power Installation	-11	-215	-18	-6
Spectator Traffic	5	10	97	1
Protection Measures	-7	-18	<1	<1
2013 Total	**82**	**-31**	**781**	**3**
De minimis Threshold for San Francisco Bay Area	100	100	100	100
Above Threshold?	**No**	**No**	**Yes**[c]	**No**

NOTES:

VOC = volatile organic compounds; NOx = nitrogen oxides; CO = carbon monoxide; PM2.5 = fine particulate matter

[a] Other sources include boat lifts, generators, helicopters, and truck trips.

[b] CO emissions are substantially greater for race support vessels as these vessels operate on gasoline powered 4-stroke engines while other vessels types operate on diesel engines. Gas-powered boats emit significantly more CO on a per horsepower-hour basis than diesel boats.

[c] While CO emissions exceed the *de minimis* threshold, modeling of CO concentrations is used to demonstrate that these emissions would not result in a violation of, or approach, the national ambient air quality standard (NAAQS) for CO and therefore do not represent a major impact.

SOURCE: ENVIRON, 2011

4.3.7.1 Ozone Precursors

As can be seen from the data in Table AIR-4, emissions of ozone precursors (NOx and VOC) from Alternative B would be below *de minimis* thresholds for the San Francisco Bay Area Air Basin (100 tons per year, respectively). More specifically, in 2012 emissions of VOC would be 12 tons per year, which would be 14 % of the *de minimis* threshold and would represent a minor adverse air quality impact. Emissions of VOC in 2013 would be 82 tons per year and would represent a moderate adverse impact on air quality. Emissions of NOx in 2012 and 2013 would be reduced in the region as the result of the proposed shoreside power installation at Pier 70, which would result in overall decreases of 155 tons per year and 31 tons per year, respectively; these decreases would represent a minor beneficial impact on air quality with respect to emissions of NOx in 2012 and a negligible beneficial impact on air quality with respect to emissions of NOx in 2013.

4.3.7.2 Particulate Matter

Table AIR-4 shows that emissions of $PM_{2.5}$ from Alternative B would be below *de minimis* thresholds for the San Francisco Bay Area Air Basin (100 tons per year). More specifically, in 2012 emissions of $PM_{2.5}$ would be reduced in the region due to the proposed shoreside power installation at Pier 70, which would result in an overall decrease of 5 tons per year; this decrease would represent a minor beneficial impact on air quality with respect to emissions of $PM_{2.5}$ in 2012. Emissions of $PM_{2.5}$ in 2013 would be 3 tons per year and would represent a negligible adverse impact on air quality.

The San Francisco Bay Area Air Basin is an attainment area for PM_{10} and there are no applicable *de minimis* thresholds for PM_{10} within the air basin. As a practical matter, similar to $PM_{2.5}$ emissions, emissions of PM_{10} would be reduced in the region due to the proposed shoreside power installation at Pier 70, which would result in an overall decrease of 5 tons per year; this decrease would represent a minor beneficial impact on air quality with respect to emissions of PM_{10} in 2012. Emissions of PM_{10} in 2013 would be slightly greater than 3 tons per year due to a contribution of fugitive dust from construction activities; this level of emissions would represent a negligible adverse impact on air quality.

4.3.7.3 Carbon Monoxide

Table AIR-4 shows that emissions of CO from Alternative B would exceed the stated *de minimis* thresholds for the San Francisco Bay Area Air Basin (100 tons per year) in both 2012 and 2013.The General Conformity Rule established the *de minimis* thresholds to provide a basis for deciding if a project emissions warrant further analysis to determine conformity with the requirements of the CAA. As discussed in Section 4.3.4.2, there are a number of avenues to demonstrate conformity with the SIP. Consequently, pursuant to Sections 39.158(b) and 39.159 of the 1990 CAA, dispersion modeling was conducted to assess whether localized concentrations of CO would approach the NAAQS. These sections allow federal agencies to demonstrate conformity by meeting one or more of the methods specified in the regulation for determining conformity, including conducting air quality modeling that demonstrates that the emissions would not cause or contribute to new violations of the standards, or increase the frequency or severity of any existing violations of the standards.

Dispersion modeling is used to determine maximum future concentrations of CO. Near-field air dispersion modeling of CO from AC34 construction and operational emission sources was conducted.

CO concentrations were calculated for both residential and non-residential (spectator) receptors. Non-residential receptors include areas the public may potentially have repeated access to during the AC34 events and include race-sponsored spectator locations. The general locations of primary viewing areas include Fort Baker Pier at Cavallo Point, Crissy Field, Marina Green, Fort Mason, Aquatic Park, Alcatraz Island, and Piers 27-29 (which would serve as the America's Cup Village in 2013).

Table AIR-5 presents the CO concentrations associated with AC34 construction and operations, an ambient background concentration, and the resultant CO concentrations occurring with Alternative B. The maximum 1-hour CO concentrations would occur from operations of Alternative B and would be 6.7 parts per million (ppm), which would be well below the NAAQS of 35 ppm. The maximum 8-hour CO concentrations would be 4.2 ppm, which would be well below the NAAQS of 9 ppm. These predicted CO concentrations would represent a minor adverse impact on air quality during AC34 operations based on criteria recently established by the NPS.

TABLE AIR-5: AC34 MAXIMUM LOCALIZED CARBON MONOXIDE CONCENTRATIONS FOR THE SPONSOR PROPOSED PROJECT (ALTERNATIVE B) IN 2013

Scenario	Maximum 1-hour Average Carbon Monoxide Concentration (ppm)			
	Project 1-hour Concentration	Ambient 1-hour Concentration	Total 1-hour Concentration	NAAQS
Construction	2.9	1.6	4.5	35
Operations	5.1	1.6	6.7	35
	Maximum 8-Hour Average Carbon Monoxide Concentration (ppm)			
	Project 8-hour Concentration	Ambient 8-hour Concentration	Total 8-hour Concentration	NAAQS
Construction	1.4	1.2	2.6	9
Operations	3.0	1.2	4.2	9

NOTES: ppm = ; NAAQS = national ambient air quality standard

SOURCE: ENVIRON/ESA, 2011

The maximum 1-hour CO concentrations from construction would be 4.5 ppm, while the maximum 8-hour CO concentration from construction would be 2.6 ppm. CO concentrations resulting from construction activities would be considered a minor adverse impact on air quality.

4.3.7.4 Cumulative Impacts

The air quality impacts assessed in the previous three subsections are cumulative in nature in that they compare the estimated emissions to the goals of the state implementation plan. Attainment of air quality standards (NAAQS) is based on the concept that the state implementation plan represents the framework under which air quality standards will be met in the future. The General Conformity Rule

process, which is the underlying basis for evaluating air quality impact herein, was developed to ensure that federal actions are consistent with the state implementation plan and do not result in a delay in timely attainment of the NAAQS. Therefore the previous analysis represents a cumulative impact analysis for the purposes of air quality in that it addresses conformity with the SIP, the federal document that addresses attainment of NAAQS from all sources within the San Francisco Bay Area Air Basin. Additionally, Alternative B would be a temporary event occurring intermittently over a two-year period, and emissions generated by Alternative B would not contribute to emissions generated by future development that may occur subsequent to the proposed events.

4.3.7.5 Conclusion

Alternative B would have air quality impacts ranging from minor beneficial to moderate adverse. **Table AIR-6** below provides a summary of the degree of impact by year and pollutant.

TABLE AIR-6: AC34 AIR QUALITY IMPACT SUMMARY FOR THE SPONSOR PROPOSED PROJECT (ALTERNATIVE B)

Year	Impact Severity			
	VOC	NOx	CO	PM2.5
2012	Minor Adverse	Minor Beneficial	Minor Adverse	Minor Beneficial
2013	Moderate Adverse	Negligible Beneficial	Minor Adverse	Negligible Adverse

NOTES: VOC = volatile organic compounds; NOx = nitrogen oxides; CO = carbon monoxide; PM2.5 = fine particulate matter

SOURCE: ESA, 2012

4.3.8 Impacts of Alternative C—No Organized Events on NPS Lands

Under Alternative C–No Organized Events on NPS Lands, no spectator venues would be constructed or formally occupied at the Crissy Field, Aquatic Park, or Fort Mason. Thus, compared to Alternative B, Alternative C would result in a marginal reduction in regional construction-related emissions associated with temporary construction of spectator seating and tents and other facilities Operational stationary source emissions from generators, forklifts, and light towers at these venue locations would also not occur under Alternative C.

The reduction in construction emissions under Alternative C would be marginal compared to Alternative B. The reduction in emissions of VOC, NOx, CO, and $PM_{2.5}$ from the absence of construction activities at all these venues under Alternative C would all be less than 1 ton per year in 2012 and would not affect the values presented in Table AIR-4. In 2013, NOx emissions would be reduced by 1 ton per year compared to Alternative B, while the reduction in all other pollutants would be less than 1 ton per year.

Operational emissions under Alternative C would be reduced more substantially than construction emissions. **Table AIR-7** presents the 2012 and 2013 operational emissions of Alternative C, with the reduction from Alternative B shown in parentheses.

TABLE AIR-7: AC34 MAXIMUM ANNUAL OPERATIONAL EMISSIONS FOR ALTERNATIVES C AND E

	Maximum Annual Emissions (short tons/year)			
	VOC	NOx	CO	PM2.5
2012				
AC34 Construction	0.31 (0)	2 (0)	1 (0)	0 (0)
All Vessels	18 (-2)	11(-1)	127 (-10)	0 (0)
Other Sources[a]	1 (0)	7 (-1)	13 (0)	0 (0)
Spectator Traffic	2 (0)	4 (0)	42 (0)	0 (0)
Pier 70 Shoreside Power Installation	- 9 (0)	-176 (0)	-15 (0)	-5 (0)
Protection Measures	-2	-5	<1	<1
2012 Total	**10 (-2)**	**-157 (-2)**	**168 (-10)**	**-5 (0)**
De minimis Threshold for SF Bay Area	100	100	100	100
Above Threshold?	**No**	**No**	**Yes**	**No**
2013				
AC34 Construction	2 (0)	15 (-1)	6 (0)	1 (0)
All Vessels	85 (-2)	93 (-3)	631 (-24)	4 (-1)
Other Sources[a]	3 (-1)	29 (-2)	36 (-1)	1 (0)
Shoreside Power Temporary Decommissioning (2013)	2 (0)	49 (0)	4 (0)	1 (0)
Pier 70 Shoreside Power Installation	-11 (0)	-215 (0)	-18 (0)	-6 (0)
Spectator Traffic	5 (0)	10 (0)	97 (0)	1 (0)
Protection Measures	-7	-18	<1	<1
2013 Total	**79(-3)**	**-37(-6)**	**756 (-25)**	**2(-1)**
De minimis Threshold for SF Bay Area	100	100	100	100
Above Threshold?	**No**	**No**	**Yes**	**No**

NOTES:

VOC = volatile organic compounds; NOx = nitrogen oxides; CO = carbon monoxide; PM2.5 = fine particulate matter

Values in parentheses are change in emissions compared to Sponsor Proposed Project.

[a] Other sources include boat lifts, generators, helicopters, and truck trips.

SOURCE: ENVIRON, 2011

4.3.8.1 Ozone Precursors

As can be seen from the data in Table AIR-7, emissions of ozone precursors (NOx and VOC) from Alternative C would be below *de minimis* thresholds for the San Francisco Bay Area Air Basin (100 tons per year, respectively). Emissions of VOC in 2012 would be 12 tons per year, which would be 12 % of the *de minimis* threshold and represent a minor adverse air quality impact, the same degree of impact as Alternative B. Emissions of VOC in 2013 would be 86 tons per year and would represent a moderate adverse impact on air quality, the same degree of impact as Alternative B. Emissions of NOx in 2012 and 2013 would be reduced in the region as the result of the proposed shoreside power installation at Pier 70, which would result in a minor beneficial impact on air quality with respect to emissions of NOx in 2012 and a negligible beneficial impact on air quality with respect to emissions of NOx in 2013, the same degree of impact as Alternative B.

4.3.8.2 Fine Particulate Matter

Table AIR-7 shows that emissions of $PM_{2.5}$ from Alternative C would be below *de minimis* thresholds for the San Francisco Bay Area Air Basin (100 tons per year). More specifically, in 2012 emissions of $PM_{2.5}$ would be reduced in the region as the result of the proposed shoreside power installation at Pier 70, which would result in an overall decrease of 5 tons per year, representing a minor beneficial impact on air quality with respect to emissions of $PM_{2.5}$ in 2012. Emissions of $PM_{2.5}$ in 2013 would be 3 tons per year and would represent a negligible adverse impact on air quality, the same degree of impact as Alternative B.

4.3.8.3 Carbon Monoxide

Table AIR-7 shows that, similar to Alternative B, emissions of CO from Alternative C would exceed *de minimis* thresholds in both 2012 and 2013, although emissions would be reduced by 10 tons per year in 2012 (a 5-% reduction) and 25 tons per year in 2013 (a 3-% reduction). The resultant ambient CO concentrations from Alternative C would be marginally less than the predicted ambient CO concentrations modeled for Alternative B, and the degree of impact (minor adverse) would be the same as Alternative B.

4.3.8.4 Cumulative Impacts

The air quality impacts assessed in the previous three subsections are cumulative in nature in that they compare the estimated air emissions to the goals of the state implementation plan. Attainment of regional air quality standards (NAAQS) is based on the concept that the state implementation plan represents the framework under which air quality standards will be met in the future. The General Conformity Rule process which is the underlying basis for evaluating air quality impact herein was developed to ensure that federal actions are consistent with the state implementation plan and do not result in a delay in timely attainment of the NAAQS. Therefore the previous analysis represents a cumulative impact analysis for the purposes of air quality in that it addresses conformity with the SIP, the federal document that addresses attainment of NAAQS from all sources within the San Francisco Bay Area Air Basin. Additionally, Alternative C would be a temporary event occurring intermittently over a two- year period after which emissions would cease, and emissions generated by Alternative C would not contribute to emissions generated by future development that may occur subsequent to the proposed events.

4.3.8.5 Conclusion

Alternative C would have air quality impacts ranging from minor beneficial to moderate adverse. The degree of the impacts under Alternative C is the same as identified for Alternative B, as summarized in Table AIR-6.

4.3.9 Impacts of Alternative D—Modified Program

Under Alternative D–Modified Program Alternative, minor modifications and restrictions would result in little, if any, reduction in operational emissions. Under Alternative D there would be a reduced extent of spectator events at Crissy Field. This would result in a marginal reduction in the regional construction-related emissions associated with temporary construction of spectator seating and tents and other facilities proposed under Alternative B. Operational stationary source emissions from generators, forklifts, and light towers at the Crissy Field venue location would still occur under Alternative D.

The reduction in construction emissions under Alternative D compared to Alternative B would be marginal. Construction of spectator seating that would not occur under Alternative D would involve forklifts, the absence of which would not represent a significant reduction in construction emissions. Emissions of VOC, NOx, CO, and $PM_{2.5}$ from construction activities at all these venues would all be less than 1 ton per year in 2012 and 2013 and this marginal reduction would not affect the values presented in Table AIR-4.

Operational emissions under Alternative D would not be expected to be reduced compared to Alternative B. Consequently, Alternative D operations would have the same degree of air quality impact as Alternative B.

4.3.9.1 Ozone Precursors

Emissions of VOC in 2012 would be 12 tons per year, which would be 14 % of the *de minimis* threshold and would represent a minor adverse air quality impact. Emissions of VOC in 2013 would be 82 tons per year and represent a moderate adverse impact on air quality. Emissions of NOx in 2012 and 2013 would be reduced in the region as the result of the proposed shoreside power installation at Pier 70, which would result in overall decreases of 155 tons per year and 31 tons per year, respectively; these decreases would represent a minor beneficial impact on air quality with respect to emissions of NOx in 2012 and a negligible beneficial impact on air quality with respect to emissions of NOx in 2013.

4.3.9.2 Fine Particulate Matter

Emissions of $PM_{2.5}$ in 2012 would be reduced in the region due to the proposed shoreside power installation at Pier 70, which would result in an overall decrease of 5 tons per year; this decrease would represent a minor beneficial impact on air quality with respect to emissions of $PM_{2.5}$ in 2012. Emissions of $PM_{2.5}$ in 2013 would be 3 tons per year and would represent a negligible adverse impact on air quality.

4.3.9.3 Carbon Monoxide

Emissions of CO from Alternative D would exceed *de minimis* thresholds in both 2012 and 2013 to the same degree as Alternative B. Predicted ambient CO concentrations modeled for Alternative B would apply to conditions envisioned under Alternative D and the degree of impact (minor adverse) would be the same as Alternative B.

4.3.9.4 Cumulative Impacts

The air quality impacts assessed in the previous three subsections are cumulative in nature in that they compare the estimated air emissions to the goals of the state implementation plan. Attainment of regional air quality standards (NAAQS) is based on the concept that the state implementation plan represents the framework under which air quality standards will be met in the future. The General Conformity Rule process which is the underlying basis for evaluating air quality impact herein was developed to ensure that federal actions are consistent with the state implementation plan and do not result in a delay in timely attainment of the NAAQS. Therefore the previous analysis represents a cumulative impact analysis for the purposes of air quality in that it addresses conformity with the SIP, the federal document that addresses attainment of NAAQS from all sources within the San Francisco Bay Area Air Basin. Additionally, Alternative D would be a temporary event occurring intermittently over a two-year period after which emissions would cease, and emissions generated by Alternative D would not contribute to emissions generated by future development that may occur subsequent to the proposed events.

4.3.9.5 Conclusion

Alternative D would have air quality impacts ranging from minor beneficial to moderate adverse. The degree of these impacts under Alternative D is the same as identified for Alternative B, as summarized in Table AIR-6.

4.3.10 Impacts of Alternative E—Preferred Alternative

Under Alternative E–Preferred Alternative, no spectator venues would be constructed or formally occupied at Crissy Field, on Presidio Trust lands, at Fort Mason, Fort Baker, or the Marin Headlands. Alternative E could involve some AC34 programmed activities at SAFR and limited private, after-hours activities on Alcatraz Island. Thus, compared to Alternative B, Alternative E would result in a marginal reduction in regional construction-related emissions associated with temporary construction of spectator seating and tents and other facilities. Additionally, there would be a marginal reduction in emissions from dredging equipment and support boats as the amount of dredging would be substantially reduced from that of Alternative B. Operational stationary source emissions from forklifts and light towers at these venue locations would also not occur under Alternative E.

The reduction in construction emissions under Alternative E would be marginal compared to Alternative B. The reduction in emissions of VOC, NOx, CO, and $PM_{2.5}$ from the absence of construction activities at all these venues under Alternative E would all be less than 1 ton per year in 2012 and would not affect the values presented in Table AIR-4. In 2013, NOx emissions would be reduced by 1 ton per year compared to Alternative B, while the reduction in all other pollutants would be less than 1 ton per year.

Operational emissions under Alternative E would be reduced similarly to what is presented for Alternative C in Table AIR-7.

4.3.10.1 Ozone Precursors

As can be seen from the data in Table AIR-7, emissions of ozone precursors (NOx and VOC) from Alternative E would be below *de minimis* thresholds for the San Francisco Bay Area Air Basin (100 tons per year, respectively). Emissions of VOC in 2012 would be 12 tons per year, which would be 12% of the *de minimis* threshold and represent a minor adverse air quality impact, the same degree of impact as Alternative B. Emissions of VOC in 2013 would be 86 tons per year and would represent a moderate adverse impact on air quality, the same degree of impact as Alternative B. Emissions of NOx in 2012 and 2013 would be reduced in the region as the result of the proposed shoreside power installation at Pier 70, which would result in a minor beneficial impact on air quality with respect to emissions of NOx in 2012 and a negligible beneficial impact on air quality with respect to emissions of NOx in 2013, the same degree of impact as Alternative B.

4.3.10.2 Fine Particulate Matter

Table AIR-7 shows that emissions of $PM_{2.5}$ from Alternative E would be below *de minimis* thresholds for the San Francisco Bay Area Air Basin (100 tons per year). More specifically, in 2012 emissions of $PM_{2.5}$ would be reduced in the region as the result of the proposed shoreside power installation at Pier 70, which would result in an overall decrease of 5 tons per year, representing a minor beneficial impact on air quality with respect to emissions of $PM_{2.5}$ in 2012. Emissions of $PM_{2.5}$ in 2013 would be 3 tons per year and would represent a negligible adverse impact on air quality, the same degree of impact as Alternative B.

4.3.10.3 Carbon Monoxide

Table AIR-7 shows that, similar to Alternative B, emissions of CO from Alternative E would exceed *de minimis* thresholds in both 2012 and 2013, although emissions would be reduced by 10 tons per year in 2012 (a 5-% reduction) and 25 tons per year in 2013 (a 3-% reduction). The resultant ambient CO concentrations from Alternative E would be marginally less than the predicted ambient CO concentrations modeled for Alternative B, and the degree of impact (minor adverse) would be the same as Alternative B.

4.3.10.4 Cumulative Impacts

The air quality impacts assessed in the previous three subsections are cumulative in nature in that they compare the estimated air emissions to the goals of the state implementation plan. Attainment of regional air quality standards (NAAQS) is based on the concept that the state implementation plan represents the framework under which air quality standards will be met in the future. The General Conformity Rule process which is the underlying basis for evaluating air quality impact herein was developed to ensure that federal actions are consistent with the state implementation plan and do not result in a delay in timely attainment of the NAAQS. Therefore the previous analysis represents a cumulative impact analysis for the purposes of air quality in that it addresses conformity with the SIP, the federal document that addresses attainment of NAAQS from all sources within the San Francisco Bay Area Air Basin. Additionally, Alternative E would be a temporary event occurring intermittently over a two- year period after which emissions would cease, and emissions generated by Alternative E

would no longer contribute to emissions generated by future development that may occur subsequent to the proposed events.

4.3.10.5 Conclusion

Alternative E would have air quality impacts ranging from minor beneficial to moderate adverse. The degree of the impacts under Alternative E is the same as identified for Alternative B, as summarized in Table AIR-6.

4.3.11 Mitigation Measures

No air quality mitigation would be warranted under any of the project alternatives. All potential effects on air quality have been addressed through site-specific protection measures and management actions associated with each of the project alternatives. Alternative B would have air quality impacts ranging from minor beneficial to moderate adverse. Alternatives C, D and E would have air quality impacts ranging from minor beneficial to moderate adverse. These impacts assume implementation of Management and Protection Measures AIR-1 through AIR-11 presented in **Table ALT-2** which would reduce construction and operational emissions generated by Alternative B and other project alternatives.

4.3.12 References

Federal Land Managers' Air Quality Related Values Work Group (FLAG)

2010 *Phase 1 Report*. Revised 2010.

National Park Service (NPS)

2011 *Technical Guidance on Assessing the Impacts to Air Quality in NEPA and Planning Documents*. January 2011.

United States Coast Guard (USCG)

2000 U.S. Coast Guard Guidance in Commandant Instruction M16475.1D.

United States Environmental Protection Agency (U.S. EPA)

2004 *User's Guide for the AMS/EPA Regulatory Model (AERMOD)*. Office of Air Quality Planning and Standards, Emissions Monitoring and Analysis Division, Research Triangle Park, North Carolina. EPA-454/B-03-001. September 2004.

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4.4 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

This section addresses the potential impacts related to emissions of greenhouse gases (GHGs) associated with implementation of the proposed 34th America's Cup (AC34) project and alternatives. Chapter 3 Affected Environment describes the existing setting with regard to climate change conditions and GHG emission sources on the San Francisco waterfront at each of the federally managed spectator venues and secondary viewing areas. In this section, the effects of the proposed actions on the GHG emission inventories under federal jurisdiction in the project area are evaluated.

4.4.1 Study Area/Context

The project area is located within the San Francisco Bay Area Air Basin in California. The proposed action would result in the emission of greenhouse gases (GHGs) in a global environment where the consequences of increasing ambient concentrations of GHGs have been implicated as a driving force for global climate change, as discussed in Section 3.4.2.

4.4.2 Issues

The proposed action and all of the alternatives, with the exception of the No Action Alternative, would generate GHGs through a number of sources. Some of these emissions would occur in the jurisdiction of federal agencies and potentially affect the GHG emission inventories of federal agencies required by Executive Order 13514. These emission sources would include transportation-related GHG emissions resulting from spectators travelling to federal lands and generators and other equipment used at race-sponsored viewing sites on federal lands.

Emissions of GHGs would also occur on non-federal lands. These emissions would occur as the result of construction activities, increased motor vehicle trips, marine vessel operations, cruise ship hotelling (due to decommissioning of shore-side power), helicopter operations and operation of off-road equipment. These non-federal emissions are part of the cumulative impact analysis and are not quantified to the same degree as emissions from sources on federal lands.

4.4.3 Guiding Regulations and Policies

While there are no federal regulations or policies regarding GHG emissions that directly apply to the proposed project, a number of federal laws, regulations, and actions have created a framework for regulating GHG emissions.

4.4.3.1 U.S. Supreme Court Ruling

The United States Environmental Protection Agency (U.S. EPA) is the federal agency responsible for implementing the Clean Air Act (CAA). On April 2, 2007, the U.S. Supreme Court ruled that CO_2 is an air pollutant as defined under the CAA, and that the U.S. EPA has the authority to regulate emissions of GHGs.

4.4.3.2 United States Environmental Protection Agency Actions

In response to the issue of climate change, the U.S. EPA has taken actions to regulate, monitor, and potentially reduce GHG emissions. These actions are detailed below.

Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act

On December 7, 2009, the U.S. EPA finalized its decision that GHG emissions from motor vehicles constitute an "endangerment" under the CAA. This U.S. EPA finding allows for the establishment of GHG emissions standards for new motor vehicles. In a related action, in June 2009, the U.S. EPA granted California a waiver under the federal Clean Air Act, allowing the state to impose its own, stricter GHG regulations for vehicles beginning in 2009.

Notice of Intent for Development of New GHG and Fuel Economy Standards

In September 2010, the National Highway Traffic Safety Administration with the U.S. EPA published a Notice of Intent for the development of new GHG and fuel economy standards for model year 2017–2025 vehicles. The agencies published a Supplemental Notice of Intent in December 2010, with a final rule due to be adopted in July 31, 2012 (NHTSA 2010).

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, the U.S. EPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the fiscal year (FY) 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161) that required the U.S. EPA to develop "… mandatory reporting of GHGs above appropriate thresholds in all sectors of the economy…." The Reporting Rule will apply to most entities that emit 25,000 metric tons of CO_2e or more per year. Starting in 2010, facility owners are required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The Reporting Rule also mandates recordkeeping and administrative requirements in order for the U.S. EPA to verify annual GHG emissions reports.

4.4.3.3 Executive Order 13514

In October 2009, the President signed Executive Order 13514, *Federal Leadership in Environmental, Energy and Economic Performance*. This policy-establishing order directed federal agencies, including the NPS, to measure, report, and reduce their GHG emissions from direct and indirect activities. In conformance with and prior to Executive Order 13514, the NPS has established its Climate Friendly Parks Program. To date many federal agencies, including the NPS, have developed GHG emission inventories and are in the process of developing emissions reduction plans.

4.4.3.4 Council on Environmental Quality Guidance

In February 2010, the Council on Environmental Quality (CEQ) provided a draft guidance memorandum on consideration the effects of climate change and greenhouse gas emissions in NEPA

documentation (CEQ 2010). This document identifies the Clean Air Act reporting requirement of 25,000 metric tons (MT) or more of carbon dioxide equivalents (CO2e) as an indication that greenhouse gas emissions could be considered as potential adverse impact of a federal action but specifies that the reporting requirement should not, necessarily, be used as a threshold.

4.4.4 State of California Regulations

In response to the issue of climate change, the State of California has taken several legislative and other actions to regulate, monitor, and potentially reduce GHG emissions. The most significant of these actions relate to the passage of Assembly Bill 32 and the subsequent adoption of the Climate Change Scoping Plan.

In 2006, the California legislature passed Assembly Bill 32 (California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires the CARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25-percent reduction in emissions).

Pursuant to AB 32, the CARB adopted a Climate Change Scoping Plan in December 2008 (CARB 2008). The Scoping Plan, which was re-approved by the CARB on August 24, 2011, outlines measures to meet the 2020 GHG reduction limits. In order to meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels, or about 15 percent from today's levels. The Scoping Plan estimates a reduction of 174 million metric tons of CO_2e (about 191 million U.S. tons) from transportation, energy, agriculture, forestry, and other sources.

4.4.5 Local Regulations

The City and County of San Francisco (City) has a history of environmental protection policies and programs aimed at improving the quality of life for residents and reducing impacts on the environment. A comprehensive assessment of these policies, programs, and ordinances has been compiled into the City's *Strategies to Address Greenhouse Gas Emissions in San Francisco* (San Francisco Planning Department 2010).

The following plans, policies, and legislation reflect San Francisco's continued commitment to environmental protection and are collectively referred to as San Francisco's GHG Reduction Strategy:

- Transit First Policy;
- San Francisco Sustainability Plan;
- Electricity Resource Plan (revised December 2002);
- Climate Action Plan for San Francisco;
- San Francisco Municipal Transportation Agency's Zero Emissions 2020 Plan;
- Zero Waste Program;

- GoSolarSF Program;
- San Francisco Planning Code;
- Greenhouse Gas Reduction Ordinance;
- City and County of San Francisco's Green Building Ordinance;
- Construction and Demolition Debris Recovery Ordinance;
- Waste Reduction Ordinances;
- City and County of San Francisco Commuter Benefits Ordinance; and
- City and County of San Francisco Mandatory Recycling and Composting Ordinance.

San Francisco's GHG Reduction Strategy includes measures applicable to the AC34 project that would decrease the amount of GHGs emitted into the atmosphere and thus decrease San Francisco's overall contribution to climate change.

4.4.6 Assessment Methods/Thresholds

GHG emissions were calculated herein using a variety of information including equipment and vessel fleet inventories provided by the Event Authority, surveyed data of local events, activity data provided by the Event Authority, and emission factors of the California Air Resources Board. Specific methodologies are discussed for each source type in the analytical discussion.

Climate change is a significant cumulative impact on a global scale. Consideration of a project's impact on climate change, therefore, is essentially an analysis of a project's contribution to a cumulatively substantial global impact through its emission of GHGs. Both the Bay Area Air Quality Management District (BAAQMD) and the California Air Pollution Control Officers Association (CAPCOA) consider GHG impacts to be exclusively cumulative impacts (CAPCOA 2008; BAAQMD 2011) and, as such, assessment of impact is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere. Consequently, the analysis in this section represents an assessment of potential cumulative adverse impacts on climate change resulting from GHG emissions, and no separate analysis of cumulative impact is provided relative to GHG emissions.

The approach and extent of analysis of GHG impacts differs from the air quality impact analysis in Section 4.3 for several reasons. Firstly, there are no ambient concentrations standards for GHGs and therefore no nonattainment status for the air basin with respect to GHG and associated General Conformity requirements and their associated de minimis thresholds under the Clean Air Act. Cumulative impact analysis for a globally emitted source is not a practical analysis tool. Consequently, CEQ and some federal agencies (and some air districts) have developed thresholds that are based on what might represent a considerable contribution to a cumulative impact and these are applied in the following impact analysis. To the extent that impact thresholds are different for GHG impact analysis the quantification of GHG impact sources will be different than those of the air quality analysis.

4.4.6.1 Thresholds for GHG Impacts from Emissions Generated on Federal Lands

Given that the President Obama issued an Executive Order requiring federal agencies to prepare GHG inventories and that the inventories for the NPS have established an existing GHG inventory baseline below 25,000 MT per year, the following thresholds were developed to reflect agency-specific impact levels corresponding to emission sources that warrant inclusion in such an inventory. The assessment method for greenhouse gases considers potential impacts from the perspective of how substantially they would increase the existing GHG inventory for the federal jurisdiction in which they would occur. The following thresholds were developed by the NPS and applied in other recent Environmental Assessments (NPS 2010):

Negligible impacts would be changes in GHG emissions at such low levels of detection that there would be no discernible effect on the federal emission inventory of the federal jurisdiction in which they would occur.

Minor impacts would occur if GHG emissions increases were quantifiable but the change in GHG emissions would be 10 percent or less of existing GGNRA emissions established in the most recent inventory for the federal jurisdiction in which emissions would occur.

Moderate impacts would be short term and result in a change in GHG emissions of between 10 and 20 percent of existing GGNRA emissions established in the most recent inventory for the federal agency in which emissions would occur.

Major impacts would be long term and result in a change in GHG emissions of 20 percent or greater of existing GGNRA emissions established in the most recent inventory for the federal jurisdiction in which emissions would occur.

The above impact intensity thresholds are applied to sources that would normally be inventoried by the federal agency in the jurisdiction which they occur (GGNRA) and would reasonably be assumed to be under the control of that federal agency. In this manner, the impact is assessed with regard to the inventoried carbon footprint of the federal agency and reflects how an action alternative may affect the agency's efforts to reduce GHG emissions as may be indicated in a future inventory, as required under Executive Order 13514.

Federal lands primarily affected by the proposed action alternatives would be those of the NPS, primarily the Golden Gate National Recreation Area, which has established a baseline carbon footprint of 10,319 metric tons CO_2e for 2006 in its 2008 Climate Change Action Plan. While not under GGNRA management, the San Francisco National Maritime Historical Park (SAFR) is also under NPS jurisdiction. SAFR, also referred to as Aquatic Park, lies immediately adjacent to GGNRA lands and management decisions regarding projects that affect both parks' lands, such as the one under review here, are often closely coordinated. SAFR is a small park relative to GGNRA and has not established a baseline carbon footprint. As a result, for purposes of analysis in this EA, the project-related GHG contributions for activities at SAFR and GGNRA are considered together and compared against the latter's baseline.

4.4.6.2 Thresholds for GHG Impacts from Emissions Generated on Non-federal Lands

A variety of activities associated with AC34 would generate GHG emissions but would not occur on federal lands and therefore would not result in impacts on federal emission inventories. Therefore, the potential adverse impacts of these emissions would need to be assessed using different criteria from the criteria used to assess impacts occurring on federal lands, which use the GGNRA inventory as a benchmark. Emissions on nonfederal lands would occur as the result of construction activities, increased motor vehicle trips, marine vessel operations, cruise ship hotelling (due to decommissioning of shore-side power), helicopter operations, and operation of off-road equipment. With the exception of marine vessel and hotelling emissions (which are addressed in the next subsection), these emissions would occur in the jurisdiction of the City and County of San Francisco.

San Francisco's *Strategies to Address Greenhouse Gas Emissions* identifies the City's actions to pursue cleaner energy, energy conservation, alternative transportation, and solid waste policies, and concludes that the City's policies have resulted in a reduction in greenhouse gas emissions below 1990 levels. The local air district (the BAAQMD) reviewed San Francisco's *Strategies to Address Greenhouse Gas Emissions* and concluded that the strategy meets the criteria for a Qualified GHG Reduction Strategy as outlined in the BAAQMD's *2010 CEQA Air Quality Guidelines*.

The Environmental Impact Report (EIR) prepared for AC34 in accordance with the California Environmental Quality Act determined that, because the AC34 construction and events would be conducted and subject to the various plan requirements of San Francisco's *Strategies to Address Greenhouse Gas Emissions* and because the Sponsor Proposed Project would include the requirement for the development and implementation of a Sustainability Plan (titled LEED Plan in the Host Agreement), a Waste Management Plan, and a People Plan, GHG emissions from these sources would represent a less-than-significant impact with respect to GHG emissions and climate change.

These plans, some elements of which are identified in Chapter 2 of this EA as Management Actions and Protection Measures, appear in the EIR as required mitigation and would support San Francisco General Plan policies for reducing greenhouse gases by implementing a People Plan that favors bicycling and transit over the private automobile, engaging in green construction and grounds keeping practices that comply with sustainability standards of Chapter 7 of the Environment Code and Chapter 13 of the Port Building Code, reducing energy and water use, and implementing a Waste Management Plan that emphasizes composting and recycling.

Given that GHG emissions from AC34 activities that would be generated on nonfederal lands have been assessed for their severity and determined by the local jurisdiction to result in less-than-significant impacts, GHG emissions from these sources would be at worst, moderate adverse impacts. They are assessed individually and qualitatively for each action alternative.

4.4.6.3 Thresholds for GHG Impacts from Emissions Generated by Marine Vessels

Marine vessels associated with AC34 would also emit GHGs, but marine vessel emissions within San Francisco Bay are not currently inventoried by any federal agency and are therefore assessed separately from emissions generated on federal lands for which there is an inventory. Consequently,

this analysis applies the CEQ-identified Clean Air Act reporting requirement of 25,000 metric tons or more of CO_2e as an indication that greenhouse gas emissions could be considered as a potential adverse impact of a federal action. The degree of impact would depend on the permanence of these emissions and quantity relative to the reporting threshold, as follows:

Negligible impacts would be increases in GHG emissions of 5 percent or less of the reporting threshold of 25,000 metric tons of CO_2e per year (i.e., emissions increases of 1,250 metric tons of CO_2e per year or less).

Minor impacts would be GHG emissions increases of greater than 5 percent of the reporting threshold of 25,000 metric tons of CO_2e per year, but less than this reporting threshold.

Moderate impacts would be short term (less than five years) and would result in an increase in GHG emissions in excess of 25,000 metric tons of CO_2e per year.

Major impacts would be long term and would result in an increase in GHG emissions in excess of 25,000 metric tons of CO_2e per year.

4.4.7 Impacts Common to All Action Alternatives

Emission sources resulting from the proposed project would be the same for all action alternatives, which would vary only in the location and number of emissions sources at certain venue locations. GHG impact thresholds were developed with respect to the potential impact on the existing GHG inventories for the NPS, which only quantify particular emission sources under NPS control. Because the magnitude of emissions and, consequently, the degree of impact varies between alternatives, GHG emission impacts are assessed for each alternative individually in the following sections. All such analyses assume implementation of the EIR mitigation measures identified previously.

These sources include transportation emissions from park visitors and employees, energy-related emissions (from stationary source combustion and electricity generated from non-renewable resource combustion), emissions from solid waste disposal from (non-visitor) park operations, and emissions from water/wastewater treatment processes for park operations. Consequently, for the purposes of this GHG impact analysis, only inventoried emission sources are assessed for comparison of their magnitude relative to the existing federal inventories. These GHG emissions would result from the following:

- *Off-road Sources*. These are emissions from a variety of off-road equipment sources at AC34 support and venue locations on federal lands. They would primarily be emitted by generators supplying electrical power to locations where utility power is not available, diesel-powered light standards, forklifts, and boomlifts.
- *On-road Vehicle Emissions*. These are vehicle emissions resulting from the expected increase in park visitors on federal lands including Fort Baker/ the Marin Headlands, Cavallo Point, Crissy Field, the Presidio, Fort Mason and Aquatic Park.
- *Indirect Sources*. These are GHG emissions that would be generated by the treatment and conveyance of increased water and wastewater demand and decomposition of wastes generated by spectators.

- *Marine Vessel Emissions*. These are emissions from race support boats, race-sponsored spectator vessels and private spectator vessels. Although some alternatives would result in after-hours visitation to Alcatraz Island, these would not represent an incremental increase in emissions as the island currently received after-hours visitation in summer months and no additional ferry trips to Alcatraz would occur as part of these alternatives.

4.4.8 Impacts of Alternative A—No Action

In Alternative A, no new AC34 related developments would occur that would incrementally add to the GHG burden of the San Francisco Bay Area Air Basin. Operation of NPS lands currently has a minimal contribution to the regional GHG inventory, with visitor and employee vehicle emissions and park maintenance operations being primary contributors. The GHG impact of the No Action Alternative would be negligible compared with current conditions.

4.4.9 Impacts of Alternative B—Sponsor Proposed Project

The following analysis discusses the sources of GHG emissions that would result from Alternative B and quantifies those emissions. After discussion and quantification of each source type, the total emissions are compared to the applicable federal inventory or threshold for assessment of impact severity.

4.4.9.1 Emissions on Park Lands

Off-road Sources

Alternative B would generate air emissions from a variety of different sources. Over the two year intermittent operation period, this Alternative would result in an increase in emissions primarily due to generators supplying electrical power to locations where utility power is not available and diesel-powered light standards. Additionally, forklifts and boomlifts which are considered off-road mobile sources would be used to transport materials. These emissions would occur from sources located at Alcatraz, Cavallo Point, Crissy Field and Fort Mason. The precise location of generators and light standards at these venues is not yet defined and boomlifts and forklifts are mobile and could operate at many locations. These sources are not identified in the existing NPS inventory and are considered new sources compared to the baseline.

Table GHG-1 presents an estimate of the GHG emissions from operation of off-road sources that would occur as a result of the proposed action for year 2012 and 2013. These emissions were calculated using equipment lists and operational activity assumptions provided by the project sponsors and emission factors from the OFFROAD emission model of the California Air Resources Board (CARB).

Vehicle Emissions

Alternative B would result in an increase in GHG emissions from spectators traveling to federal land to observe AC34 race events. Spectator estimates for each alternative were calculated by AECOM (2012). Using these estimates for Fort Baker/ Marin Headlands, Cavallo Point, Crissy Field, the Presidio, Fort

TABLE GHG-1: STATIONARY SOURCE EMISSIONS OF GHGS FROM THE PROPOSED ACTION

Emission Source Location	Metric Tons/Year CO_2e
2012	
Alcatraz	7.72
Cavallo Point	116.23
Crissy Field	69.62
Fort Mason	68.26
Total for 2012	***261.83***
2013	
Alcatraz	88.19
Cavallo Point	321.22
Crissy Field	74.36
Fort Mason	71.94
Total for 2013	***555.71***
SOURCE: ENVIRON/ESA, 2011	

Mason and Aquatic Park a total of 197,735 spectators would be expected to visit these lands in 2012 and 819,900 spectators would be expected in 2013. Applying visitor vehicle emission rates indicted in the GGNRA Climate Change Action Plan, these visitors would generate 138 metric tons of CO_2e in 2012 and 574 metric tons of CO_2e in 2013. These emissions compare to an existing vehicle source emission inventory of 9,298 metric tons of CO_2e.

Indirect Emissions

Calculations made for the City of San Francisco's Zero Waste Plan indicate that solid waste generation for Alcatraz, Crissy Field, Fort Mason, and Aquatic Park would total 289 cubic yards in 2013, with generation in 2012 about 46 percent of this total, or 132 cubic yards. Waste volumes were used to calculate GHG emissions using the Bay Area Greenhouse Gas Model of the BAAQMD. These waste generation rates translate to approximately 10.7 MT CO_2e for 2012 and 23.3 MT CO_2e for 2013. These emissions compare to an existing solid waste source emission inventory of 196 metric tons of CO_2e.

GHG emissions would also be indirectly generated by increased demand for water and wastewater at GGNRA spectator venues. Water and wastewater demand were estimated using spectator estimates and sewage generation rates for the proposed project. These demands were then multiplied by energy proxies contained in the Bay Area Greenhouse Gas Model to calculate the GHG emissions associated with energy required to transport and treat the additional water and wastewater. Water- and wastewater-related GHG energy emissions total 0.75 MTCO_2e in 2012 and 3.1 MT CO_2e in 2013. These emissions compare to an existing wastewater only source emission inventory of 145 MT of CO_2e.

GGNRA GHG Emission Impact Assessment for Alternative B

AC34 GHG emissions that could result in an increase inventoried emission sources and result in an impact with respect to GHG emissions would total 411 MT of CO_2e in 2012 and 1,156 MT in 2013. These would represent increases over the existing carbon footprint for GGNRA (10,319 metric tons of CO_2e per year) of 4 percent and 11 percent in 2012 and 2013, respectively. Consequently, Alternative B would have a minor adverse GHG impact in 2012 and a moderate adverse GHG impact in 2013.

4.4.9.2 GHG Emissions on Federally Regulated Waters

Operations of the America's Cup events during 2012 and 2013 would involve a wide variety of on-water activities. On-water activities would include boat and yacht trips (e.g., race-sponsored spectator vessels, race support vessels, small and large private spectator boats, and assist tugs). AC34 on-water emissions were estimated based on activity data provided by the project sponsor. Emissions from spectator and other boats were estimated from these activity levels and applicable emission factors derived from the OFFROAD model, San Francisco Bay Area Seaports Air Emission Inventory, and the 2007 Harbor Craft Rule of the CARB. The analysis also accounted for incremental cruise ship hotelling[1] emissions at Pier 35 resulting from the removal of the shore-side power system at Pier 27 that is attributed to the project in 2013. GHG emissions from marine vessels in 2012 are estimated to be 2,126 MT of CO_2e while in 2013 they are estimated to total 10,923 MT of CO_2e. An additional 2,192 MT of CO_2e per year would result in 2013 from cruise ship hotelling while Pier 27 shoreside power in unavailable, resulting in a total on-water GHG burden of 13,115 MT CO_2e for 2013. Consequently, on-water GHG emissions of the Sponsor Proposed Project would have a minor adverse GHG impact in 2012 and in 2013.

4.4.9.3 GHG Emissions on non-Federal Lands

Emissions occurring on non-federal lands would include emissions from vehicle trips not made by race spectators visiting parklands and construction emissions not on parklands. GHG emissions from AC34 activities that would be generated on non-federal lands have been assessed for their severity and determined by the local jurisdiction to result in less than significant impacts. These emissions would be temporary and would not represent an ongoing burden to the GHG inventory for the reporting region. Therefore their impact is conservatively considered to be a moderate adverse impact with respect to NEPA.

4.4.9.4 Conclusion

The Sponsor Proposed Project (Alternative B) would have a minor adverse GHG impact on federal GHG inventories in 2012 and a moderate adverse GHG impact on federal GHG inventories in 2013. The Sponsor Proposed Project would have a minor adverse GHG impact with regard to on-water emissions in 2012 and in 2013.

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[1] Hotelling refers to the period of time a cruise ship is at dock and generating its own power for lighting, heating and other necessary functions while at port in the absence of shoreside power.

4.4.10 Impacts of Alternative C—No Organized Events on NPS Lands

In this alternative, it is presumed that no spectator venues would be constructed or formally occupied at Crissy Field, Aquatic Park, or Fort Mason. Operational stationary source emissions from generators, forklifts and light towers at these venue locations would also not occur under this alternative. Park visitors would also be reduced under this alternative due to the lack of amenities.

4.4.10.1 Emissions on Parklands Lands

Off-road Sources

Alternative C would not generate GHG emissions from generators, forklifts, boomlifts or light towers at Crissy field, Aquatic Park, or Fort Mason. Therefore, this Alternative would have reduced emissions compared to the emissions (262 metric tons of CO_2e in 2012 and 556 metric tons of CO_2e in 2013) estimated for the Sponsor Proposed Project.

Vehicle Emissions

Compared to Alternative B, Alternative C would result in a lesser increase in GHG emissions from spectators traveling to federal land to observe AC34 race events. Spectator estimates were calculated by AECOM in their document *Analysis of Potential Visitation Patterns for Americas Cup 34*. Using these estimates for Fort Baker/ Marin headlands, Cavallo Point, Crissy Field, the Presidio, Fort Mason and Aquatic Park a total of 79,045 spectators would be expected to visit these lands in 2012 and 280,740 in 2013. Applying visitor vehicle emission rates indicated in the GGNRA Climate Change Action Plan, these visitors would generate 55 metric tons of CO_2e in 2012 and 196 metric tons of CO_2e in 2013. These emissions would be less than one-third of the 178 metric tons of CO_2e in 2012 and 998 metric tons of CO_2e in 2013 generated by the Sponsor Proposed Project.

Indirect Emissions

Solid waste generation for Crissy Field, Fort Mason, and Aquatic Park would increase but to a lesser degree than under Alternative B. Based on the percentage difference in spectator estimates between Alternative C and Alternative B (60 percent less in 2012 and 66 percent less in 2013), GHG emissions from increased waste generation under Alternative C would be approximately 4.3 MT CO_2e for 2012 and 7.9 MT CO_2e for 2013. These emissions compare to an existing solid waste source emission inventory of 196 metric tons of CO_2e.

GHG emissions from increased demand for water and wastewater at GGNRA spectator venues would also be reduced under this alternative, compared to Alternative B. Based on the percentage difference in spectator estimates between Alternative C and Alternative B, GHG emissions from increased water and wastewater demand under Alternative C would be approximately 0.5 MT CO_2e for 2012 and 1.8 MT CO_2e for 2013. These emissions compare to an existing wastewater only source emission inventory of 145 MT of CO_2e.

GGNRA GHG Emission Impact Assessment for Alternative C

AC34 GHG emissions that could result in an increase inventoried emission sources and result in an impact with respect to GHG emissions would total 61 MT of CO_2e in 2012 and 210 MT in 2013. These would represent increases over the existing carbon footprint for GGNRA (10,319 metric tons of CO_2e per year) of 0.6 percent and 2.0 percent in 2012 and 2013, respectively. Consequently, Alternative C would have a minor adverse GHG impact in 2012 and in 2013.

4.4.10.2 GHG Emissions on Federally Regulated Waters

GHG emissions from marine vessels under Alternative C would be the same as under Alternative B, resulting in GHG emissions that would have a minor adverse GHG impact in 2012 and in 2013.

4.4.10.3 GHG Emissions on Non-federal Lands

Under Alternative C, GHG emissions occurring on non-federal lands including emissions from vehicle trips not made by race spectators visiting parklands and construction emissions not on parklands would be the same as under Alternative B. GHG emissions from AC34 activities that would be generated on non-federal lands have been assessed for their severity and determined by the local jurisdiction to result in less than significant impacts. These emissions would be temporary and would not represent an ongoing burden to the GHG inventory for the reporting region. Therefore their impact is conservatively considered to be a moderate adverse impact with respect to NEPA.

4.4.10.4 Conclusion

Alternative C would have a minor adverse GHG impact on federal inventories in 2012 and in 2013 and would have a minor adverse GHG impact with regard to on-water emissions in 2012 and in 2013.

4.4.11 Impacts of Alternative D—Modified Program Alternative

In this alternative, minor modifications and restrictions would result in little, if any, reduction in operational emissions, compared to Alternative B. It is presumed that under Alternative D there would be a reduced extent of spectator events at Crissy Field. This would result in a marginal reduction in the regional construction related emissions associated with temporary construction of spectator seating and tents and other facilities proposed under Alternative B. Operational stationary source emissions from generators, forklifts, and light towers at the Crissy Field venue location would still occur under Alternative D.

4.4.11.1 Emissions on Parklands Lands

Off-Road

Alternative D would generate GHG emissions from generators, forklifts, boomlifts, and light towers at Crissy Field, similar to Alternative B. Therefore, Alternative D would have the same GHG emissions

from these sources as Alternative B (262 metric tons of CO_2e in 2012 and 556 metric tons of CO_2e in 2013).

Vehicle Emissions

Compared to Alternative B, Alternative D would result in a lesser increase in GHG emissions from spectators traveling to federal land to observe AC34 race events. Spectator estimates were calculated by AECOM (2012). Using these estimates for Fort Baker/ Marin Headlands, Cavallo Point, Crissy Field, the Presidio, Fort Mason and Aquatic Park a total of 69,655 spectators would be expected to visit these lands in 2012 and 425,460 in 2013. Applying visitor vehicle emission rates indicted in the GGNRA Climate Change Action Plan, these visitors would generate 49 metric tons of CO_2e in 2012 and 298 metric tons of CO_2e in 2013.

Indirect Emissions

Solid waste generation for Crissy Field, Fort Mason and Aquatic Park would increase but to a lesser degree as described for the Sponsor Proposed Project. Based on the percentage difference of spectator estimates between Alternative D and Alternative B (65 percent less in 2012 and 48 percent less in 2013), GHG emissions from increased waste generation under Alternative C would be approximately 3.8 MT CO_2e for 2012 and 12.1 MT CO_2e for 2013. These emissions compare to an existing solid waste source emission inventory of 196 metric tons of CO_2e.

GHG emissions from increased demand for water and wastewater at GGNRA spectator venues would also be reduced under this alternative, compared to Alternative B. Based on the percentage difference of spectator estimates between Alternative D and Alternative B, GHG emissions from increased water and wastewater demand under Alternative D would be approximately 0.4 MT CO_2e for 2012 and 2.7 MT CO_2e for 2013. These emissions compare to an existing wastewater only source emission inventory of 145 MT of CO_2e.

GGNRA GHG Emission Impact Assessment for Alternative D

Under Alternative D, GHG emissions that could result in an increase inventoried emission sources and result in an impact with respect to GHG emissions would total 316 MT of CO_2e in 2012 and 873 MT in 2013. These would represent increases over the existing carbon footprint for GGNRA (10,319 metric tons of CO_2e per year) of 3.0 percent and 8.5 percent in 2012 and 2013, respectively. Consequently, Alternative D would have a minor adverse GHG impact in 2012 and in 2013.

4.4.11.2 GHG Emissions on Federally Regulated Waters

GHG emissions from marine vessels under Alternative D would be the same as under Alternative B, resulting in GHG emissions that would have a minor adverse GHG impact in 2012 and in 2013.

4.4.11.3 GHG Emissions on Non-federal Lands

Under Alternative D, GHG emissions occurring on non-federal lands including emissions from vehicle trips not made be spectators visiting parklands and construction emissions not on parklands would be the same as under Alternative B. GHG emissions from AC34 activities that would be generated on non-federal lands have been assessed for their severity and determined by the local jurisdiction to result in less than significant impacts. These emissions would be temporary and would not represent an ongoing burden to the GHG inventory for the reporting region. Therefore their impact is conservatively considered to be moderate adverse impact with respect to NEPA.

4.4.11.4 Conclusion

Alternative D would have a minor adverse GHG impact on federal GHG inventories in 2012 and in 2013. Alternative D would have a minor adverse GHG impact with regard to on-water emissions in 2012 and in 2013.

4.4.12 Impacts of Alternative E—Preferred Alternative

Under Alternative E, no spectator venues would be constructed or formally occupied at the Crissy Field, Presidio Trust Lands, Fort Mason, Fort Baker, or the Marin Headlands. This alternative could involve some AC34 programmed activities at SAFR and limited private, after-hours activities on Alcatraz Island. Operational stationary source emissions from forklifts and light towers at these venue locations would also not occur under this alternative. Park visitors would also be reduced under this alternative due to the lack of amenities.

4.4.12.1 Emissions on Park Lands

Off-road Sources

Alternative E would not generate GHG emissions from generators, forklifts, boomlifts or light towers at Crissy Field, Fort Baker, or Fort Mason. Therefore, this Alternative would have reduced emissions compared to the emissions (262 metric tons of CO_2e in 2012 and 556 metric tons of CO_2e in 2013) estimated for the Sponsor Proposed Project.

Vehicle Emissions

Compared to Alternative B, Alternative E would result in a lesser increase in GHG emissions from spectators traveling to federal land to observe AC34 race events. Spectator estimates were calculated by AECOM for each project alternative. Using these estimates for Fort Baker/ Marin headlands, Cavallo Point, Crissy Field, the Presidio, Fort Mason and Aquatic Park a total of 82,640 spectators would be expected to visit these lands in 2012 and 296,340 in 2013. Applying visitor vehicle emission rates indicated in the GGNRA Climate Change Action Plan, these visitors would generate 58 metric tons of CO_2e in 2012 and 207 metric tons of CO_2e in 2013. These emissions would be less than one-half

of the 178 metric tons of CO_2e in 2012 and 998 metric tons of CO_2e in 2013 generated by the Sponsor Proposed Project (Alternative B).

Indirect Emissions

Solid waste generation for Alcatraz, Crissy Field, Fort Mason and Aquatic Park would increase but to a lesser degree than under Alternative B. Based on the percentage difference in spectator estimates between Alternative E and Alternative B (58 percent less in 2012 and 64 percent less in 2013), GHG emissions from increased waste generation under Alternative E would be approximately 4.5 MT CO_2e for 2012 and 8.4 MT CO_2e for 2013. These emissions compare to an existing solid waste source emission inventory of 196 metric tons of CO_2e.

GHG emissions from increased demand for water and wastewater at GGNRA spectator venues would also be reduced under this alternative, compared to Alternative B. Based on the percentage difference in spectator estimates between Alternative E and Alternative B, GHG emissions from increased water and wastewater demand under Alternative E would be approximately 0.5 MT CO_2e for 2012 and 1.9 MT CO_2e for 2013. These emissions compare to an existing wastewater only source emission inventory of 145 MT of CO_2e.

GGNRA GHG Emission Impact Assessment for Alternative E

AC34 GHG emissions that could result in an increase inventoried emission sources and result in an impact with respect to GHG emissions would total 64 MT of CO_2e in 2012 and 222 MT in 2013. These would represent increases over the existing carbon footprint for GGNRA (10,319 metric tons of CO_2e per year) of 0.6 percent and 2.2 percent in 2012 and 2013, respectively. Consequently, Alternative E would have a minor adverse GHG impact in 2012 and in 2013.

4.4.12.2 GHG Emissions on Federally Regulated Waters

GHG emissions from marine vessels under Alternative E would be the same as under Alternative B, resulting in GHG emissions that would have a minor adverse GHG impact in 2012 and in 2013.

4.4.12.3 GHG Emissions on Non-federal Lands

Under Alternative E, GHG emissions occurring on non-federal lands including emissions from vehicle trips not made by race spectators visiting parklands and construction emissions not on parklands would be the same as under Alternative B. GHG emissions from AC34 activities that would be generated on non-federal lands have been assessed for their severity and determined by the local jurisdiction to result in less than significant impacts. These emissions would be temporary and would not represent an ongoing burden to the GHG inventory for the reporting region. Therefore their impact is conservatively considered to be a moderate adverse impact with respect to NEPA.

4.4.12.4 Conclusion

Alternative E would have a minor adverse GHG impact on federal inventories in 2012 and in 2013 and would have a minor adverse GHG impact with regard to on-water emissions in 2012 and in 2013.

4.4.13 References

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4.5 BIOLOGICAL RESOURCES

This section assesses the potential impacts on upland and marine biological resources that could result from the AC34 project and alternatives.

4.5.1 Upland Biological Resources

This section describes the environmental consequences associated with each alternative, including direct, indirect, and cumulative impacts on upland biological resources. Potential impacts are described in terms of:

- Type (beneficial or adverse);
- Context (site-specific, local, or regional);
- Intensity (negligible, minor, moderate, or major);
- Duration (short or long term); and
- Cumulative potential (would or would not affect park resources and values).

The context, duration, and intensity of impacts are analyzed, defined, and quantified as much as possible.

4.5.1.1 Study Area/Context

The "study area" includes all areas that may be affected, directly or indirectly, by the federal action. The effects that define the outer boundary of the project area include the spectators on land or water who may find venues other than those formally designated to observe the race, or regular visitors who, because of crowds in the designated venues, are simply displaced. Accordingly, the study area includes the northern portion of the San Francisco peninsula, including Presidio lands between Crissy Field and Baker Beach, north of Mason Street and west of Lincoln Boulevard. In the Central Bay, the study area includes Alcatraz and the Marin Headlands from Fort Baker to Point Bonita and Bird Island.

4.5.1.2 Issues

Direct impacts of the AC34 events could include crushing or removal of sensitive vegetation, some of which are rare or endangered, some the host plants of a listed species of butterfly. Indirect impacts on upland wildlife and waterbirds could include effects of noise generated by spectators (on land or by boat), and special event activities. While the influx of thousands of visitors to spectator sites and on-water traffic would have similar types of impacts *as* compared with other large special events, AC34 would be on a larger scale due to the prolonged schedule.

4.5.1.3 Guiding Policies and Regulations - Vegetation

The NPS has developed specific guidelines for the management of natural resources. The guidelines provide for the management of native and nonnative plant and animal species. They are designed to

assist parks in developing resource management plans and action plans for specific park programs in all park management zones: natural, cultural, park development and special use zones as described in the NPS *Management Policies 2006* (NPS 2006) and articulated in each park's general management plan (GMP).

The NPS *Management Policies 2006* state that the NPS "will maintain as parts of the natural ecosystems of parks all plants and animals native to park ecosystems. The term "plants and animals" refers to all five of the commonly recognized kingdoms of living things and includes such groups as flowering plants, ferns, mosses, lichens, algae, fungi, bacteria, mammals, birds, reptiles, amphibians, fishes, insects, worms, crustaceans, and microscopic plants or animals." The NPS will achieve this by:

- Preserving and restoring the natural abundances, diversities, dynamics, distributions, habitats, and behaviors of native plant and animal populations and the communities and ecosystems in which they occur;
- Restoring native plant and animal populations in parks when they have been extirpated by past human caused actions; and
- Minimizing human impacts on native plants, animals, populations, communities, and ecosystems, and the processes that sustain them.

Management Policies 2006 also states that the NPS "will inventory, monitor, and manage state and locally listed species in a manner similar to its treatment of federally listed species to the greatest extent possible. In addition, the "Service will inventory other native species that are of special management concern to parks (such as rare, declining, sensitive, or unique species and their habitats) and will manage them to maintain their natural distribution and abundance".

Additionally, the *Organic Act* of 1916 (16 USC 1) directs national parks to conserve wildlife unimpaired for future generations and is interpreted to mean that native animal life is to be protected and perpetuated as part of a park unit's natural ecosystem. Parks rely on natural processes to control populations of native species to the greatest extent possible; otherwise, they are protected from harvest, harassment, or harm by human activities.

Species Designations

Other species of interest in the study area include plants that are not federally or state listed but have status or ranking through either the Department of Fish and Game (CDFG) or the California Native Plant Society (CNPS). The impact analysis for these plant species considered as other species of interest is included in this "Vegetation" section. Federally and state-listed plant species are discussed in detail in the "Special-Status Species" section. These species all require consideration by the NPS when management actions are taken to ensure that actions do not harm the species or their habitats.

California Native Plant Society

The CNPS maintains a list of species in California that are considered rare or endangered according to CNPS criteria. The list contains plants of special concern in California, including species, subspecies, or varieties that are considered to be extinct (list 1A); species that are rare, threatened, or endangered

in California and elsewhere (list 1B); species that are rare, threatened, or endangered in California but are more common elsewhere (list 2); species that are potentially endangered but additional information on rarity and endangerment is needed (list 3); and species that have a limited distribution, but are not currently endangered (list 4).

California Department of Fish and Game

The CDFG maintains an informal list of native plant and wildlife species of special concern because of population declines and restricted distributions, and/or because they are associated with habitats that are declining in California. The CDFG considers all plants listed by the CNPS as "special plants" and recommends that impacts on plants on lists 1 and 2 be considered during project analysis. Legal protection is afforded to plant species listed under the California *Endangered Species Act* (ESA) by the California Fish and Game Commission.

4.5.1.4 Guiding Policies and Regulations – Upland Wildlife

Code of Federal Regulations

Disturbances to wildlife are addressed under 36 CFR 2.2(a) and 2.15(a)(4). Under 2.2(a), the following are prohibited:

- The taking of wildlife, except by authorized hunting and trapping activities conducted in accordance with paragraph (b) of this section.
- The feeding, touching, teasing, frightening or intentional disturbing of wildlife nesting, breeding or other activities.

Migratory Bird Treaty Act of 1918

The *Migratory Bird Treaty Act* (16 USC 703–712), which was first enacted in 1918, implements domestically a series of treaties between the United States and Great Britain (on behalf of Canada), Mexico, Japan, and the former Union of Soviet Socialist Republics (USSR), which provide for international migratory bird protection and authorize the Secretary of the Interior to regulate the taking of migratory birds. The act makes it unlawful, except as allowed by regulations, "at any time, by any means, or in any manner, to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird, included in the terms of conventions" with certain other countries (16 USC 703). This includes direct and indirect acts, although harassment and habitat modification are not included unless they result in the direct loss of birds, nests, or eggs. All the bird species discussed in the "Affected Environment" chapter are protected under the *Migratory Bird Treaty Act*, with the exception of starlings, pigeons, crows, and game birds.

Executive Order 13186—Responsibilities of Federal Agencies to Protect Migratory Birds

This executive order from January 2001 provides a comprehensive strategy for the conservation of migratory birds by the federal government, thereby fulfilling the government's duty to lead in the

protection of migratory birds. The executive order provides a specific framework for the federal government's compliance with its treaty obligations to Canada, Mexico, Russia, and Japan and serves to enhance coordination and communication among federal agencies regarding their responsibilities under the four bilateral treaties on the conservation of migratory birds (Canada—1916, Mexico—1936, Japan—1972, Russia—1978). The executive order provides broad guidelines on conservation responsibilities and requires the development of more detailed guidance, which is still in draft format. This executive order aids in incorporating planning for bird conservation into agency programs and provides the formal presidential guidance necessary for agencies to incorporate migratory bird conservation more fully into their programs.

NPS Natural Resource Policies and Guidelines

As stated previously in the "Vegetation" section, the NPS has developed specific guidelines for the management of natural resources as described in NPS DO-77, *Natural Resource Management Guidelines* (NPS 1991). The guidelines provide for the management of native and nonnative plant and animal species. The NPS *Management Policies 2006* state that the NPS "will maintain as part of the natural ecosystems of parks all plants and animals native to park ecosystems. The term "plants and animals" refers to all five of the commonly recognized kingdoms of living things and includes such groups as flowering plants, ferns, mosses, lichens, algae, fungi, bacteria, mammals, birds, reptiles, amphibians, fishes, insects, worms, crustaceans, and microscopic plants or animals." The NPS will achieve this by:

- Preserving and restoring the natural abundances, diversities, dynamics, distributions, habitats, and behaviors of native plant and animal populations and the communities and ecosystems in which they occur;
- Restoring native plant and animal populations in parks when they have been extirpated by past human caused actions; and
- Minimizing human impacts on native plants, animals, populations, communities, and ecosystems, and the processes that sustain them (NPS 2006, section 4.1).

Additionally, the *Organic Act of 1916* (16 USC 1) directs national parks to conserve wildlife unimpaired for future generations and is interpreted to mean that native animal life is to be protected and perpetuated as part of a park unit's natural ecosystem. Parks rely on natural processes to control populations of native species to the greatest extent possible; otherwise, they are protected from harvest, harassment, or harm by human activities.

California Fish and Game Code

Regarding the protection of birds, the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird (section 3503). Specifically, it is unlawful to take, possess, or destroy any raptors (i.e., eagles, hawks, owls, and falcons), including their nests or eggs (section 3503.5). The code adopts the provisions of the *Migratory Bird Treaty Act* and states that it is unlawful to take or possess any designated migratory nongame bird or any part of such migratory nongame bird (section 3513). The state code offers no statutory or regulatory mechanism for obtaining

an incidental take permit for the loss of nongame migratory birds. Typical violations include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of the code could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby project construction.

4.5.1.5 Guiding Policies and Regulations – Special-status Species

Endangered Species Act (ESA)

The USFWS and National Oceanic and Atmospheric Association (NOAA) Fisheries have jurisdiction over species formally listed as threatened or endangered under the ESA (16 USC 1531–1544). The USFWS has interpreted the definition of "harm" to include significant habitat modification. An activity may be defined as a take even if it is unintentional or accidental. An endangered species is one that is considered in danger of becoming extinct throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future. In addition to endangered and threatened species, which are legally protected under the ESA, there are lists of candidate species for which the USFWS currently has enough information to support a proposal for listing as threatened or endangered species. Section 7 of the ESA outlines procedures for federal interagency cooperation to conserve federally listed species and designated critical habitat. The NPS is required to consult with USFWS or NOAA Fisheries to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species. This consultation may be either informal or formal consultation. Under a formal consultation, either USFWS or NOAA Fisheries issues a biological opinion. The biological opinion generally authorizes some level of incidental take and details the reasonable and prudent measures that the action agency needs to implement to ensure that critical habitat is not destroyed or degraded and that a listed species is not jeopardized by the federal action. Section 9 of the ESA prohibits the "take" of federally listed species, which is broadly defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct."

Migratory Bird Treaty Act

See Section 4.5.1.4, Guiding Policies and Regulations – Upland Wildlife, above.

Executive Order 13186—Responsibilities of Federal Agencies to Protect Migratory Birds

See Section 4.5.1.4, Guiding Policies and Regulations – Upland Wildlife, above.

NPS Natural Resource Policies and Guidelines

As stated previously in Section 4.5.1.3, Guiding Policies and Regulations – Vegetation, above, the NPS has developed specific guidelines for the management of natural resources (NPS 1991). The guidelines provide for the management of native and nonnative plant and animal species. The NPS *Management Policies 2006* direct park managers to preserve natural resources, processes, systems, and values of park units in an unimpaired condition to perpetuate their inherent integrity and to provide present and future generations with the opportunity to enjoy them. Additionally, the *Organic Act* of 1916 (16 USC 1)

commits the NPS to making informed decisions that perpetuate the conservation and protection of park resources unimpaired for the benefit and enjoyment of future generations, as described in detail in Chapter 1.

California Endangered Species Act

Pursuant to the California ESA, which is administered by the CDFG, state-listed threatened or endangered species are protected from any take (California Code of Regulations, title 14, sections 670.2 and 670.5; California ESA, section 2080). The state ESA is similar to the federal ESA both in process and substance; it is intended to provide additional protection to threatened and endangered species in California. The California ESA does not supersede the federal ESA, but operates in conjunction with it. Species may be listed as threatened or endangered under both acts (in which case the provisions of both state and federal laws apply) or under only one act. The take of state-listed species incidental to otherwise lawful activities requires an incidental take permit.

California Native Plant Protection Act

In addition to the California ESA, the *California Native Plant Protection Act* provides protection to endangered and rare plant species, subspecies, and varieties of wild native plants in California. The definitions of "endangered" and "rare" closely parallel the definitions of "endangered" and "threatened" plant species in the California ESA. The *California Native Plant Protection Act* lists are used by both the CDFG and the USFWS when considering formal species protection under the ESA and the California ESA. The CNPS has created five lists in an effort to categorize degrees of concern: List 1A (Plants Presumed Extinct in California), List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere), List 2 (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere), List 3 (Plants about Which We Need More Information: A Review List), and List 4 (Plants of Limited Distribution: A Watch List). The CDFG considers all plants listed by the CNPS as "special plants" and recommends that impacts on plants on lists 1 and 2 be considered during project analysis.

California Fish and Game Code, Protection of Birds

See Section 4.5.1.4, Guiding Policies and Regulations – Upland Wildlife, above.

Informal Species Designations

Both the federal and state governments maintain lists of species that are not legally protected but are species that may be rare enough to qualify for listing under the respective endangered species acts. In addition, the CNPS maintains a list of species in California that are considered rare or endangered according to their criteria and the CDFG maintains an informal list of plant and wildlife species of special concern because of population declines and restricted distributions, and/or because they are associated with habitats that are declining in California. The species listed by these agencies are defined as other species of interest and require consideration by the NPS when management actions are taken to ensure that actions do not harm the species or their habitats.

4.5.1.6 Assessment Methods/Thresholds

Biological analysis is based on a qualitative assessment of vegetation, wildlife and special-status species that could occur in the project area and the effects anticipated as a result of the event itself (the races) and associated impact from the presence of spectators and other visitors on or off-shore. This analysis evaluates effects of the different race scenarios described in the alternatives, according to the categories below. The sources for the assessment included peer-reviewed scientific literature, experts from other agencies, and other agency reports or data. When these were limited in scope or applicability, reasonable inferences were made, based on ESA's best professional judgment.

Detailed impact thresholds have been developed for four resource types: vegetation, wildlife other than Alcatraz waterbirds, Alcatraz waterbirds, and special-status species.

Impact Thresholds – Vegetation Including Sensitive Natural Communities

The following definitions apply to the impact analysis regarding vegetation:

- Local: In the immediate vicinity of the event location(s) including viewing areas.
- Regional: NPS land and waters outside the immediate event location(s) and viewing areas.
- Short-term: Short-term impacts are those that last one growing season or less.
- Long-term: Impacts would extend beyond a single growing season.

Type of Impact – The following describes impact intensity thresholds for vegetation:

Beneficial impacts would improve the viability of native plant populations or communities. Adverse impacts eliminate or reduce native vegetation, including rare plants.

Negligible impacts would bring about no observable or measurable impacts to the spatial extent, integrity or population size of native plant species or communities, or the natural processes sustaining them. Native species richness and abundance would remain the same. No detectable changes to sensitive plant communities (including wetlands) would occur and no individuals of any rare or unique plant species would be disturbed. Impacts would be of short duration and well within natural fluctuations.

Minor impacts would be detectable, but would not be expected to fall outside the natural range of variability and would not be expected to have any long-term effects on the spatial extent, integrity or population size of native plant species or communities or the natural processes sustaining them. Any changes in native species richness (total number of species) and abundance (number of individuals) would be minimal. Population numbers, population structure, genetic variability, and other demographic factors for species might have small, short-term changes, but long-term characteristics would remain stable and viable. Disturbance of some individuals could be expected, but without interference to reproduction or other factors affecting population levels. Impacts would be localized over a small area. Key ecosystem processes might have short-term disruptions that would be within natural variation.

Moderate impacts on the spatial extent, integrity or population size of native plant species or communities or the natural processes sustaining them would be detectable, and they could be outside the natural range of variability for short periods of time. Population numbers, population

structure, genetic variability, and other demographic factors might experience short-term changes, but would be expected to rebound to pre-impact numbers and to remain stable and viable in the long-term. Key ecosystem processes might have short-term disruptions that would be outside natural variation (but would soon return to natural conditions). Improvements to plant populations or communities would be detectable and could result in measurable improvements in ecosystem resiliency.

Major impacts on the spatial extent, integrity or population size of native plant species or communities or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of variability for long periods of time or be permanent. Population numbers, population structure, genetic variability, and other demographic factors might have large, long-term declines, with long-term population numbers significantly depressed. This impact would be severely adverse or exceptionally beneficial or would result in appreciable changes to plant populations and/or communities; the effect would be regional in scale and/or long-term. Key ecosystem processes might be disrupted in the long term or permanently. Improvements to plant populations or communities would be detectable and permanent and would result in substantial improvements in ecosystem resiliency.

Impact Thresholds – Wildlife

The following definitions apply to the impact analysis regarding wildlife other than Alcatraz waterbirds in the wildlife section:

- Short-term: Less than one breeding season.
- Long-term: One breeding season or longer.
- Localized: In the immediate vicinity of the event location; at one, or at no more than two locations in the park.
- Regional: Lands and waters outside the immediate event location(s). This includes NPS lands and waters, as well as those outside NPS jurisdiction.

Type of Impact – The following describes impact intensity thresholds for wildlife other than Alcatraz waterbirds:

Negligible impacts are defined by no observable or measurable impacts to native species or their habitats, or the natural processes sustaining them. There would be no discernable change in native habitat quality or integrity. Native and nonnative species richness and abundance would not be affected. If impacts do occasionally occur (but are not frequent enough to be measurable or observable), they would be of short duration and population dynamics (e.g. numbers, population structure, genetic variability and other demographic factors) would be well within natural fluctuations.

Minor impacts would include detectable, observable, or measurable changes to native species or their habitats, or the natural processes sustaining them; but impacts would not be expected to result in population dynamics outside the natural range of variability. Any changes in native habitat quality or integrity and native and nonnative species richness and abundance would be minimal. Impacts would usually occur in small, localized areas.

Disturbance of some individuals could be expected, but without interference to reproduction or other factors affecting population levels. Changes in population dynamics might experience small,

long-term fluctuations outside the natural range of variability, but long-term characteristics would remain viable and be within this range. Habitat quality and integrity would be maintained to support species' needs. These impacts would occur outside critical reproduction periods for sensitive native species.

Moderate impacts would be characterized by readily apparent impacts to native species or their habitats, or the natural processes sustaining them. Population dynamics may be outside the natural range of variability for short periods of time. Changes in wildlife habitat quality or integrity and native and nonnative species richness and abundance would be detectable. Impacts would occur over a localized area.

Frequent responses to disturbance by some individuals could be expected, with some negative impacts to feeding, reproduction, or other factors affecting population levels. Population numbers, population structure, genetic variability, and other demographic factors might have long-term changes, but would be expected to rebound to pre-impact numbers and to remain viable in the long-term.

Impacts may occur during particularly vulnerable life-stages, such as migration or juvenile stages, or during reproduction or rearing of young. Habitat integrity and quality would be maintained during the event or would recover or be restored to support species' needs.

Major impacts would be characterized as obvious or substantial changes to native species or their habitats, or the natural processes sustaining them. Impacts would be expected to be outside the natural range of variability for longer periods of time and may be permanent and/or regional in scale.

Frequent responses to disturbance by many individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a decrease in population levels. Population numbers, population structure, genetic variability, and other demographic factors might have large, long-term changes, with long-term population numbers measurably depressed.

Impacts would occur during particularly vulnerable life-stages, such as migration or juvenile stages, during reproduction or rearing of young in high enough numbers to detect population effects. Habitat integrity and quality would be substantially reduced or damaged during the event in a way that could result in long-term or permanent damage. Restoration may be needed to recover habitat or biological communities.

Impact Thresholds - Alcatraz Waterbirds

The following definitions apply to the impact analysis regarding Alcatraz waterbirds

- Short term: One breeding season
- Long term: Greater than one breeding season
- Localized: At the sub-colony level
- Regional: Whole island, and/or regional level impacts; consider regional importance of Alcatraz waterbirds within San Francisco Bay.

Type of Impact - The following describes impact intensity thresholds for Alcatraz waterbirds:

Negligible impacts would occur if Alcatraz waterbirds were not affected in any observable or measurable way, although an occasional flight response may occur in reaction to AC34 activities. No additional predation levels would occur; disturbance levels, population levels and productivity would be clearly within the natural range of variability. No reduction in reproductive success or decline in the size of any subcolonies related to AC34 activities would occur and there would be no potential for short or long-term abandonment or reduction in population size.

Minor impacts would occur if waterbirds were occasionally affected by localized disturbance and/or elevated predation levels; however disturbance levels, population levels, and productivity would remain within baseline or natural range of variability. Minimal potential for reduction in reproductive success and/or decline in size of small subcolonies is also associated with this impact level. There could be no detectable potential for long-term abandonment or reduction in population size associated with this impact.

Moderate impacts would occur if waterbirds were affected by a disturbance and/or unnaturally elevated predation levels over a larger portion of the island were experienced. Disturbance levels, population levels, and productivity could be outside the baseline or natural range of variability for short periods, but would be expected to recover by the next breeding season. Measurable reduction in reproductive success and/or decline in size of small subcolonies, with some potential for long-term abandonment and/or small reduction in population size (at these small subcolonies) could also be associated with this level.

Major impacts would occur if waterbirds were affected by repeated, intense and/or prolonged disturbance and/or unnaturally elevated predation levels. More severe reductions in reproductive success and/or decline in size of subcolonies or island populations would be experienced. Disturbance levels, population levels, and productivity would be outside baseline or the natural range of variability for long periods. There would be the potential for long-term subcolony or island abandonment and/or substantial reduction in population size, and these effects may be regional.

Because the *Migratory Bird Treaty Act* prohibits the taking of migratory birds, eggs, chicks or nests, even if that taking is inadvertent, the NPS considers the loss of even a single individual too great an impact. This means that even minor or moderate localized impacts as defined above to the colonial nesting seabirds, their eggs, chicks or nests, resulting from AC34 are unacceptable as defined by the NPS Management Policies. Protection measures have been developed to ensure impacts are no more than minor and that "take" does not occur, and ongoing monitoring of bird behavior will continue during the race.

Impact Thresholds – Special-Status Species

The following describes thresholds derived from the Endangered Species Act:

- No effect: When a proposed action would not affect a federal listed species, candidate species, or designated critical habitat.
- May affect, not likely to adversely affect: Effects on federal listed or candidate species are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or are completely beneficial.

- May affect, likely to adversely affect: Adverse effects to a federal listed or candidate species may occur as a direct or indirect result of proposed actions and the effects are either not discountable or completely beneficial.
- Likely to jeopardize proposed species or adversely modify proposed critical habitat (impairment): The appropriate conclusion when the National Park Service or the U.S. Fish and Wildlife Service identifies situations in which the proposal could jeopardize the continued existence of a federal listed or candidate species or adversely modify critical habitat to a species within or outside park boundaries.

The following definitions apply to the impact analysis regarding special-status species:

- Local: In the immediate vicinity of the event location(s) including viewing areas.
- Regional: NPS land and waters outside the immediate event location(s) and viewing areas.
- Short-term: Short-term impacts are those that last one season (breeding or growing) or less.
- Long-term: Impacts would extend beyond a single season (breeding or growing).

Type of Impact – The following definitions are used to describe the severity and magnitude of changes to federal and state listed species under each of the alternatives. Each threshold definition references the Endangered Species Act determinations described above.

Negligible impacts to individuals or habitats would be imperceptible or not measurable (undetectable). For federal listed species, this impact intensity would equate to a determination of "no effect."

Minor impacts would be slightly perceptible; without further actions, adverse impacts would reverse and the resource would fully recover. Adverse impacts may include temporary disturbance to individuals or avoidance of certain areas. In addition, essential features of important or designated species' critical habitat would not be impacted. For federal listed species, this impact intensity would equate to a determination of "may affect, not likely to adversely affect."

Moderate impacts would be readily measurable (apparent); adverse impacts would eventually reverse and the resource would recover. Adverse impacts may include disturbance, injury, or mortality of individuals, but the long-term viability of the population would be maintained. Some essential features of important or designated species' critical habitat(s) would be reduced; however the integrity of the habitat would be maintained. For federal listed species, this impact intensity would equate to a determination of "may affect, likely to adversely affect."

Major impacts would be substantial and highly noticeable in that a take permit for one or more individuals may be required; changes could be irreversible without active management. Adverse impacts may include disturbance, injury, or mortality of individuals to the point that the long-term viability of the population inside the park would be compromised. Essential features of important or designated critical habitat would be reduced affecting the integrity of the designated unit. For federal listed species, this impact intensity would equate to a determination of "may affect, likely to adversely affect."

4.5.1.7 Impacts of Alternative A—No Action

For a complete description of the alternative, see Chapter 2. The day-to-day operations of NPS and the USCG would continue consistent with legal mandates for each agency in carrying out their responsibilities to manage park biological resources, implementing existing plans, and projects, etc. There would be no environmental consequences related to federal actions beyond those typical in the oversight of maritime activity (USCG) and the stewardship of sensitive resources in an urbanized region (NPS). There are impacts of current conditions and current actions (boating, commercial vessels, July 4 fireworks, human visitation etc.) plus reasonable future actions (Golden Gate bridge celebration etc.). Past cumulative impacts have led to the status of these bird and wildlife species as unique, rare, or of special status.

The use of the Park would continue to be heavy. For example, at the east end of Crissy Field, daily visitation would continue to be about 3,050 on weekdays, and approximately 5,790 on weekends (ORCA 2012). At the west end of Crissy Field, including the picnic area and Warming Hut, daily visitation would continue to be approximately 1,170 on weekdays; and about 2,100 on weekends (ORCA 2012). This level of use is recognized as an ongoing impact, and preserving and restoring the natural abundances, diversities, dynamics, distributions, habitats, and minimizing human impacts on native plants, animals, populations, communities, and ecosystems, and the processes that sustain them, are NPS policy (NPS 2006, section 4.1). A few specifics of the policy in action:

- Many population sites have been fenced for further protection (for example, in addition to project area fencing at Crissy Marsh and Baker Beach, portions of Fort Baker are fenced to protect the Mission blue butterfly, and the population of San Francisco lessingia at Rob Hill has been fenced as well.

- For wildlife, a main concern in the project area has been the western snowy plover. The Crissy Beach Wildlife Protection Area, has been fenced and signed, and although sources of disturbance continue, the NPS has effectively managed the population. Between 1994 and 2006, the number of plovers at Ocean Beach varied but generally increased, even in the face of increased disturbance by unleashed dogs (NPS, 2008).

- At Alcatraz, with 1.4 million visitors per year, the NPS applies a closure program that mitigates the effects of visitors on breeding waterbirds. From February 1 through August 15, closed areas include the Dock colony buffer area (Dock Amphitheater); Parade Ground; and Agave Trail and steps.

Overall, given programs in place to identify and mitigate the effects of visitor disturbance, management of these impacts can be expected to remain at or below the minor, localized, long-term threshold level.

Cumulative Effects

Please see the detailed discussion of cumulative impacts under Alternative B. The No Action Alternative would make no contribution to the totality of cumulative effects.

Conclusions for No Action Alternative

Impacts would be negligible for the No Action Alternative.

4.5.1.8 Impacts Common to All Action Alternatives

Upland wildlife, vegetation, and habitat impacts resulting from the AC34 project would be of the same type for all action alternatives, which would vary only in the location and (slightly) in intensity between alternatives. Categories of impacts resulting from the action alternatives would include the following:

- Impact of Trampling Vegetation
- Impact of Introducing Invasive Species
- Impact on Wetlands.
- Impact of Trespass Into Closed Areas
- Impact of Artificial Lighting
- Impact of Race-related Boat Traffic on Rafting and Foraging Waterbirds
- Impact of Project related Noise: Disturbances excluding Helicopters and Fireworks.
- Impact of Helicopters and Fireworks
- Impact of Human Presence
- Impact of Watercraft
- Impact of Aircraft
- Impact of Special Events (at Alcatraz)
- Impacts at Crissy Marsh.
- Impacts at Baker Beach and Dunes
- Impacts at Fort Baker and the Marin Headlands

Please see the detailed discussion of these impacts under Alternative B.

Conclusion for Impacts Common to All Action Alternatives

All action alternatives include the implementation of Protection Measures (see below). While these vary somewhat between alternatives they will reduce the level of impacts to minor, localized and short-term.

4.5.1.9 Impacts of Alternative B—Sponsor Proposed Project

For a complete description of the alternative, see Chapter 2.

The following Protection Measures are part of the Alternative B description for upland biological resource protection. With some modification, all Protection Measures are applicable to all alternatives.

- BIO – 1 Incident Command System

- BIO – 2 Visitor Use Management & Monitoring System
- BIO - 3 Resource Monitors
- BIO - 5 Protecting Sensitive Areas – Fencing and Signage
- BIO - 8 Area Closures
- BIO – 9 Marine Buffer Around Crissy Field WPA.
- BIO –10 Marine Buffer around Alcatraz Island
- BIO – 11 Aircraft Buffers
- BIO – 12 After Hours Activities at Alcatraz Island
- BIO – 19 and 20 Restrictions on Fireworks and Night Lighting

The Sponsor Proposed Project (Alternative B) impacts are discussed below, generally in the order of resource categories described in Chapter 3 (Affected Environment):

- Vegetation and Sensitive Natural Communities.
- Wetlands
- Wildlife Other than Alcatraz Waterbirds
- Wildlife — Alcatraz Waterbirds
- Special-status Species: Sensitive Listed Species
- Other Sensitive Wildlife Species
- Non-listed Special-status Plant Species
- Cumulative Effects

In the discussion of Alternative B, all of the categories are discussed. In the subsequent alternative discussions (Alternatives C, D, and E), impacts for all categories of special-status species' are grouped, and will be evaluated using the same thresholds as described for listed special-status species. All of the Protection Measures developed for this EA can be presumed to apply to all action alternatives.

At the end of the first seven categories, the *Summary of Conclusions for Alternative B* gives concise and complete evaluations of the threshold determinations. Each subsequent section compares the Sponsor Proposed Project with the other alternatives, using the same impact thresholds. Please be advised that for the impacts discussed herein, conclusions are reached in the first seven categories which do not assume cumulative impacts. These are discussed in the eighth and final category, *Cumulative Effects*, which summarizes the impacts in the section entitled *Conclusion for Alternative B that includes both Impacts of Alternative B and Impacts of Cumulative Actions not related to AC34*.

Vegetation and Sensitive Natural Communities

Impact of Trampling. Trampling, i.e., walking upon a natural substrate, can inadvertently reduce both plant and animal populations (e.g., Cole 1995). Trampling of natural vegetation can also cause the spread of nonnative plants, soil pathogens, and, depending on the severity, could introduce feral animals into the area. For the general vegetation types described in Chapter 3, trampling and other forms of disturbance would be localized, short term and minor because coastal scrub, for example, is a common plant community in northern California. Others, such as riparian scrub are considered sensitive by virtue of their scarcity locally, but have a natural resistance to impacts because the vegetation is dense and thorny (California blackberry, for example). Intensity would vary depending on the degree of impact to sensitive sites, including plant communities associated with serpentine soils. For example, species of grasses *Nasella* and *Deschampsia* planted at Crissy Field are apparently able to withstand large numbers of visitors year-around. Also, this impact would be limited in intensity because additional foot traffic associated with the Alternative would not entail regular travel off-trail, and can be further considered minor by virtue of the fencing and signage as necessary (Protection Measure BIO-5), with the effectiveness of the measure ensured by resource monitoring (Protection Measure BIO-3).

Impact of Invasive Species. Native grassland and coastal dunes may be exposed and vulnerable to trampling and its secondary effects. Among these is the inadvertent spreading of non-native vegetation. In both of these types, there is a certain amount of natural disturbance that occurs through rain, wind, and small mammal activity and both are susceptible to invasion by non-native species such as yellow bush lupine (*Lupinus arboreus*) in coastal dunes and bull thistle (*Cirsium vulgare*) in grasslands (FHA 2008). However, this impact would be limited in intensity because additional foot traffic associated with the Alternative would not entail regular travel off-trail. The coastal dunes at Crissy Marsh and Baker Beach are the areas of most concern; impacts will be reduced to minor by fencing and signage as necessary (Protective Measure BIO-5).

Impact of Trespass into Closed Areas. While key areas at Crissy Marsh and Dunes are fenced, the raised dunes offer a view of the Bay for visitors willing to ignore signage and fencing. The likely incidence of deliberate trespass is predicted to be low, and have minor impacts due to the presence of NPS and race staff in the area, and per the Protection Measures established for this alternative referred to above.

Conclusion for Vegetation and Sensitive Natural Communities. According to the threshold definitions above, the impact would be minor, localized and short-term. Impacts would be detectable, but they would not be expected to be outside the natural range of variability and would not be expected to have any long-term effects on the spatial extent, integrity or population size of native plant species or communities or the natural processes sustaining them

Wetlands

Impacts on Wetlands. The only wetlands within the project area are in the vicinity of Crissy Marsh and dunes, and the Doyle Drive (Presidio Parkway) construction corridor, and a few small seeps along the bluffs above Baker Beach. Crissy Marsh has been delineated as jurisdictional waters of the United

States in the project area, and the NPS and the Presidio Trust protect a series of small "Cowardin" wetlands within the Doyle Drive corridor. These wetlands are not within the Corps jurisdiction under Section 404 of the Clean Water Act as waters of the United States. The dominant species in these wetlands consist of arroyo willow and California blackberry, and the wetlands lie along the steep hillside slopes north of Doyle Drive and south of Mason Street (Federal Highway Administration 2008). All of these sites are densely vegetated and would not be suitable spectator sites. However, protective signage (BIO - 5) would provide additional protection.

Conclusion for Wetlands. Effects would be negligible.

Wildlife Other than Alcatraz Waterbirds

This section discusses and evaluates impacts on wildlife other than the breeding waterbirds on Alcatraz, i.e. general wildlife resident in the project area. Because of the importance and vulnerability of the Alcatraz nesting colonies, they are discussed separately. Many of the same types of impacts are discussed in both sections; the Alcatraz section provides additional detail and review of the literature.

Impact of Artificial Lighting. Increased artificial illumination of Bay waters at night can alter normal behavior of land and seabirds (Rich and Longcore 2006), but AC34 events will take place in an area with considerable urban ambient artificial light. Night lighting on park land would follow park policies and the restriction of Protection Measures BIO-19 and BIO-20, which requires downward shading and minimizes upward radiation. At most, night lighting would occur during two evenings in 2012, and five evenings during 2013. Therefore, there would be only a localized, minor impact for this project element.

Impact of Race-related Boat Traffic on Rafting and Foraging Waterbirds. In the Central Bay, increased boat traffic associated with the races and from the race sites to marine facilities onshore could have a negative effect on rafting bird species. Moreover, the open waters of San Francisco Bay are foraging habitats for many species of resident and migratory birds, and nesting sites are often on shores and rocky cliffs near boat traffic. Many waterfowl species are declining along the West Coast, and human impacts from the heavily urbanized San Francisco Bay Area are often detrimental to them. Rafting or foraging birds look, swim, dive, or fly away as watercraft approach them and become distracted from their normal activities (Huffman 1999). Increased vigilance and escape behavior reduces their limited energy supply and induces stress. Different species have varying distance tolerances before becoming disturbed, but if disturbed they can be flushed from foraging or resting areas. Diving ducks such as scaup and scoter are especially sensitive to maritime traffic (Belanger and Beddard 1990; Knapton et al. 2000; PRBO 2007). For the most sensitive species in the Central Bay (California brown pelican, California least tern, double-crested cormorant, black-crowned night-heron, snowy egret), alternate foraging locations are available. Furthermore, the greatest period of sensitivity for rafting waterfowl (and the time of year when rafting is common) is winter, when both foraging and flight require greater energy expenditure. Because the AC34 races would occur in the summer and fall, impacts to foraging or rafting water birds would be negligible. Also, Protection Measures will place restrictions on spectator craft within the race area.

Direct and Indirect Impacts of Spectators: General Considerations. Visitor disturbance, by virtue of human presence, can displace wildlife, especially in more natural environments such as at Crissy Field, the Presidio, and at the Headlands. The impacts would include the noise generated by spectators, their movement into and out of the spectator areas (on land or by boat), and their food trash and litter, which could affect resident wildlife by attracting disturbance-tolerant species. As with artificial illumination, the project area is comprised of both densely urbanized areas and open space and is not pristine wilderness as compared with other National Parks. Alcatraz, for example, hosts 1.4 million people per year, according to the NPS (PRBO 2007) and several thousand people now use Crissy Field on a daily basis. In 2013, for example, AC34 may add 30,400 visitors to lands under federal jurisdiction on a "Medium High Weekend Race Day" (see Chapter 2) generating noise, people, vehicle and aircraft traffic, and recreational boat activity on the water.

Impacts of Project related Noise: Disturbances excluding Helicopters and Fireworks. Project-related noise in the park environment includes not only that generated by spectators, but by planned support and operations activities, such as the establishment and removal of temporary structures, bleachers, fences, and other visitor amenities that may extend the exposure period by many days and extend the hours of disturbance on any given day. The study of animal response to noise is a function of many variables including characteristics of the noise and duration, life history characteristics of the species, habitat type, season and current activity of the animal, sex and age, previous exposure and whether other physical stressors (e.g. drought) are present (Manci et al. 1988), but noise can increase heart rate and effect metabolism and hormone balance. If crowds are as predicted, there may be impacts that result in localized changes in wildlife habitat quality or integrity and native and nonnative species richness and abundance could be detectable. Concerning noise, however, studies conducted in the project area south of the Golden Gate in 2009 found that ambient noise levels from traffic and other sources ranged from 57 dBA to 84.5 dBA, with an average of 70 dBA (ESA 2011). The same study has been unable to clearly correlate construction noise levels from the Doyle Drive project with measureable bird disturbance. Thus overall the impacts of event-related noise are considered minor, helicopters and fireworks are evaluated separately, below.

Impacts of Helicopters and Fireworks. Studies have documented that aircraft, especially low-flying planes and helicopters, can create disturbances that negatively affect seabird behavior. Rojek et al. (2007) observed that common murres (*Uria aalge*) at nesting colonies in the central California coast and San Francisco Bay region flushed in response to aircraft, and that helicopters appeared to cause disturbances at altitudes higher than those of planes; mean flushing altitude of helicopters (751 feet) was higher than the highest flushing altitude by a fixed-wing aircraft (699 feet). Additionally, the western snowy plover (*Charadrius alexandrinus nivosus*) recovery plan described low-flying aircraft at Ocean Beach in San Francisco causing roosting plovers to crouch and increase vigilance, and causing foraging plovers to frequently take flight (U.S. Fish and Wildlife Service 2007). While Federal Aviation Administration regulations restrict flights below 500 feet over any person, vehicle, vessel, or structure, and the USCG restricts its own non-essential flight below 1,000 feet and minimize flights below 500 feet in critical habitat or sensitive habitats (USCG Air Operations Manual), helicopters can still cause excessive noise to snowy plovers when flying 500 feet above ground level (USFWS 2007).

Brown pelicans (*Pelecanus occidentalis*), studied on wetland habitat and beaches within the Naval Air Weapons Station (NAWS) Point Mugu near Ventura, California, were observed flushing as a result of

aircraft flyovers at 90 meters, but were not deterred from roosting in any particular location due to aircraft activity (Jaques et.al. 1996). The amount of air traffic at the station may be similar to the Bay Area. Birds may be habituated to aircraft flights at this location due to the adjacent Point Mugu Naval Base, but the author suggests alteration of flight paths and restrictions of flights below 900 feet to prevent more pronounced impacts on roosting pelicans (Jaques et al. 1996).

Black et al. (1984) noted that F-16s at 500 ft above ground level with noise levels measured up to 100 decibels on the A-weighted scale (dBA) were not observed to greatly or adversely alter reproductive behavior or success of study species (herons and egrets) in the treatment colony.

McChesney et al. (2006) reported that, of 15 major disturbances to murres or Brandt's cormorants, those caused by helicopters (40 percent) occurred in low flyovers of 200-600 ft (60-180 meters) above sea level (ASL). Manci et al. (1988), reviewing results of Gunn and Livingston (1974) reported flight response in seabirds and waterfowl from low altitude planes and helicopters at 100 to 750 feet above ground level (AGL).

Noise from fireworks can also be disruptive for wildlife. For example, firework displays generate peak sound levels of 82 dBA and average sound levels of 78 dBA at a 0.5-mile distance. The tolerances of wildlife to this level of sound vary considerably due the type of species and environmental factors, as noted above.

Impacts associated with AC34 helicopter noise would be very temporary, and NPS biologists (NPS, W. Merkle, pers. comm. 2012) have noted that coordination with helicopter tour operators in the mid-2000s, resulting in a helicopter buffer 1,000 feet up and off Alcatraz Island, greatly reduced breeding bird disturbances from this source and this buffer, at a minimum, is now part of the Protection Measures for the project (BIO-11).

Thus the protection of wildlife in these conditions is best assured through the establishment of buffers of adequate size for sound to attenuate. For example, the 82 dBA noise levels for fireworks at the source may not be a significant problem given the more than 1.5 mile distance between the source and sensitive species at Crissy Field marsh and shoreline. Sound monitoring conducted between 1993 and 2001 reported firework displays generating average sound levels of 72.5 dBA at the 1.5-mile distance (NOAA, 2011), or about the noise level of moderate vehicle traffic.

The buffers proposed for this purpose in BIO-11 and BIO-19 suggest minor impacts for helicopters and fireworks, i.e., there may be observable changes in habitat use, but falling within the natural range of such activity. Further coordination is expected between NPS and the project sponsors over timing and placement of fireworks but briefly; in 2012, the project sponsor would not launch fireworks. In 2013, any AC34 event-related fireworks would be launched from a location distant from Alcatraz Island and Crissy Field (i.e., near Piers 27/29), in order to avoid potential impacts to sensitive bird species and reducing the impact to minor, localized, and short-term.

Impact of Human Presence. The literature of wildlife disturbance does not provide a close analog to the spectators at the viewing sites adjacent to park habitats such as at Crissy Field or at the Headlands, but two studies of campgrounds provide some suggestions. Campgrounds vary greatly in the number of people present, their activity level, and impacts may be alternated with periods of relative calm, such

as during weekdays or off-season. To some extent this mimics the AC34 pattern. Several studies compared animal populations in campgrounds to those in adjacent undisturbed areas to ascertain the effects of campground development on animals. Blakesley and Reese (1988) found seven bird species to be positively associated with campgrounds and another seven species to be associated with non-campgrounds. Changes in both food sources and living space provided likely explanations for differential species responses. Those species associated with the campgrounds nested in trees. Most of the noncampground species, in contrast, nested on the ground, in shrubs, or in small trees, where disturbance was more severe. Ground foragers attracted to human food sources (such as the American robin) were associated with campgrounds, while ground foragers wary of humans (such as the fox sparrow) were associated with noncampgrounds.

Mixed hardwood campgrounds in Wisconsin had a greater density of birds than adjacent noncampground forests (Guth 1978). They had slightly greater species richness, but less equitability. Moreover, a greater proportion of campground species were widespread species, in contrast to the number of rare forest species that were found only away from campgrounds. A shift in species distribution near Baker Dunes, for example, may already have occurred as part of the current environment, but it is reasonable to predict that in some areas a negligible, localized, and short-term displacement of some bird species could occur, along with the attraction of other species.

Conclusion for Wildlife Other than Alcatraz Waterbirds. Minor localized and short-term impacts for park wildlife would occur as a result of the project, given, the application of BIO-10, BIO-11 and BIO-19 establishing buffers and requiring consultation with NPS on fireworks in 2013.

Wildlife — Alcatraz Waterbirds

General Impact Considerations. Of particular concern are disturbances to Alcatraz colonial breeding waterbirds caused by AC34 events and event-associated maritime and air traffic, which would be greater in intensity and duration than what occurs under current conditions.

Observable impacts such as flight or rapid swimming, loss of eggs, etc., are discussed below, and some detail is provided on flushing distances to assist in the analysis, as a surrogate for more complex physiological responses. It is important to note, for Alcatraz birds and for all wildlife disturbed by human noise or presence, that there are physiological responses, like stress, that may be just as important in terms of impact as flying away might be. While a nesting bird might remain on the nest and therefore not behaviorally appear to be affected, it is still be affected by the release of cortisols and other stressors that could affect its health or its reproductive success. For example, the concentration of corticosterone increases significantly when a bird is exposed to sudden danger and significant stress, and high levels of this hormone are negatively correlated with nesting success (Ouyang et al. 2011). In this situation, functions that are not important for survival, for example reproduction, may be suppressed. This is hard to account for in terms of assessing and assigning impact, but is part of a full discussion. In other words, birds that "habituate" to noise are sometimes experiencing impacts to their physiology from that noise, but are not displaying it behaviorally.

As noted in Chapter 3, two species of cormorants, the Brandt's cormorant and the pelagic cormorant, breed on Alcatraz. Although neither species is considered special-status, Alcatraz is the only breeding

colony site for these two species in San Francisco Bay (National Park Service 2011). Other nesters include black-crowned night heron (*Nycticorax nycticorax*), snowy egret (*Egretta thula*), and the pigeon guillemot (*Cepphus columba*). All of these may be considered susceptible to disturbance, with cormorants and night-herons perhaps the most sensitive. In 1993, GGNRA completed a management plan for Alcatraz Island, which included provisions for maintaining breeding populations of colonial waterbirds (LSA Associates and NPS staff 1993). This plan emphasized protection of the island's natural resources, while maintaining opportunities for visitor access, special events, and other island uses. The plan called for natural resource monitoring, and NPS studies have documented the consequences of human and boat-based disturbances on the breeding colonies (Acosta and Thayer 2007).

Nesting colonial waterbirds are especially vulnerable to human disturbance due to their visibility and sensitivity (Carney and Sydeman 1999). Alcatraz is the special situation of a large breeding colony of waterbirds, where disruption not only has an energy cost to mature birds but the risk of loss of chicks, or eggs through predation, cooling of eggs while the birds are away, possible dislodging eggs or chicks from their nest, or, ultimately, nest or colony abandonment (Thayer et al. 1999).

The principle disturbance related to AC34, is that movement within the race course will appear unpredictable as the boats move around the course and each other. Notably, while some colonial seabirds can habituate to predictable impacts, such as from a daily stream of commercial or recreational marine vessels, unpredictable or new experiences are less tolerated.

Saenz (2006) concluded in a local context: "Understanding the effects of the surrounding urban environment on Alcatraz seabirds is not straightforward. Colonial seabird species have shown habituation to regular and predictable human presence . . . however, different species likely have different aptitudes for habituation. Brandt's and Pelagic cormorants in particular are sensitive to human disturbance. Although breeding seabirds on Alcatraz appeared fairly resilient to disturbance events on a case-by-case basis during our study, cumulative effects of chronic, varied disturbance to seabird breeding colonies are unknown." However, it is possible to add to what is known about disturbance to Alcatraz breeding colonies by examining published and peer reviewed studies of similar colonies and species, and the effects of human disturbance, to help understand the possible impact.

Impact of Watercraft. Chatwin (2010) found that seabirds near Vancouver Island rarely displayed agitation behavior when boat traffic was more than 230 feet from loafing or foraging birds, but data from low-traffic boat areas revealed a significantly greater proportion of most bird species showing agitation at closer distances than for the same distances in medium and high-traffic boat areas. Additionally, the author observed that roosting species generally were agitated at further distances than nesting species, likely due to the increased risk of nest predation when adult birds fly away from the nest. The author created a set of boating guidelines based on her research, which include three classes of setback distances: 98 feet for high traffic areas where birds have habituated to existing watercraft operations, 164 feet for all roost and nesting sites, and 230 feet for harlequin duck (*Histrionicus histrionicus*) and Brandt's cormorant (*Phalacrocorax penicillatus*) roosts (Chatwin 2010). Both harlequin duck and Brandt's cormorant were the most sensitive species to disturbance, and boat traffic as a measure of habituation did not fully account for the longer response distances for these species.

McChesney et al. (2006) reported that, of 15 major disturbances (defined as flushing or displacing of birds) to murres or Brandt's Cormorants (which breed at Alcatraz), motor vessel (three recreational fishing, one whale watching charter) disturbances occurred within 50 meters of the birds at Devil's Slide Rock. At Drake's Bay, all boat disturbance events occurred within 100 meters of colonies.

Burger et al. (2010) conducted studies which isolated a number of variables besides simple distance. They recommended that managers use a set-back distance of >118 meters from the perimeter of a colony for black skimmers, which is the 95% percentile of the distance that skimmers first flew in response to approaching boats.

In a literature review by Borgmann (undated), 50 waterbird disturbance studies were evaluated. These were focused on diving duck, wading bird, and shorebird species that occur in the San Francisco Bay area. Although the author recommends a large buffer (250 meters) when dealing with all species and situations, flushing distances (for boat traffic) for waterbirds is given as less than 300 feet in virtually all cases. Buffer zone recommendations from the authors when boating was the disturbance vector ranged from 65 meters to 294 meters for gulls and cormorants respectively. The average across all species (again, where boats were the cause of disturbance) was 148 meters or 487 feet. For bird species that also occur at Alcatraz or are similar to them (i.e., double crested cormorant, blue heron and egret; no studies in the Borgmann review proposed buffer distances for Alcatraz Island's most sensitive nesting species, the Brandt's and pelagic cormorants) where boat-related buffer distances were recommended, the average was 155 meters or 511 feet.

While many studies have been conducted on waterbird disturbance from boats and other watercraft, the distance and duration of disturbance responses varies greatly among locations and species. An unpublished study conducted by Huffman (1999) in San Diego's South Bay synthesized observations of bird disturbances across a wide number (65) of species from recreational activities in the area. The author found that boats travelling faster than five miles per hour (mph) flushed birds at an average distance of 1,150 feet, and birds located as far as 0.25 mile away (1,320 feet) were flushed for up to 2.2 minutes before returning to normal activities. Subsequent disturbances after birds were initially flushed prevented them from returning to their original foraging or loafing habitats for up to 35 minutes. Additionally, boats travelling within 328 feet of the shoreline would flush all waterfowl between the boat and the shore, as well as any shorebirds present along the shoreline (Huffman 1999). Personal watercraft also flushed birds at an average distance of 1,150 feet. The author noted that boat and PWC operation under 5 mph greatly reduces disturbance, with birds only swimming out of the direct path of boats. Observations of this type have frequently led to suggestions of 1,000-foot buffers for breeding colonies.

In addition to the wide range of recommended buffer sizes and impacts that are not apparent (e.g., physiological responses from stress discussed above), setting an adequate buffer to prevent any loss of eggs, chicks, nests or adults at Alcatraz is further complicated by the fact that some species are particularly sensitive to accumulated disturbance over a season or other period of time. NPS monitoring of the seabird colonies at Alcatraz, the literature and several experts consulted for this analysis (McChesney, Merkle, Allen, personal communication 03.21.12) show that Brandt's cormorants are increasingly sensitive if they are disturbed early in the season, and are more likely to flush or leave the nest with subsequent disturbance. It is possible that Brandt's cormorant nesting

success will be adversely affected later in the season as these stressors or continued racing vessels and helicopters mount. However, for most birds, the scheduling of the races, with no racing earlier than July, is a moderating influence, as birds are more "invested" in their nests, in accordance with theories of parental investment (Knight and Temple, 1986), and less likely to respond to disturbance.

The literature, monitoring data and expert opinion shows that buffer distances are the best way to manage for the effect of human disturbance on Alcatraz nesting birds, although behavior does not wholly indicate impact and the potential for a "take" of eggs or chicks (as defined by the MBTA). Physiological impacts may be present, that some birds are relatively habituated to disturbance over time and others experience an increasing sensitivity from additive effects, and that buffer size depend on the phase of breeding, the sensitivity of the species, the way it interacts with other species and the characteristics, including predictability, of the source of disturbance. As noted above, the Borgmann review, which summarizes information from 50 studies on birds that occur in the San Francisco Bay, includes studies where buffer recommendations for avoiding impacts from boat traffic ranged from 65 to 285 meters and averaged about 500 feet. This average was also very close to that for species similar to or on Alcatraz. Although other studies recommend larger buffers, this is usually for colonies that experience relatively little disturbance and so are more likely to flush when disturbance does take place. Experts consulted for this analysis (McChesney, Allen, Merkel, Hatch) advised that boats related to AC34 should not approach closer than 500 feet of Alcatraz, and agreed that this protective measure would very likely prevent unacceptable impacts, e.g. "take" under the MBTA.

For this reason, the Interdisciplinary Team (IDT), comprised of representatives of the federal team, applied at 500 foot buffer as a protection measure for all alternatives except the Sponsor Proposed Project (Alternative B), which was maintained as it was originally proposed to the IDT in January 2012 (i.e., 300 feet for the support boats/emergency boats and 500 feet for the sailboats). The race, support, and emergency vessels will only be as close as 500 feet at the "pinch point" of the race in 2013; that is, the far southwest side of the island where the distance to the mainland is shortest. All race-related vessels would turn west and away from the island from this point, increasing the distance between them and Alcatraz for the remainder of the race. This is true of the Sponsor Proposed Project as well. In keeping with the decision by the IDT to analyze Alternative B as it was originally proposed, and in light of information in the literature as expert advice, an adaptive management monitoring and decision-making approach was applied to this alternative. This approach is explained below and assumes, unlike other alternatives, that the 72 foot sailing vessels would race 200 feet away from the support/emergency vessels. If monitoring during the race shows Alcatraz birds are adversely affected by support boats or emergency vessels at 300 feet, or sailboats at 500 feet, they would be moved to a minimum distance of 500 feet, similar to Alternatives C, D and E. The adaptive management plan is described below.

All spectator boats would also be no closer than 500 feet from Alcatraz as stationary boats can be a substantial source of stress for nesting birds. If adopted, this measure would reduce the impact of all AC34 related marine traffic, including of spectator boats, to no more than minor and be very likely to keep impacts from this source to Alcatraz colonial nesting seabirds from any violation of the MBTA.

Adaptive Management Plan for Alcatraz/Alternative B

Alcatraz Island would have a marine buffer of 500 feet for racing yachts, and 300 feet for all other vessels in Alternative B, including race support boats and spectator boats. Some support boats would transit or loiter in the lane between 300 and 500 feet from the Island. This restriction would apply to both 2012 and 2013 AC-34 activities for the Project Sponsor's Proposal; however, this should not be an issue for 2012 races, which are going to be along the San Francisco shoreline several thousand feet from Alcatraz.

Under Alternative B, the above minimum buffers would apply around Alcatraz, but NPS would also employ an adaptive management strategy that would allow for expansion of the buffer if necessary to protect nesting birds. Monitoring to implement this strategy would be required to be funded as part of each of these alternatives. Race boats would not come within 500 feet of Alcatraz Island, and the Adaptive Management Strategy would be implemented to determine if unacceptable levels of impacts to nesting birds were being observed, as well as the procedure for potentially increasing the marine buffer to further protect the birds.

The purpose of this adaptive management plan is to define monitoring practices and thresholds for action and to allow some flexibility if needed to increase the basic 300 foot resource buffer in response to actual observed events for Alternative B: in particular, multiple flushing events or those that indicate take under the Migratory Bird Treaty Act (e.g., nest abandonment, flushing adults so that eggs or nestlings exposed to depredation, or young birds flushing off cliffs before they can fly). Disturbance events that cause flushing are of particular concern because these cause adult birds to leave nests with eggs or nestlings exposed to depredation and/or can cause young birds to run off cliffs before they can fly. When these thresholds are exceeded, expansion of the buffer would be considered by a committee of biologists, one from the NPS, one from the CG, and one from the project environmental consultant, Environmental Science Associates. Although the group would consider buffer expansion, NPS would ultimately make the decision as Alcatraz land and waters are an NPS responsibility

Following methods used by Thayer et al. to monitor disturbance to Alcatraz Island seabirds, specifically Brandt's cormorants (*Phalacrocorax penicillatus*), breeding activities would be monitored twice per week starting in April as part of the ecological surveys of seabirds on the island. Observations would be made from concealed locations above each colony that allow clear views into study nests. Study plots, selected at the beginning of the season to represent the whole colony, would be monitored twice per week and would involve documenting the number of adults, eggs and chicks. Along with focal nest observations, disturbances to nesting birds are documented and classified as major, moderate, or minor; these thresholds are separate from those used for NEPA purposes and relate to Thayer et al methodology and to the potential for violations of the Migratory Bird Treaty Act. Major disturbances cause birds to flush from breeding or roosting areas, while moderate disturbances cause agitation in birds such as fluffing, growling, or standing off nests. Minor disturbances cause birds to look in the direction of the event.

Monitoring would occur three consecutive days prior to AC-34 events, to provide current information on baseline rates of behavioral responses to disturbance and nest loss. Data from the ecological surveys that would be occurring during the entire season also would provide a source of rates of behavioral disturbance and nest loss for comparison only utilizing data from birds within the same

stage of the nesting cycle (e.g., pre-laying, birds incubating eggs, nestlings, and creching young). During days with race activities, including "practice" days, nest contents of each nest in the study plots would be documented 30 minutes before race activities begin and again the following morning to determine any nest loss. Observers would continuously watch for disturbance from 2 locations during race activities, and for each disturbance event the type of disturbance, distance from colony, number of birds, and the degree to which birds are affected would be recorded. If flushing events occur outside study plots, nest content/loss would be determined through photo documentation. Digital cameras would be used to supplement documentation of colony conditions prior to any race activities, during races and after disturbance events. Disturbance monitoring would include any association between the presence of boats (race, support, and spectator boats) and helicopters and birds or interspecific bird behavior that could have been the result of disturbance, that is alert postures or flight initiations. Observers would record all pertinent information about the source of disturbance, including distance from the island and disturbed birds and noise levels. Simultaneously, the area from which the disturbance emanated and its relationship to any vessel would be noted.

The morning after each race, observers would determine which, if any, nests appear to have been abandoned as a result of the previous day's activity.

Monitors would provide a report documenting any AC-34 actions that indicate take under the Migratory Bird Treaty Act or flushing of birds associated with AC-34 actions.

1. Was there evidence of take under Migratory Bird Treaty Act in relation to AC-34 activities?

   Did birds react to proximity of boats or helicopters? Noise from event? Describe disturbance activity linked with bird reaction.

   Was there nest loss or loss of young associated with this disturbance event?

2. Were there multiple flushing events in relation to AC-34 activities?

Within 24 hours of the discovery of take under MBTA or documentation of multiple flushing events, the standing committee (NPS, CG and consulting biologist) would be briefed by the surveying biologists to the determine the cause of the abandonment and/or flushing events and the need for adjusting the buffer. The decision on whether to increase the buffer would be made by consensus among committee members if possible, but if not as noted above the NPS would ultimately make the decision as Alcatraz land and waters are an NPS responsibility. Expansion of the buffers for both race boats and attendant/emergency vessels, if needed, would be made in a single 200-foot increment. A loss of one or more eggs/chicks associated with AC-34 activities or multiple flushing events from on-duty breeding birds (birds incubating or tending to chicks in nest) could trigger the need for expanding the buffer zone. In addition, if cumulative effects from other activities occur either prior or during the event that exceed the minor threshold established in this EA (characterized as a major disturbance by Thayer et al), the committee would evaluate expanding the buffer to provide protections to the nesting birds from further impacts due to race events.

Given these Protection Measures, the impact of the races themselves (Impact of Watercraft) would be reduced to minor to moderate, short-term and given the uniqueness of the Alcatraz colonies in the area, regional in context.

Impacts of Aircraft. As noted above in the general wildlife discussion, studies have documented that aircraft, especially low-flying planes and helicopters, can create disturbances that negatively affect seabird behavior. NPS biologists (NPS, W. Merkle, pers. comm. 2012) have stated that coordination with helicopter tour operators in the mid-2000s, resulting in a helicopter buffer 1,000 feet up and off the island, greatly reduced breeding bird disturbances from this source. A quantitative analysis of the AS-350 helicopters to be used estimates that with the BIO – 11 measure of 1,000 feet vertical and 1,000 feet horizontal buffers, noise would be only 61 dBA at Alcatraz. Therefore, with this aircraft buffer (Protective Measure BIO-11), impacts are reduced to minor, localized, and short-term.

Impact of Special Events. A study (Acosta et al. 2007) examined the effect of a Special Park Uses-permitted event held in 2007 in the Laundry Building on Alcatraz. The special event introduced light and nighttime activity into an area accustomed to neither, and this type of activity may be part of the AC34 program. The event was monitored for effects on cormorants, and the authors concluded that the cormorant population on Alcatraz experienced lasting effects from the event. The scale of disturbance that was monitored is assumed to be not substantially different from AC34 events. The impact can be reduced to minor through Protection Measure BIO-12, which limits the number of events on Alcatraz and prohibits night lighting there.

In addition to the effects of special events on Alcatraz, there are very clear indications that fireworks can be highly disruptive to Alcatraz waterbirds. Hasrick and Thayer (2011) reported on the effects of fireworks from a distance approximately 1.5 km from Alcatraz Island (the San Francisco Municipal Pier) and found that large numbers of Brandt's cormorants and western gulls were observed flushing from nesting areas during the fireworks; nest abandonment and mortality of eggs and chicks occurred in Brandt's cormorants colony, and nest failure also occurred in pelagic cormorants and Western gulls over the July 4th weekend.

As noted above, in 2012 the project sponsor would not launch fireworks. In 2013, any AC34 event-related fireworks would be launched from a location distant from Alcatraz Island and Crissy Field (i.e., near Piers 27/29, (1.65 miles away from Alcatraz), and noise would persist no more than 45 minutes in duration at 72 dBA in order to avoid potential impacts to sensitive bird species and reducing the impact to minor, localized, and short-term (Protection Measure BIO-19).

Conclusion for Alcatraz Waterbirds. Impacts from boat and aircraft traffic and special events are predicted to be of minor to moderate intensity and short-term. Considering the importance of Alcatraz as a regional resource, they would be regional as well.

Special-status Species: Sensitive Listed Species

Sensitive listed species consist of the snowy plover, Mission blue butterfly, Presidio manzanita, Marin dwarf-flax, Presidio clarkia, California seablight, and San Francisco lessingia.

For the listed California least tern, please see the discussion below (*Other Sensitive Wildlife Species/Impacts on* Foraging). Least terns are only affected in their foraging area in the Central Bay, not on breeding grounds. For an in-depth discussion of impacts to listed species, please see the Biological Assessment prepared for this project in compliance with Section 7 of the Endangered Species Act.

Impacts at Crissy Marsh. The proposed spectator area at Crissy Field would provide a range of hospitality services, including food and beverage concessions and sponsor displays, and is expected to attract tens of thousands of visitors over the course of the AC34 events.

The Crissy Wildlife Protection Area (WPA) to the west of the marsh and along the beach/offshore area is set aside for the protection of shorebirds, and in particular the western snowy plover (a federally listed threatened species), which occupies the area from July through May. The area is currently enclosed with post-and-cable fencing backed by 2-inch-by-4-inch welded mesh. The fencing may be inadequate given the crowd sizes expected. Also, the Crissy Field dune community is identified as a Special Ecological Area (SEA) by the NPS, and Marin dwarf-flax occurs there. California seablight and San Francisco lessingia occur at Crissy marsh also. Impacts could include off trail hiking and trampling, altering site drainage patterns and introduction of non-native species but can be moderated to minor by fencing and signage as necessary (Protection measure BIO-5), with the effectiveness of the measure ensured by resource monitoring (Protection Measure BIO-3).

Impacts at Baker Beach and Dunes. Baker Beach and dunes support four of the listed plant species. Although Baker Beach is not within the primary or secondary spectator areas, this EA assumes that it would receive heavier than normal use during the race events because people would be displaced from formally designated areas and others may simply prefer Baker Beach. Much of the dune area is fenced with post and cable fencing in various states of repair, but new planting areas indicated by pin flags are in close proximity to trails and are unprotected. Impacts could include off trail hiking and trampling, altering site drainage patterns and introduction of non-native species but can be moderated to minor by fencing and signage as necessary (Protection Measure BIO-5), with the effectiveness of the measure ensured by resource monitoring (Protection Measure BIO-3).

Impacts at Fort Baker and the Marin Headlands. A concern over much of Fort Baker (Battery Cavallo, Battery Yates, and the upland area between the Lodge and East Road, and up to Alexander Avenue) is the presence of Mission blue butterfly, a federally listed endangered species. The park requires visitors to stay on trails, and the Mission blue butterfly habitat areas within the park are enclosed with post and cable fencing. Similar fencing indicates trails that are closed in Mission blue butterfly habitat (e.g., Drown Fire Road). This type of fencing could be inadequate to contain a large increase in visitors during race days, and degradation of habitat from off trail use is likely. Moreover, outside of Fort Baker, the NPS considers suitable – and occupied – Mission blue butterfly habitat to extend west along the Marin Headlands south of Conzelman Road, (a likely spectator route) and especially in the vicinity of Kirby Cove. Impacts could include off trail hiking and trampling, altering site drainage patterns and introduction of non-native species but can be moderated to minor by fencing and signage as necessary (Protection Measure BIO-5), with the effectiveness of the measure ensured by resource monitoring (Protection Measure BIO-3) and area closures as necessary (Protection Measure BIO-8).

Conclusion for Sensitive Listed Species. This conclusion applies to the snowy plover, Mission blue butterfly, Presidio manzanita, Marin dwarf-flax, Presidio clarkia, California seablight, and San Francisco lessingia. With the Protection Measures associated with this alternative including BIO-3 and BIO-5 and BIO-8 for federal listed species, this impact intensity would be minor, localized and short-

term and equate to a federal endangered species act determination of "may affect, not likely to adversely affect."

Other Sensitive Wildlife Species

Impacts on Foraging. The pelican and the cormorant forage in the deep waters of the Central Bay, although both are frequently associated also with shallower waters (Afinley et al. 1981). Least terns are seen in the Central Bay, but authors have noted that it forages more frequently in shallower water; in one study, approximately 90 to 95 percent of foraging was in water less than 60 feet deep (Atwood and Minsky 1983). The same holds true for the black-crowned night-heron and the snowy egret, as both species tend to "still-fish" in shallow water (Terres 1991). Considering the Central Bay as the center of the race route, and presuming spectator boats would generally be limited to defined areas and be mostly stationary during the races, there would be limited race-related traffic in or near shallow water habitats while the events are taking place, with the possible exception of low-flying helicopters. The effects are considered minor, localized and short-term.

The Historic Forest areas offer nesting and roosting and foraging habitat for birds. Birds nesting in the Historic Forest are currently subject to a high level of disturbance (e.g., activities associated with the reconstruction of Doyle Drive), and the forest offers little by way of viewing sites; impacts are therefore negligible for these taxa. Raptors also nest at Fort Baker and Marin Headlands, including barn owls, western screech owls, white-tailed kites, and Cooper's hawks; the conclusion of negligible was reached for these taxa as well, and for the same reason (i.e., viewing sites would not be suitable habitat for these species).

Conclusion for Other Sensitive Wildlife Species. Given the temporary nature of the events and the availability of forage in shallower waters in other parts of the bay, the impact of AC34 on open water feeding would be minor for the species discussed above. For nesting and roosting birds, as with the Alcatraz waterbirds, AC34 events and crowds will come late in the nesting season, when mated pairs are less likely to leave chicks or eggs. Therefore the impacts will be minor, localized and short-term.

Non-listed Special-status Plant Species

This category consists of dune gilia, Franciscan manzanita, San Francisco Bay spineflower, Franciscan thistle, blue coast gilia, San Francisco gumplant, San Francisco campion, San Francisco owl's clover, rose rock cress, round-headed Chinese houses, and San Francisco wall flower. These species are most frequently known from the same areas as the listed plants: Crissy Field, Crissy Marsh, and Baker Beach and dunes. However, other observations are more widely scattered and include Fort Point, Inspiration Point, and the Marin Headlands. The wider distribution poses some greater challenges, as it limits the effectiveness of fencing. Impacts could include off trail hiking and trampling, altering site drainage patterns and introduction of non-native species but can be moderated to minor by fencing and signage as necessary (Protection Measure BIO-5), with the effectiveness of the measure ensured by resource monitoring (Protection Measure BIO-3).

Summary of Conclusions for Alternative B

Conclusion for Vegetation and Sensitive Natural Communities. According to the threshold definitions above, the impact would be minor, localized and short-term.

Conclusion for Wetlands. The locations of these wetlands (with the exception of the seeps at Baker Beach) are displayed on Figure BIO-3. Impacts are expected to be negligible, localized and short-term.

Conclusion for Alcatraz Waterbirds. Considering the importance of Alcatraz as a regional resource, and applicable protection measures, impacts are predicted to be minor, regional, and short-term for impacts from air and watercraft and special events. This assumes the Protection Measures of a 300 foot enforced marine buffer, the 1,000/1,000 foot aircraft buffer, and adaptive management monitoring. Impacts from fireworks would likely be minor, localized and short-term.

Conclusion for Wildlife Other than Alcatraz Waterbirds. If crowds are as predicted, there may be impacts that result in localized changes in upland wildlife habitat quality or integrity and native and nonnative species richness and abundance could be detectable. But overall the impacts are considered minor, localized and short-term.

Conclusion for Sensitive Listed Species. This conclusion applies to the snowy plover, Mission blue butterfly, Presidio manzanita, Marin dwarf-flax, Presidio clarkia, California seablight, and San Francisco lessingia. With the Protection Measures associated with Alternative B, for listed species, this impact intensity would be minor, localized and short-term, and equate to a federal Endangered Species Act determination of *"May Affect, Not Likely to Adversely Affect."*

Conclusion for Other Sensitive Wildlife Species Given the temporary nature of the events and the availability of species considered to forage in shallower waters in other parts of the bay, the impact of AC34 on open water feeding would be negligible, localized and short-term for these species.

Conclusion for Other Sensitive Wildlife Species: Raptors and Other Nesting Birds. The Historic Forest areas offer nesting and roosting habitat for birds. Birds nesting in the historic forest are currently subject to a high level of disturbance (e.g., activities associated with the reconstruction of Doyle Drive), and the forest offers little by way of viewing sites; impacts are therefore negligible, localized and short-term for these taxa.

Conclusion for Non Listed Special Plant Species. This conclusion applies to dune gilia, Franciscan manzanita, San Francisco Bay spineflower, Franciscan thistle, blue coast gilia, San Francisco gumplant, San Francisco campion, San Francisco owl's clover, rose rock cress, round-headed Chinese houses, and San Francisco wall flower. Impacts could include off trail hiking and trampling, altering site drainage patterns and introduction of non-native species but can be moderated to minor by fencing and signage as necessary (Protection Measure BIO-5), with the effectiveness of the measure ensured by resource monitoring (Protection Measure BIO-3). Protection Measures established for special-status species under this alternative would be extended to vulnerable populations of these non-listed species at the direction of the NPS, therefore the effect would be reduced to minor, localized and short-term.

Cumulative Effects

Foreseeable projects that could have interactive effects with the Environmental Consequences of Alternative B – those which can or will impact upland biological resources such as those described in this chapter – are described briefly below.

Marin Headlands and Fort Baker Transportation Infrastructure and Management Plan (GGNRA). Project involves Improvements to 11 miles of historic roads in the Marin Headlands and Fort Baker. Under this plan, improvements to roadway surfaces and configurations, drainage structures, directional signage, and safety will help promote public transport, pedestrian, and bicycle traffic to and within the park while preserving the historic character of the areas. If any of these projects are underway during AC34, cumulative effects of road work and AC34 spectators would result in potentially major cumulative impacts, if visitor presence overlaps with road improvements. It is unlikely, however, that these activities would be scheduled concurrently.

GGNRA and Presidio Trust Presidio Coastal Trail Project. Proposed near-term trail improvements include upgrading and widening the existing Presidio Coastal Trail from the southwestern end of the Golden Gate Bridge down and through the Merchant Road, Battery Godfrey, and Pacific Overlook Areas; a new trail bridge to span the Battery Marcus Miller Covered Way; and upgrading and widening the roadside trail between the Pacific Overlook and Battery Chamberlin Road. In addition, the National Park Service will develop a viewing area southeast of Merchant Road. If some of the trail work is carried out before all AC-impacted areas have recovered, there may be cumulative effects from users displaced by trail work and using areas already disturbed by spectators.

Treasure Island/ Yerba Buena Island Redevelopment. The Proposed Project would include development of up to 8,000 residential units; up to 140,000 square feet ("sq. ft.") of new commercial and retail space; up to 100,000 sq. ft. of new office space; adaptive reuse of about 311,000 sq. ft. for commercial, retail, and/or flex space uses in the historic buildings on Treasure Island. Construction and buildout of the proposed Development Plan would be phased and would be anticipated to occur over an approximately 15- to 20-year period. There would be considerable marine activity as a part of construction and increased ferry traffic, both disruptive to seabird foraging. It is unlikely that there would be any residual effects from AC34 that would last long enough to combine with the Treasure Island project.

Doyle Drive Phase II Construction. Reconfiguration of Doyle Drive into the seismically improved Presidio Parkway near the Presidio. The Presidio Parkway will create a regional gateway between the Golden Gate Bridge and the City of San Francisco, and will provide direct access to the Presidio. Upon completion of the new roadway, an extensive landscaping effort will be conducted. The roadway provides a more centralized location for transit connections; enhanced pedestrian connections within the Presidio to the Main Post, Crissy Marsh, and the National Cemetery and historic batteries. Work is currently underway and construction will continue through 2015, compounding the effects of noise and human activity with the AC34 impacts on wildlife and vegetation.

Ongoing General Disturbances in the project area. As noted in the description of the No Action Alternative, there are impacts of current conditions and current actions (boating, commercial vessels, July 4 fireworks, human visitation etc.) in addition to the reasonably foreseeable future actions

described above and special events such as Fleet Week. NPS actions and programs are designed to minimize the Park's operational footprint, and together with the Protection Measures in this EA will avoid cumulative effects. The non-federal impacts of a busy commercial harbor and local aviation are likely additive to the AC34 effects, but the two seasons of the America's Cup would be only *temporarily* additive and not be cumulatively considerable (i.e., they would not affect park resources and values).

Conclusion for Alternative B that includes both Impacts of Alternative B and Impacts of Cumulative Actions not related to AC34. The impacts to sensitive upland biological resources from Alternative B would combine with other effects from past, present, and reasonably foreseeable future projects on lands within GGNRA, Presidio Trust, or San Francisco Maritime National Historical Park (SAFR) jurisdiction. However, because all impacts associated with Alternative B have been eliminated or reduced to a level of negligible or minor effects, and because all projects on federal lands have been or would be subject to project conditions or protection measures to reduce effects to biological resources as much as feasible through compliance with the regulations and policies of the National Park Service (see sections 4.5.1.3 through 4.5.1.5, above) the combined impacts would not be cumulatively considerable. For non-federal projects such as Treasure Island, it is unlikely that latent effects from AC34 would be measureable when construction begins. Therefore the conclusion would be that the combined impacts would be minor, localized and short-term.

4.5.1.10 Impacts of Alternative C—No Organized Events on NPS Lands

For a complete description of the alternative, see Chapter 2. Under Alternative C, AC34 race events would occur in the central San Francisco Bay in 2012 and 2013.The race areas would be similar in design and location to those of Alternative B. This alternative removes all special event related impacts from terrestrial spectator sites on NPS lands. Although individuals would obviously be attracted to the viewing area, there would be no tents, hospitality services, sponsor displays, bleachers, event stage, or amplified sound.

Protection Measures included in this Alternative are the same as Alternative B, with the exception of a larger (500 feet as opposed 300 feet) basic watercraft buffer around Alcatraz Island, and broader application of the 1,000 foot up and out aircraft buffer.

Impacts on Vegetation, Sensitive Habitats, and Wetlands

This analysis presupposes that in the absence of facilities on land, race viewers would generally be no more likely to concentrate at the water than under Alternative B. People would be expected to gravitate seaward simply to be closer to the water, but given the speed of the boats and the short time they will be visible, there is no reason to predict dense crowding which would overwhelm the protective fencing. However, the ORCA report of visitor use patterns for this alternative (2012) concluded that there *would* be crowding issues on some of the race days (a total of 15) at the beach areas. Secondary areas – Fort Baker, Fort Mason, Baker Beach, Marin Headlands etc. – would likely experience greater visitor use as well, relative to current conditions.

Effects of trampling and human disturbance on vegetation and wetlands therefore would be the same as Alternative B—only trampling in serpentine areas could have minor, localized, short-term adverse effects. Therefore, impacts would be detectable, but they would not be expected to be outside the natural range of variability and would not be expected to have any long-term effects on the spatial extent, integrity or population size of native plant species or communities or the natural processes sustaining them.

Impacts on Wildlife — Alcatraz Waterbirds

All impacts would be similar to, or less than that for Alternative B due to the 500-foot watercraft buffer (as opposed to the Alternative B 300 foot buffer plus adaptive management) and the absence of special events on Alcatraz. The race areas would be the same, as well as support activities such as helicopter operations.

Impacts on Wildlife other than Alcatraz Waterbirds

The effects would be moderated by reduced noise and the reduced crowds on NPS lands as compared to Alternative B. As a result, the impacts would be minor, localized and short-term.

Impacts on Special-status Species

As with the proposed project, listed plant species would continue to have exposure to adverse impacts, as AC34 spectators could illegally trespass to use these areas. Mission blue butterfly is in a similar position along the Marin Headlands, and the snowy plover may still be subject to human harassment at Crissy Beach. Snowy plover disturbances are not necessarily density dependent. Individual birds would flush early in the face of any disturbance, and other birds will follow the first to flush. Thus impacts on the plover would remain the same as Alternative B. With the Protection Measures associated with the Alternative for federal listed species this impact intensity would be minor, localized, short-term and equate to a determination of "may affect, not likely to adversely affect."

Cumulative Effects

Cumulative effects of Alternative C would be the same as those described for Alternative B. They would not affect park resources and values.

Conclusion for Alternative C that includes both Impacts of Alternative C and Impacts of Cumulative Actions not related to AC34. The impacts to sensitive upland biological resources from Alternative C would combine with other effects from past, present, and reasonably foreseeable future projects on lands within GGNRA, Presidio Trust, or San Francisco Maritime National Historical Park (SAFR) jurisdiction. However, because all impacts associated with Alternative C have been eliminated or reduced to a level of negligible or minor effects, and because all projects on federal lands have been or would be subject to project conditions or mitigation measures to reduce effects to biological resources as much as feasible through compliance with the regulations and policies of the National Park Service (see sections 4.5.1.3 through 4.5.1.5, above) the combined impacts would not be cumulatively considerable. For non-federal projects such as the *Treasure Island/ Yerba Buena Island*

Redevelopment, it is unlikely that latent effects from AC34 would be measureable when construction begins. Therefore the conclusion would be that the combined impacts would be minor, localized, and short-term.

4.5.1.11 Impacts of Alternative D—Modified Program Alternative

For a complete description of the alternative, see Chapter 2. Under Alternative D, AC34 race events would occur in the central San Francisco Bay in 2012 and 2013. The AC34 2012 primary race area would be shifted east by one-quarter mile from its Alternative B counterpart, away from Crissy Field, while remaining out of the shipping lane that runs between the City of San Francisco waterfront and Treasure Island. The AC34 2013 primary race area would be similar in design and location to that in Alternative B. Alternative D is in most respects similar to the Sponsor Proposed Project, with some impact modifications in the form of, for example, fewer facilities at Crissy Field: no stage, no amplified sound, and reduced size of bleachers. While these may in small ways reduce the level of impact of Alternative D, the difference is probably not measureable and impacts on upland biological resources would be roughly the same as Alternative B; or possibly slightly less because the 500-foot watercraft buffer itself considerably reduces on-shore disturbance compared to Alternative B.

Protection measures included in this alternative would be the same as those for Alternative B, with the exception of the modified aircraft and marine vessel traffic buffers (see BIO-10 and BIO-11).

Impacts on Vegetation, Sensitive Habitats, and Wetlands

The impact would be less than Alternative B due to the displacement of the primary regulated area to the east. With fewer facilities at Crissy Field and the race areas further east there would be less incentive to visitors to use Crissy Field or to go to Baker Beach and Dunes. For most of the other primary and secondary spectator venues impacts would remain similar to Alternative B they would be localized, short-term and negligible. There would be no observable or measurable impacts to the spatial extent, integrity or population size of native plant species or communities, or the natural processes sustaining them. Native species richness and abundance would remain the same. No detectable changes to sensitive plant communities (including to wetlands) would occur and no individuals of any rare or unique plant species would be disturbed. Impacts would be of short duration and well within natural fluctuations.

Impacts on Wildlife — Alcatraz Waterbirds

Impacts would be the same or less than Alternative B since Protection Measures keep boats further from Alcatraz. With effective Protection Measures, this impact would remain at the threshold of minor, and short-term. Considering aircraft, the buffer of 2,000 feet vertical and 1,000 feet horizontal would reduce noise to less than 60 dBA, the equivalent of a quiet suburb, and the effects would be negligible, but regional considering that the whole island would be a receptor, and considering the regional importance of Alcatraz waterbirds within San Francisco Bay.

Impacts on Wildlife Other than Alcatraz Waterbirds

Given the reduced pressure at viewing sites, the eastward shift in the 2012 race area and the absence of some facilities at Crissy Field and Marsh, environmental consequences (including impacts of the races on foraging and rafting waterfowl), would be less than Alternative B, but still classified as negligible as there would be no observable or measurable impacts to native species or their habitats, or the natural processes sustaining them.

Impacts on Special-status Species

Considering that the listed species are largely confined to NPS lands on the northern San Francisco Peninsula and the Marin Headlands, the change in 2012 race location and the reduced facilities at Crissy Field, the impacts would be minor, localized and short-term. Impacts would be slightly perceptible, without further actions, adverse impacts gradually decline and the resource would fully recover. Adverse impacts may include temporary disturbance to individuals or avoidance of certain areas. In addition, essential features of important or designated species' critical habitat would not be impacted. For federal listed species, this impact intensity would equate to a determination of "may affect, not likely to adversely affect."

Cumulative Effects

Cumulative effects would be the same as those described for Alternative B. They would not affect park resources and values.

Conclusion for Alternative D that includes both Impacts of Alternative D and Impacts of Cumulative Actions not related to AC34. The impacts to sensitive upland biological resources from Alternative D would combine with other effects from past, present, and reasonably foreseeable future projects on lands within GGNRA, Presidio Trust, or San Francisco Maritime National Historical Park (SAFR) jurisdiction. However, because all impacts associated with Alternative D have been eliminated or reduced to a level of negligible or minor effects, and because all projects on federal lands have been or would be subject to project conditions or mitigation measures to reduce effects to biological resources as much as feasible through compliance with the regulations and policies of the National Park Service (see sections 4.5.1.3 through 4.5.1.5, above) the combined impacts would not be cumulatively considerable. For non-federal projects such as the Treasure Island/ Yerba Buena Island Redevelopment, it is unlikely that latent effects from AC34 would be measureable when construction begins. Therefore the conclusion is that the combined impacts would be minor, localized and short-term.

4.5.1.12 Impacts of Alternative E—Preferred Alternative

Alternative E draws mainly upon elements of Alternatives C and D, and incorporates certain sponsor-proposed revisions that emerged since development of the original action alternatives. Alternative E is similar to that of Alternative C in that it would involve no public AC34 programmed activities at Crissy Field, Presidio Trust Lands, Fort Mason, Alcatraz Island, Fort Baker, or the Marin Headlands. However, like Alternative D, the Preferred Alternative could involve some AC34 programmed activities at SAFR and limited private, after-hours activities on Alcatraz Island. All biological Protection

Measures would still be implemented to ensure incidental impacts to wildlife and habitat under federal jurisdiction were avoided and/or minimized. The types, locations, and dates of Alternative E 2012 race events are also slightly different from those of the other alternatives, while those of 2013 remain unchanged.

Under Alternative E, AC34 race events would occur in Central San Francisco Bay in 2012 and 2013. There would be three primary AC34 2012 race areas. The first, which would be established for the August ACWS races, would be shifted east from its Alternative B counterpart by approximately one-half mile, so as to free up recreational marine space off of Crissy Field and focus spectators more toward facilities and amenities at the AC34 Village on Marina Green, while avoiding impacts on maritime traffic from Pier 41 and Fisherman's Wharf. The second, which would be established for the September/October AC72 exhibition races, would be similar to the Alternative B 2013 race area. The third race area, which would host the October ACWS races, would be established within the existing Fleet Week Safety Zone, located approximately one mile east of the Alternative B race area. The 2013 primary race area, and the contingency race area for both years, would be the same as those described for Alternative B. Actual race courses within these areas would be subject to wind and water conditions and finalized closer to the race events. The Preferred Alternative is the only one with a combined Fleet Week impact; that is, there will be simultaneous impacts from AC34 and Fleet Week activities on biological resources, but all of these activities would occur outside the breeding season for wildlife species of concern. The Protection Measures included in this Alternative are similar to those for Alternative B, with the addition of a larger (500 foot as opposed 300 foot plus adaptive management) basic watercraft buffer around, and an increased (2,000 foot as opposed to 1,000 foot vertical) aircraft buffer above, Alcatraz Island.

Impacts on Vegetation, Sensitive Habitats, and Wetlands

This analysis presupposes that in the absence of facilities on land, race viewers in the primary Crissy Field viewing area would generally be no more likely to concentrate at the water than under Alternative B; people would gravitate seaward simply to be closer to the water, but given the speed of the boats and the short time they will be visible, especially since the race areas are shifted considerably to the east, there is no reason to predict dense crowding which would overwhelm the protective fencing required by Protection Measure BIO-5. Effects of trampling and human disturbance on vegetation and wetlands therefore would be the same as Alternative B, i.e. only trampling in serpentine areas could have minor, localized, short-term adverse effects. Therefore, impacts would be detectable, but they would not be expected to be outside the natural range of variability and would not be expected to have any long-term effects on the spatial extent, integrity or population size of native plant species or communities or the natural processes sustaining them.

Impacts on Wildlife — Alcatraz Waterbirds

There would continue to be after hours events on Alcatraz, similar to Alternative B. Protection Measures will reduce impacts to minor through BIO-12, which limits the number of events on Alcatraz and prohibits night lighting there. For all other impact categories, the protective buffers for aircraft and watercraft (BIO – 10 and BIO – 11) will reduce impacts to negligible, localized, short-term.

Considering aircraft, the buffer of 2,000 feet vertical and 1,000 feet horizontal would reduce helicopter noise to less than 60 dBA, the equivalent of a quiet suburb, and the effects would be negligible.

Impacts on Wildlife other than Alcatraz Waterbirds

All impacts and mitigations would be similar to the Alternative B, although the 500-foot watercraft buffer and the shift of spectators toward facilities and amenities at the AC34 Village on Marina Green would be moderate impacts, generally on sensitive habitats and species, which are concentrated at Crissy Marsh and to the west. Relative to the impact thresholds the impacts would be minor, localized and short-term.

Impacts on Special-status Species

As with the Alternative B, listed plant species would continue to have exposure to adverse impacts, as AC34 spectators could illegally trespass to use these areas. Mission blue butterfly is in a similar position along the Marin Headlands, and the snowy plover may still be subject to human harassment at Crissy Beach. Snowy plover disturbances are not necessarily density dependent. Individual birds would flush early in the face of any disturbance, and other birds will follow the first to flush. Thus impacts on the plover would remain the same as Alternative B. With the Protection Measures associated with the Alternative (BIO – 3 and BIO – 5) for federal listed species this impact intensity would be minor, localized, short-term and equate to a determination of "may affect, not likely to adversely affect."

Cumulative Effects

Cumulative effects of Alternative E would be the same as those described for Alternative B, with the exception of the concurrent AC34 events and Fleet Week. The races will effectively exclude spectator craft from the immediate vicinity of the race course, potentially crowding a greater number of boats (Fleet Week and AC34 spectator boats combined) into a smaller area.

Conclusion for Alternative E that includes both Impacts of Alternative E and Impacts of Cumulative Actions not related to AC34. The impacts to sensitive upland biological resources from Alternative E would combine with other effects from past, present, and reasonably foreseeable future projects on lands within GGNRA, Presidio Trust, or San Francisco Maritime National Historical Park (SAFR) jurisdiction. However, because all impacts associated with Alternative E have been eliminated or reduced to a level of negligible or minor effects, and because all projects on federal lands have been or would be subject to project conditions or mitigation measures to reduce effects to biological resources as much as feasible through compliance with the regulations and policies of the National Park Service (see sections 4.5.1.3 through 4.5.1.5, above) the combined impacts would not be cumulatively considerable. For non-federal projects such as the *Treasure Island/ Yerba Buena Island Redevelopment*, it is unlikely that latent effects from AC34 would be measureable when construction begins. Therefore the conclusion would be that the combined impacts for most wildlife and vegetation categories would be minor, localized and short-term. However, the displacement of foraging waterbirds from Central Bay feeding areas would be a moderate, but localized and short-term effect because of the availability of alternate foraging areas. They would not affect park resources and values.

4.5.1.13 Mitigation Measures

No mitigation measures for impacts on upland biological resources would be warranted under any of the project alternatives.

4.5.2 Marine Biological Resources

This section describes the environmental consequences associated with each alternative, including direct, indirect, and cumulative impacts on marine biological resources. Potential impacts are described in terms of:

- Type (beneficial or adverse);
- Context (site-specific, local, or regional);
- Intensity (negligible, minor, moderate, or major);
- Duration (short or long-term); and
- Cumulative potential (would or would not impair park resources and values).

The context, duration, and intensity of impacts are analyzed, defined and quantified as much as possible.

4.5.2.1 Study Area/Context

The study area includes all areas affected directly or indirectly by the federal action and not merely the immediate area involved in the action. The effects that define the outer boundary of the project study area concerning marine resources include all in-water or on-water activities that could result in impacts to marine biological resources. Accordingly, the study area is the Central Region of San Francisco Bay as described in the Affected Environment chapter.

4.5.2.2 Issues

The AC34 event and its supporting activities pose the potential for direct and indirect impacts to marine biological resources originating from both the construction of activities associated with the permanent and temporary, in-water improvements to Port of San Francisco infrastructure. In general, direct effects are those which physically contact or change the species or habitat being analyzed, such as physical damage to an individual as in entrainment during dredging, or the complete physical loss of a spawning or foraging habitat, a blocked migration corridor, or harassment of an animal species to the point where it abandons part of its normal range. Indirect effects would include ecosystem type changes that would primarily affect food web dynamics as would occur with decreased suitability of foraging habitat, temporary noise or physical disturbance that results in avoidance behavior, and the reduced food-web value of foraging habitat as the result of the introduction of nonnative invasive species.

4.5.2.3 Guiding Policies and Regulations-Vegetation

NPS Policies

The NPS has developed specific guidelines for the management of natural resources. The guidelines are discussed in detail above as they apply to the proposed project and specifically include the following:

- *NPS Management Policies 2006 (NPS 2006) and the GGNRA General Management Plan (GMP)* (See Upland Section for detailed discussion)
- *Organic Act* of 1916 (16 USC 1) (See Upland Section for detailed discussion)
- NPS DO-77, *Natural Resource Management Guidelines* (NPS 1991) (See Upland Section for detailed discussion).

Federal Regulations

Sections 401 of the Clean Water Act authorizes the United States Army Corps of Engineers (Corps) and the United States Environmental Protection Agency (U.S. EPA) to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. These dredging activities must be executed in a manner that does not pose undue harm to special-status species or to sensitive, critical or essential habitats necessary for their existence. Section 401 also requires that applicants obtain state certification that the proposed activity will comply with applicable state effluent limitations and water quality standards which prohibit the impairment of the Receiving Water Body or its beneficial use, which includes impairment to biological resources, especially fish, and wetlands inhabiting the water body.

Additionally, under the *Clean Water Act* and the *Oil Pollution Act of 1990*, the USCG is directed to work cooperatively with other Federal, state, and local agencies to prepare comprehensive programs for eliminating or reducing the pollution of interstate waters and tributaries and improving the sanitary condition of surface and underground waters.

Under *Section 10 of Rivers and Harbors Act*, the Corps is required to regulate the construction of structures, such as tidegates, bridges, or piers, or any work that could interfere with navigation, including dredging or stream channelization. This applies to new construction such as the installation of AC34 temporary moorings and floating docks. As described in Chapter 1, Congress designated a certain portion of the San Francisco waterfront, namely that area extending from Van Ness Avenue to Bryan Street, as "nonnavigable waters within the meaning of the laws of the United States" (33 USC 59h). Therefore, any work occurring within the existing pier footprints along this portion of the San Francisco waterfront would not be subject to Corps Section 10 authorization.

The *National Invasive Species Act of 1996* directed the United States Coast Guard (USCG) to establish national voluntary ballast water guidelines, which were published on June 14, 2004. These regulations established a national ballast water management program with mandatory requirements for all vessels equipped with ballast water tanks that enter or operate in U.S. waters. The regulations carry

mandatory reporting requirements to aid in the USCG's responsibility, under the *National Invasive Species Act*, to determine patterns of ballast water movement. The regulations also require ships to maintain and implement vessel-specific ballast water management plans with the intent of reducing the introduction and movement of non-native invasive species in the waters of the US.

Under Title 33, Navigation and Navigable Waters, the USCG is directed to ensure that the Nation's ports and waterways and the marine environment are protected by proper planning and implemented actions that prevent and/or severely reduce incidents and hazards that threaten the safety of the public, the environment and the transport of people and goods on US waters.

Finally, the federal government also supports a policy of minimizing "the destruction, loss, or degradation of wetlands." Executive Order 11990 (May 24, 1977) requires that each federal agency take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

State Laws and Regulations

See Section 4.5.1 for a detailed description of the California Fish and Game Code.

4.5.2.4 Guiding Policies and Regulations-Wildlife

Federal Laws and Regulations

- Code of Federal Regulations. 36 CFR 2.2(a) and 2.15(a)(4). Disturbances to wildlife (See Upland Section for detailed discussion).
- *Migratory Bird Treaty Act of 1918*. The *Migratory Bird Treaty Act* (16 USC 703–712) (See Upland Section for detailed discussion).
- NPS DO-77, *Natural Resource Management Guidelines* (NPS 1991) (See Upland Section for detailed discussion).
- Sections 401 and 404 of the *Clean Water Act* (See above)
- The *Estuary Protection Act* (16 USC 1221–1226 (See Section above)
- The *National Invasive Species Act of 1996* (See Section above)

The *Marine Mammal Protection Act* of 1972 (MMPA), as amended in 1981, 1982, 1984, and 1995, establishes a federal responsibility for the protection and conservation of marine mammal species by prohibiting the "take" of any marine mammal. The *Marine Mammal Protection Act* defines "take" as the act of hunting, killing, capture, and/or harassment of any marine mammal, or the attempt at such. The act also imposes a moratorium on the import, export, or sale of any marine mammals, parts or products within the United States. These prohibitions apply to any person in U.S. waters and to any U.S. citizen in international waters.

The primary authority for implementing the act belongs to the USFWS and NOAA Marine Fisheries. The USFWS is responsible for ensuring the protection of sea otters and marine otters, walruses, polar bears, three species of manatees, and dugongs. NOAA is responsible for protecting pinnipeds (seals and sea lions) and cetaceans (whales and dolphins).

The *Marine Mammal Protection Act*, as amended, provides for the "incidental take" of marine mammals during marine activities, as long as NMFS finds the "take" would be of small numbers of individuals and have no more than a negligible impact on those marine mammal species not listed (i.e., listed under the *Federal Endangered Species Act* (FESA), as depleted under the *Marine Mammal Protection Act*, and not having an unmitigable adverse impact on subsistence harvests of these species.

The *Coastal Zone Management Act* (CZMA) enacted by Congress in 1972 and its amendments is administered by the National Oceanic and Atmospheric Administration's Office of Ocean and Coastal Resource Management. The CZMA provides for the management of the nation's coastal resources, including the Great Lakes, and balances economic development with environmental conservation. The CZMA outlines two national programs, the National Coastal Zone Management Program and the National Estuarine Research Reserve System. The 34 coastal programs aim to balance competing land and water issues in the coastal zone, while estuarine reserves serve as field laboratories to provide a greater understanding of estuaries and how humans impact them. The overall program objectives of CZMA remain balanced to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone."

Under Section 307 of the CZMA (16 USC § 1456), activities that may affect coastal uses or resources that are undertaken by federal agencies, require a federal license or permit, or receive federal funding must be consistent with a state's federally approved coastal management program. California's federally approved coastal management program consists of the California Coastal Act, the *McAteer-Petris Act*, and the *Suisun Marsh Protection Act*. The California Coastal Commission implements the California Coastal Act and the federal consistency provisions of the CZMA for activities affecting coastal resources outside of San Francisco Bay. The San Francisco Bay Conservation and Development Commission (BCDC) implements the *McAteer-Petris Act* and the Suisun Marsh Preservation Act and performs federal consistency reviews for activities affecting the San Francisco Bay and Delta and the Bay shoreline.

State Laws and Regulations

The *California Marine Invasive Species Act of 2003*, which revised and expanded the *California Ballast Water Management for Control of Non-indigenous Species Act of 1999* (AB 703), direct the California State Lands Commission to regulate not only the handling of ballast water from marine vessels arriving at California ports in order to prevent or minimize the introduction of nonnative invasive species (NIS) from other regions but to develop and implement additional provisions to prevent the introduction and spread of NIS. Amendments to the regulation scheduled to take effect in 2012 will establish new performance standards for biofouling management, set record keeping and reporting requirements, and establish inspection or cleaning requirements for very high risk vessels remaining in a port, place, or shared waters for ninety days or greater.

The *San Francisco Bay Plan* and *San Francisco Waterfront Special Area Plan*, adopted by BCDC in 1968 and periodically amended since its initial adoption is aimed at protecting the Bay's water quality, ecology, and guiding the dredging activities of the Bay's sediment.

4.5.2.5 Guiding Policies and Regulations-Special-status Species

Federal Laws and Regulations

NPS *Management Policies 2006* (NPS 2006) and the GGNRA *General Management Plan* (GMP) (see Upland Section for detailed discussion)

- *Organic Act* of 1916 (16 USC 1) (see Upland Section for detailed discussion)
- NPS DO-77, *Natural Resource Management Guidelines* (NPS 1991) (see Upland Section for detailed discussion).
- *Endangered Species Act (ESA)* (see Upland Section for detailed discussion)

The *Magnuson-Stevens Fishery Conservation and Management Act* (*Magnuson-Stevens Act* or MSA) (16 U.S.C. Sections 1801–1884) of 1976 as amended in 1996 and reauthorized in 2007 applies to fisheries resources and fishing activities in federal waters that extend to 200 miles offshore. Conservation and management of U.S. fisheries, development of domestic fisheries, and phasing out of foreign fishing activities are the main objectives of the legislation.

The *Magnuson-Stevens Act* defines "essential fish habitat" as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. The *Magnuson-Stevens Act*, as amended through 2007, sets forth a number of new mandates for NOAA Fisheries, regional fishery management councils, and federal action agencies to identify essential fish habitat and to protect important marine and anadromous fish habitat. The *Magnuson-Stevens Act* provided NOAA Marine Fisheries with legislative authority to regulate fisheries in the U.S. in the area between 3 miles and 200 miles offshore and established eight regional fishery management councils that manage the harvest of the fish and shellfish resources in these waters. The councils, with assistance from NOAA Marine Fisheries, are required to develop and implement Fishery Management Plans, which include the delineation of essential fish habitat for all managed species. Federal agency actions that fund, permit, or carry out activities that may adversely affect essential fish habitat are required under Section 305(b), in conjunction with required Section 7 consultation under FESA, to consult with NOAA Fisheries regarding potential adverse effects of their actions on essential fish habitat and to respond in writing to NOAA Fisheries' recommendations.

The Central Bay region of the San Francisco Bay-Delta, including the waters encompassing the Port of San Francisco and the AC34 event activities, is designated as essential habitat for fish managed under three Fishery Management Plans and as a Habitat Area of Particular Concern under two Fishery Management Plans. A total of 20 species of commercially important fish and sharks managed in the Pacific groundfish and coastal pelagics Fishery Management Plans use this region of the Bay-Delta as either essential fish habitat or a habitat area of particular concern. In addition, the *Pacific coast salmon Fishery Management Plan*, which includes Chinook salmon (*Oncorhynchus tshawytscha*) and coho salmon (*Oncorhynchus kisutch*), identifies all of the San Francisco Bay-Delta as essential fish habitat.

State Laws and Regulations

California Endangered Species Act (California Code of Regulations, title 14, sections 670.2 and 670.5) (see Upland Section for detailed description).

Fish and Game Code Sections 4700 and 5515 require a permit from CDFG (Section 4700 Mammals and Section 5515 Fish) for the "taking" of state listed endangered and threatened species.

4.5.2.6 Assessment Methods/Thresholds

Biological analysis is based on a qualitative assessment of vegetation, wildlife and special- status species that could occur in the project area and the effects anticipated as a result of in-water Port of San Francisco infrastructure improvements. Effects could occur from the proposed temporary in-water work at select NPS locations necessary to support 2012 and 2013 AC34 race events. In addition, effects to marine species could occur from the race event itself and associated impact from the presence of spectators and other visitors observing the AC34 races from the water. This analysis evaluates effects of the different race scenarios as described in the Alternatives, according to the categories below. Detailed impact thresholds have been developed for three resource types: vegetation, wildlife, and special-status species.

Impact Thresholds – Vegetation

The following definitions apply to the impact analysis regarding aquatic vegetation:

- Local: In the immediate vicinity of the activity or event location(s) including dredging, pile driving, and temporary dock and mooring locations as well as the racecourse on Central San Francisco Bay.
- Regional: Waters of Central San Francisco Bay Region.
- Short-term: Short-term impacts are those that last one growing season or less.
- Long-term: Impacts would extend beyond a single growing season.

Type of Impact – The following describes impact intensity thresholds for vegetation:

Beneficial impacts would improve the viability of native submerged aquatic vegetation (SAV) species or habitats. Adverse impacts eliminate or reduce SAV, including rare or sensitive species such as eelgrass.

Negligible impacts would be indicated by no observable or measurable impacts to the spatial extent, integrity or population size of SAV beds or communities, or the natural processes sustaining them. Native species richness and abundance would remain the same. No detectable changes to sensitive SAV communities (including wetland plants) would occur and no individuals of any rare or unique algae species would be disturbed. Impacts would be of short duration and well within natural fluctuations.

Minor impacts would be detectable, but they would not be expected to be outside the natural range of variability and would not be expected to have any long-term effects on the spatial extent, integrity or population size of SAV species or communities or the natural processes sustaining

them. Any changes in native SAV species richness and abundance would be minimal. Population numbers, population structure, genetic variability, and other demographic factors for species might have small, short-term changes, but long-term characteristics would remain stable and viable. Disturbance of some individuals could be expected, but without interference to reproduction or other factors affecting population levels. Impacts would be localized over a small area. Key ecosystem processes might have short-term disruptions that would be within natural variation.

Moderate impacts on the spatial extent, integrity or population size of native SAV species or communities or the natural processes sustaining them would be detectable, and they could be outside the natural range of variability for short periods of time. Population numbers, population structure, genetic variability, and other demographic factors might experience short-term changes, but would be expected to rebound to pre-impact numbers and to remain stable and viable in the long term. Key ecosystem processes might have short-term disruptions that would be outside natural variation (but would soon return to natural conditions). Improvements to plant populations or communities would be detectable and could result in measurable improvements in ecosystem resiliency.

Major impacts on the spatial extent, integrity or population size of native SAV species or communities or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of variability for long periods of time or be permanent. Population numbers, population structure, genetic variability, and other demographic factors might have large, short-term declines, with long-term population numbers significantly depressed. The impact is severely adverse or exceptionally beneficial or would result in appreciable changes to SAV populations and/or communities; the effect would be regional in scale and/or long term. Key ecosystem processes might be disrupted in the long term or permanently. Improvements to plant populations or communities would be detectable and permanent and would result in substantial improvements in ecosystem resiliency.

Impact Thresholds – Wildlife

The following definitions apply to the impact analysis regarding wildlife:

- Local: In the immediate vicinity of the activity or event location(s) including dredging, pile driving, and temporary dock and mooring locations as well as the race course on Central San Francisco Bay.
- Regional: Waters of Central San Francisco Bay Region.
- Short-term: Less than one breeding season.
- Long-term: One breeding season or longer.

Type of Impact – The following describes impact intensity thresholds for marine wildlife:

Negligible impacts would be associated with no observable or measurable impacts to native species or their habitats, or the natural processes sustaining them. There would be no discernable change in native habitat quality or integrity. Native and nonnative species richness and abundance would not be affected. If impacts do occasionally occur (but are not frequent enough to be measurable or observable), they would be of short duration and population dynamics (e.g. numbers, population structure, genetic variability and other demographic factors) would be well within natural fluctuations.

Minor impacts would include detectable, observable, or measurable impacts to native species or their habitats, or the natural processes sustaining them; but impacts would not be expected to result in population dynamics outside the natural range of variability. Any changes in native habitat quality or integrity and native and nonnative species richness and abundance would be minimal. Impacts would usually occur in a small, localized area.

Disturbance of some individuals could be expected, but without interference to reproduction or other factors affecting population levels. Changes in population dynamics might experience small, short-term fluctuations outside the natural range of variability, but long-term characteristics would remain viable and be within this range. Habitat quality and integrity to support species' needs would be maintained. Impacts would be outside critical reproduction periods for sensitive native species.

Moderate impacts would be readily apparent with regards to native species or their habitats, or the natural processes sustaining them, and population dynamics may be outside the natural range of variability for short periods of time. Changes in wildlife habitat quality or integrity and native and nonnative species richness and abundance would be detectable. Impacts would occur over a localized area.

Frequent responses to disturbance by some individuals could be expected, with some negative impacts to feeding, reproduction, or other factors affecting population levels. Population numbers, population structure, genetic variability, and other demographic factors might have short-term changes, but would be expected to rebound to pre-impact numbers and to remain viable in the long term.

Impacts may occur during particularly vulnerable life-stages, such as migration or juvenile stages, or during reproduction or rearing of young. Habitat integrity and quality would be maintained during the Event or would recover or be restored to support species' needs.

Major impacts would include obvious or substantial changes to native species or their habitats, or the natural processes sustaining them. Impacts would be expected to be outside the natural range of variability for longer periods of time and may be permanent and/or regional in scale.

Frequent responses to disturbance by many individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a decrease in population levels. Population numbers, population structure, genetic variability, and other demographic factors might have large, short-term changes, with long-term population numbers measurably depressed.

Impacts would occur during particularly vulnerable life-stages, such as migration or juvenile stages, during reproduction or rearing of young in high enough numbers to detect population effects. Habitat integrity and quality would be substantially reduced or damaged during the event in a way that could result in long term or permanent damage. Restoration may be needed to recover habitat or biological communities.

Impact Thresholds – Special-status Species

The following impact threshold definitions are used to describe the severity and magnitude of changes to federal and state listed species under each of the alternatives. Each threshold definition references the Endangered Species Act determinations previously described in the Upland Section above. These criteria are the same used in the preparation of the Biological Assessment (BA) (AMS and Boudreau and Assoc. 2011) prepared for the Project and federal Actions and reviewed by NMFS.

- Short-term: Less than one breeding or growing season.
- Long-term: One breeding or growing season or longer.

Type of Impact – The following describes impact intensity thresholds for marine special-status species:

Negligible impacts to individuals or habitats would be imperceptible or not measurable (undetectable). For federal listed species, this impact intensity would equate to a determination of "no effect."

Minor impacts would be slightly perceptible; without further actions, adverse impacts would reverse and the resource would fully recover. Adverse impacts may include temporary disturbance to individuals or avoidance of certain areas. In addition, essential features of important or designated species' critical habitat would not be impacted. For federal listed species, this impact intensity would equate to a determination of "may affect, not likely to adversely affect."

Moderate impacts would be readily measurable (apparent); adverse impacts would eventually reverse and the resource would recover. Adverse impacts may include disturbance, injury, or mortality of individuals, but the long-term viability of the population would be maintained. Some essential features of important or designated species' critical habitat(s) would be reduced; however the integrity of the habitat would be maintained. For federal listed species, this impact intensity would equate to a determination of "may affect, likely to adversely affect."

Major impacts would be substantial and highly noticeable in that a take permit for one or more individuals may be required; changes could be irreversible without active management. Adverse impacts may include disturbance, injury, or mortality of individuals to the point that the long-term viability of the population inside the park would be compromised. Essential features of important or designated critical habitat would be reduced affecting the integrity of the designated unit. For federal listed species, this impact intensity would equate to a determination of "may affect, likely to adversely affect."

4.5.2.7 Impacts of Alternative A—No Action

For a complete description of the alternative, see Chapter 2. The day-to-day operations of NPS, Corps, and the USCG would continue consistent with legal mandates for each agency in carrying out their responsibilities to manage park biological resources, implementing existing plans, and projects, etc. There would be no environmental consequences beyond those typical in the oversight of maritime activity (USCG) and the stewardship of sensitive resources in an urbanized region (NPS).

Cumulative Effects. Cumulative effects of the No Action Alternative would be negligible to non-existent and represent those ongoing cumulative effects to marine resources originating from Actions and activities in Central San Francisco Bay from other than AC34 discussed Actions.

4.5.2.8 Impacts Common to All Action Alternatives

Potential impacts to marine biota and habitat resulting from the AC34 project would be the same for all action alternatives, which would vary only in the location and (slightly) in intensity between the alternatives. Categories of impacts resulting from the action alternatives would include the following:

- Impacts to eelgrass and submerged aquatic vegetation from physical disturbance and non-native invasive species.
- Impact to phytoplankton from dredging and shading.
- Impacts to submerged aquatic vegetation and phytoplankton from non-native invasive species.
- Impacts to marine fish and invertebrate species and communities, including protected and managed fish species as a result of:
  - Increased predation as a result of increased nighttime artificial lighting.
  - Entrainment during dredging.
  - Noise from pile driving, helicopters, fireworks, and during race and spectator boats.
  - Seismic improvements to Port infrastructure.
  - Exposure to organic and inorganic contaminants from resuspended sediments during dredging.
- Impacts to marine wildlife, including protected and managed fish species from lost or altered soft and hard substrate habitat as a result of piling removal and repair, dredging, and mooring placement and removal.
- Impacts to marine wildlife, including protected and managed fish species as a result of the introduction or spread of non-native invasive species from Port improvements and spectator boats.
- Impacts to marine mammals as a result of noise from pile driving, helicopters, fireworks, and during race and spectator boats.

Please see the detailed discussion of these impacts under Alternative B.

Conclusion for Impacts Common to All Action Alternatives

All Action Alternatives include the implementation of Protection Measures (see below). The implementation of these Protection Measures will result in potential impacts to marine resources to vary between might effect, not likely to occur, negligible, local, and short- term for most impacts listed above to regional, long-term and negligible to minor for impacts from the introduction or spread of non-native invasive species.

4.5.2.9 Impacts of Alternative B—Sponsor Proposed Project

Potential project impacts are discussed below for all four project action alternatives. The evaluation for each alternative assesses potential effects from 1) in-water race-related changes in areas under federal jurisdiction and 2) the actual on-water race events themselves including the presence of spectators observing the races from boats in Central Bay. Each subsequent section compares the Sponsor Proposed Project, as it stood in January 2012, with the other alternatives, using the same impact thresholds. Principal differences between the alternatives relative to in-water or on-water Project activity concerns minor shifts in the location of the 2012 and 2013 racecourses, locations of

Port dredging, and the placement and number of floating docks and moorings. Relative to in-water dredging and Port of San Francisco pier improvements and Corps jurisdictional responsibilities there are no differences in the Alternatives. Finally, relative to the location of the racecourse and USCG jurisdictional responsibility, no substantial differences are presented by the Alternatives.

Vegetation and Sensitive Natural Communities

Impacts on Vegetation. As discussed in Chapter 3, Affected Environment, aquatic vegetation inhabiting project area waters includes water column phytoplankton, submerged aquatic vegetation (SAV) beds of brown, green, and red algae attached to subtidal and intertidal hard substrates, and eelgrass beds. The potential direct impacts to Central Bay region aquatic plant life are direct physical loss or destruction from dredging and piling installation and removal, disturbance/destruction by temporary mooring and vessel anchors, and installation of piling wraps. Potential indirect impacts include reduced light penetration from increased turbidity resulting from dredging, shading from installed temporary floating docks, barges, and from new pilings installed for seismic improvements and pier repairs. Indirect impacts may also occur from the introduction or spread of nonnative and invasive species (NIS) by visiting boats or during the removal of Port pier pilings for Port improvements and other temporary in-water structures (floating docks, anchor piles, mooring anchors, barges) installed to support AC34 race activities. Although most of these potential effects will occur under Corps jurisdictional actions, some will occur in NPS submerged tidelands and waters as well as potentially effect marine resources under NPS jurisdiction.

No eelgrass (*Zostera*) or SAV beds are located within the proposed Central Bay race area (including lands under federal jurisdiction where either dredging or piling installations are to occur or where temporary floating docks or mooring anchors are to be placed), thus neither race boats nor spectator boats would be expected to be the cause of any loss. Some algae is expected to be attached to pier pilings that are scheduled for replacement (fender piles) (AMS 2011). Colonization of these new facilities by algae and other marine invertebrate organisms will occur almost immediately following installation.

Within the Central Bay, eelgrass beds exist in close proximity to marinas and known open water anchorages, such as in Richardson Bay and in the coves and nearshore shallow areas at Angel and Treasure Islands and at Horseshoe Cove on the Marin Peninsula adjacent to Fort Baker. Visiting boats unfamiliar with San Francisco's sensitive habitats and their locations could pose a threat to these eelgrass beds if they elect to use these anchorages and anchor within the eelgrass beds. Most visiting mariners are expected to use moorings provided by project sponsors or use existing available slips in Bay area marinas. Based on previous Bay "on-water" events such as Fleet Week and previous AC34 events in other locations like those held in San Diego, CA in 2011, the vast majority of boats and boaters that would view AC34 races from the water are expected be local to San Francisco Bay. Additionally, during AC34 racing events, NPS will only allow boats with current marina privileges into Horseshoe Cove (Protection Measure BIO-6).

Potential impact to phytoplankton from increased turbidity in Central Bay waters as a result of dredging or from shading is assessed as minimal because of the established Long Term Management Strategy (LTMS) for maintenance dredging in San Francisco Estuary (LTMS 1998) and Dredged

Material Management Office (DMMO) requirements to minimize dredging turbidity and the existing highly turbid condition of Bay waters, especially in the shallow tideland locations where dredging would occur in association with new docks, barges, and pier pilings.

The potential threat to eelgrass and SAV beds in the Central Bay region from (NIS) is unknown. Although several highly invasive algae species, such as *Undaria pinnatifida,* have established footholds in some Central Bay marinas, eradication efforts are ongoing. If successful in establishing a foothold in Bay-Delta marine ecosystems, as the Asian clam Corbula has done in the Delta, it could result in the elimination of native species inhabiting Federal waters and submerged tidelands. As discussed in the Affected Environment Chapter, new species are being introduced into San Francisco Bay on a regular basis, mostly by foreign shipping and domestic commercial and recreational vessels. The current primary vectors of NIS introduction into Bay-Delta waters is from attachment to vessel hulls and anchoring/docking equipment that comes in contact with the water. Although there are existing and pending state and federal regulations to further control the introduction and spread of NIS, especially from hull fouling, the potential risk posed by the project, represents an additional source from which NIS can be introduced to Bay waters. At present, invasive species are potentially introduced into the Bay marine ecosystem or spread from locations within the Bay-Delta where they have established a foothold to other areas within the Bay-Delta by visiting boaters and small vessels that are not required to comply with existing federal or state invasive species regulations and may not be required to in the future. That includes the thousands of pleasure boats that visit San Francisco Bay yearly and for existing special events such as Fleet Week or other special events that draw maritime visitors to the area. This does not lessen the potential for AC34 visiting boaters to be the vector of a new introduced species to the Bay or the spreading of NIS from one area of the Bay-Delta to another, but demonstrates the magnitude and complexity of the problem. The AC34 event sponsors recognize the potential for using the AC34 races as an opportunity to educate the boating community about the problems of invasive species and the role they and their boats play in NIS introduction and spread. Information prepared for visiting boaters and procedures established for in-water construction work have the potential to have an important affect on future NIS introductions reductions.

Conclusion for Vegetation. According to the threshold definitions above and implementation of Protection Measures BIO-5, BIO-11, BIO-14, BIO-17, and HYD-3 impact to eelgrass and SAV in Central Bay from project related activities is expected to be local and short-term. Intensity would be negligible to minor, depending on the degree of impact to sensitive sites, specifically to regional eelgrass beds. Potential impact from temporary dock lighting is local and negligible. Potential for impacts from the introduction of NIS is unknown, although with the application of Protection Measures BIO-14, BIO-17, and HYD-3, potential impact risk would be expected to remain local, potentially long-term and minor.

Wildlife

The principal direct impacts to marine wildlife (i.e., fish, sharks, bats, rays, and soft substrate and hard substrate benthic invertebrates) from in-water Port infrastructure work include temporary soft substrate benthic habitat destruction at dredging locations, temporary hard bottom habitat loss from piling removal and installation of piling wraps, entrainment during dredging, and noise trauma to fish from pile driving. Potential indirect impacts include temporary loss of foraging habitat for fish and

other mobile predators at dredging locations, and under temporary mooring anchors and anchor pilings, altered community composition and food web contribution from the introduction or spreading of NIS, exposure to organic and inorganic contaminants from resuspended sediments during dredging, and increased predation from night lighting from temporary floating docks. Additionally, increased noise from race and spectator boats on the water during races may result in increased energy expenditures by fish, sharks, bats, and rays attempting to avoid the assumed threat posed by the increased noise. Each of these potential impacts is discussed below. As with described impacts to vegetation above, most of these potential effects will occur under Corps jurisdictional actions, some will occur in NPS submerged tidelands and waters as well as potentially effect marine resources under NPS jurisdiction.

The following discussion on potential wildlife impacts is summary of the assessment contained within the BA prepared for the AC34 events. This BA presents technical information about the project, and assesses potential effects to threatened, endangered, or proposed threatened or endangered aquatic species and their habitats, as well as potential impacts to EFH. Avoidance, minimization, and conservation measures are also identified with the responsibility for implementation among the project sponsors identified in parentheses when each measure is introduced. Multiple federal agencies will be utilizing the information presented in this BA for their formal consultations with National Marine Fisheries Service (NMFS). Each federal agency has jurisdiction over different components of the projects and will focus on those impacts related to their jurisdiction The USCG is the lead agency for consultation under Section 7 and is also consulting on behalf of the Corps and the NPS for this project.

Seafloor Habitat Loss. Under Alternative B, **d**redging of approximately 149,000 cubic yards at Piers 32-36 Open Water Basin (OWB), 26, 28 and 28 OWB, 9, and 14-22½ Rincon Point OWB would result in the short-term loss of fewer than 30 acres of unconsolidated fine sand-mud substrate and associated benthic infaunal community. Additionally, the temporary placement of assorted mooring anchors along the San Francisco waterfront between Marina Green and Pier 80, as described in the Alternatives discussion (Section 2), would result in the temporary loss of less than 0.17 acres. The installation of temporary steel pilings at these same locations and at Piers 30-32, 26, and 28 would result in the short-term burial and loss of approximately less than 0.023 acres of soft bottom seafloor habitat. The area of seafloor for both of these actions represents less than 0.0006% of Central bay subtidal habitat and is inhabited by one of the most common benthic communities in San Francisco Bay and Central Bay in particular (Thompson *et a*l. 2000). Immediately following dredging and mooring anchor/anchor-piling removal, the deposition of fine sand-mud sediments, comparable to pre-dredging conditions, would begin immediately along with recolonization by benthic infauna (Newell *et a*l. 1998, Blake *et a*l. 1996).

Likewise, the temporary burial and loss of seafloor habitat under mooring anchors and steel anchor pilings would be temporary, lasting between 6 and 18 months with recovery expected to be quick since the habitat located under the mooring anchors is not lost and recolonization from adjacent sediments has been shown to be fairly rapid (Blake et. al. 1996).

The impact from the temporary loss of soft substrate foraging habitat from Project dredging and burial would be local, short- term, and minor.

Marine Wildlife Entrainment. Dredging of Bay sediments by clamshell dredging equipment has the potential to entrain (directly remove) fish, benthic infauna, and mobile epibenthic (on the sediment surface) invertebrates, such as Dungeness crab (Reine and Clarke 1998). Clamshell dredging has the lowest occurrence of fish and mobile invertebrate entrainment, since these animals are generally capable of sensing the pressure wave that precedes the clamshell bucket traveling through the water column, can actively avoid the bucket, and generally avoid the active dredging site because of increased seafloor turbidity and noise (Reine and Clarke 1998). All benthic infaunal organisms inhabiting dredged sediments will be lost or relocated to an offshore dredge disposal site. If upland disposal were required because of potential sediment contaminants, the infaunal community would be temporarily lost. As discussed above, approximately 30 acres of dredged Bay represents less than 0.0006% of Central Bay subtidal habitat.

All proposed dredging in support of the AC34 project will employ offshore disposal, restrict overflow dredging, and be conducted within the environmental work windows established by the LTMS for maintenance dredging in San Francisco Estuary (LTMS 1998). As discussed above, recovery of the infaunal community in the dredged locations will begin immediately.

Entrainment of marine invertebrates and fish would be local, short-term and minor.

Exposure to Contaminated Sediments. The presence of organic or inorganic contaminants in Bay sediments at concentrations high enough to pose a threat to marine biota is not expected, either from dredging activities or placement/removal of pilings and mooring anchors. Implementation of sediment quality requirements outlined by the DMMO will substantially reduce the redistribution and exposure of contaminated sediments to marine biota.

Potential exposure of marine invertebrates and fish to contaminated sediments from resuspended sediments during dredging, mooring anchor placement and removal and piling installation would be local, short- term and minor.

Increased Nighttime Artificial Illumination of Water. Increased artificial illumination of Bay waters at night can alter normal swimming and foraging behavior of fish, marine mammals, and seabirds. Many pelagic schooling fish, such as sardines and herring, are attracted to bright illumination over the water cast by boats and offshore structures and are frequently subject to increased predation from other fish species as well as marine birds and occasional marine mammals (TRAC 2001). Measures that are often used to minimize impacts of artificial night lighting on birds, fish, and marine mammals include installation of dock lighting that is low to the dock surface; uses low-voltage, sodium, or non yellow-red spectrum lights; and is well shielded to restrict the transmittance of artificial light over the water. Also the Port locations where temporary floating docks are planned to be installed for less than18 months are in areas of the Bay that are already subject to overhead illumination from Pier and street lighting. Impacts to marine invertebrates and fish from illumination of nighttime Bay waters would be local, short-term, and negligible with the implementation of Protection Measure BIO-20.

Effects of Noise on Marine Taxa. The following discussion evaluates the effects of noise from various sources.

Pile Driving Noise. Concrete, wood, and steel piles that are driven within the water column for Port infrastructure improvements and for anchoring temporary floating docks can produce high-intensity underwater noise resulting in damage to soft tissues, such as gas bladders or eyes (barotraumas) and/or result in harassment of fish and marine mammals such that they alter swimming, sleeping, or foraging behavior or temporarily abandon forage habitat. Generally, underwater noise generated by driving concrete piles is less intensive than for comparable sized steel piles (see **Table BIO-2**).

TABLE BIO-2: DOCUMENTED NEAR-SOURCE UNDERWATER NOISE LEVELS FROM PILE DRIVING

Pile Size/Type	Relative Water Depth	Distance from Piling Measurement Taken	Average Sound Pressure		Attenuation Device
			Peak (Db)	SEL[b] (dB)	
Vibratory Hammer[a]					
12-inch Steel	5 meters	10 meters	165-171	150-155	None
24-inch Steel	15 meters	10 meters	175-182	160-165	None
72-inch Steel	5-30 meters	10 meters	183-195	160-180	None
Impact Hammer					
24-inch Steel[c]	-	10 meters	205	178	None
24-inch Steel[c]	-	10 meters	200	173	Bubble curtain
66-inch Steel[a]	<5 meters	30 meters	203	173	None
96-inch Steel[a]	10 meters	10 meters	220	194	None
16-inch concrete		10 meters	184	<166	None
24-inch Square Concrete[a]	3-4 meters	10 meters	185	RMS = 173	None
24-inch Square Concrete[a]	3-4 meters	20 meters	178	RMS = 165	None
24-inch Octagonal Concrete[a]	10-15 meters	10 meters	184	166	None
24-inch Octagonal Concrete[a]	10-15 meters	100 meters	174	152	None
16-inch Concrete[a]	10 meters	10 meters	184	RMS = 173	None

[a] Source: Caltrans. 2009. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. Final Report. Prepared for California Department of Transportation by ICF Jones & Stokes and Illingworth and Rodkin, Inc. February 2009. http://www.dot.ca.gov/hq/env/bio/files/Guidance_Manual_2_09.pdf.
[b] SEL- sound Exposure Level (SEL) for 1 second of continuous driving.
[c] URS. 2011. Draft Environmental Impact Report for the Pier 36/Brannan Street Wharf Project. Case No. 2009.048E. State Clearinghouse No. 2009122058. Prepared for the San Francisco Planning Department. February 9, 2011.

The striking of a pile by an impact hammer creates a pulse of sound that propagates through the pile, radiating out through the water column, seafloor, and air. Depending on the length of the pile being driven, the location of the hammer hitting the pile can range between 30 -100 feet above the water (MLLW). All pile driving for the project would occur adjacent to or under existing Port berths and within their horizontal distance from the shore. Sound pressure pulses, as a function of time are referred to as a waveform. Peak waveform pressure underwater is typically expressed in decibels (dB) referenced to 1 microPascal (μPa). Sound levels are generally reported as peak levels (peak) and sound exposure levels (SEL). In addition to the pressure pulse of the waveform, the frequency of the sound, expressed in

Hertz (Hz) is also important to evaluating the potential for sound impacts. Low frequency sounds are typically capable of traveling over greater distances with less reduction in the pressure waveform than high frequency sounds. Impact hammers driving concrete and steel piles in water typically generate sound waves ranging between 185-220 dB (peak) and 160-195 dB (SEL) (Caltrans 2009).

Vibratory hammers work on a different principal than pile-driving hammers and therein produce a different sound profile. A vibratory driver works by inducting particle motion to the substrate immediately below and around the pile causing liquefaction of the immediately adjacent sediment, allowing the pile to sink downward or removed. Vibratory pile driving is only suitable where soft substrate is present. The noise produced by vibratory drivers driving concrete and steel piles in water range between 165-195 dB (Peak) and 150-180 dB (SEL) (Caltrans 2009), as illustrated in Table BIO-2. These sound levels are typically 10-20 dB lower in intensity relative to the higher, pulse-type noise produced by an impact hammer (Caltrans 2009).

Table BIO-2 provides a summary of anticipated underwater noise levels from pile driving for Port infrastructure improvements and temporary in-water docks. Potential noise calculations prepared for the Pier 36/Brannan Street Wharf Project estimated that vibratory pile driving activities for that project, which included 24 and 36 inch steel pilings, would generate peak underwater noise ranging between 170 and 180 dB (URS 2011). These levels are below the established sound threshold of 183 dB for potential impact to fish less than 2 grams and 187 dB for fish greater than 2 grams. Ambient underwater noise for a major harbor like San Francisco is estimated at approximately 150 dB (Caltrans 2009). Calculating the distance that a 180 dB sound would need to travel to reach ambient conditions is estimated at less than 15 feet (Caltrans 2009).

No underwater sound level measurements for using an impact hammer to drive a 72-inch steel piling in sediments comparable to those in San Francisco Central Bay are currently available. CalTrans reported sound levels of 220 dB at a distance of 10 meters being generated when using an impact hammer to drive 96-inch steel pilings and 203 dB at 30 meters when driving a 66-inch steel piling for the Oakland Bay Bridge and Richmond Bay Bridge Seismic upgrading projects (Caltrans 2009). Using in-water noise level data for impact hammer driven 66-inch and 90-inch piles and applying installation requirements for the Piers 30-32 seismic upgrading (less than 50 hammer strikes), the distances required to reach established regulatory thresholds of 187 and 183 db, discussed above, can be estimated (Caltrans 2009). Results for these estimates are provided in Table BIO-3. Although these estimates represent the pile driving of steel piles slightly larger and smaller in diameter than the 72-inch piles to be used for the Piers 30-32 seismic upgrading, it can be assumed that the sound levels and distance required to reach the 183 and 187 dB regulatory guidance levels will be slightly greater than those estimated for the 66-inch pile and less than those calculated for the 90-inch piles. That is, we can assume that using an impact hammer to drive a 72-inch steel piling would be expected to generate a peak sound level between 203-214 dB and 173-190 SEL, at a distance of 10 or 30-meters, respectively (**Table BIO-3**).

Furthermore, the sounds generated from driving 72-inch pilings at Piers 30-32 would be expected to attenuate to 187 and 183 dB levels at distances between the 154-1,410 feet for the 66-inch piles and 289–2,608 feet for the 90-inch piles. Consequently, it is likely that attenuation devices, such as bubble curtains, cushion blocks, and other Best Management Practices (BMPs) will be necessary for the

TABLE BIO-3: ESTIMATED IMPACT HAMMER PILE DRIVING SOUND LEVELS AND DISTANCES TO CRITERIA LEVELS FOR PROJECT PILE DRIVING

Pile Type	Measured Sound Levels[a] (dB)			Distance Required to Reach Sound Level Thresholds[b] (feet)		
	Peak Sound Level	SEL	Root Mean Square (RMS) Sound Level[c]	Peak Sound Level 206 dB	Accumulated Sound Level 187 dB (> 2g fish)	Accumulated Sound Level 183 dB (< 2g fish)
24-inch (concrete)	184	166	-	-	59	108
66-inch (steel)	203	173	185	-	154	289
90-inch (steel)	214	190	203	223	1,410	2,608

a The distance at which sound levels were measured were 30-meters for the 66-inch piling and 10-meters for the 90-inch piling

b Calculated according to protocols outlined in: Caltrans. 2009. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. Final Report. Prepared for California Department of Transportation by ICF Jones & Stokes and Illingworth and Rodkin, Inc. February 2009. http://www.dot.ca.gov/hq/env/bio/files/Guidance_Manual_2_09.pdf.

c The Root Mean Square is also known as the quadratic mean, and is a statistical measure of the magnitude of a varying quantity, as in this case sound levels.

72-inch pipelines in order to ensure that sound levels within the Action Area stay below established threshold levels. These devices or practices have been demonstrated to reduce the intensity of the sound generated by the pile driving activity, and therein the distance the sound may travel in the air and water. For example, a wood cushion block placed between the impact hammer and the concrete or steel pile reduces the vibration created and therein the sound generated when the steel hammer comes into contact with the pile itself. Bubble curtains are used to create a ring of air bubbles around the piling in the water such that the attenuation and travel of the sound generated from the striking of the pile by the pile hammer is reflected back within the area of water contained within the bubble curtain and therein reduced the travel distance ad intensity of the sound underwater. 18-inch concrete piles noise levels would attenuate to below threshold levels at significantly reduced distances from the pile.

Vessel Noise. Although limited field investigations have been done, underwater noise generated by boats under speeds and conditions expected to be present during AC34 race events (less than 10 knots) is expected to be below levels determined to result in either acute barotrauma or to illicit a startle response or otherwise alter normal swimming or foraging behavior of fishes or marine mammals (Table BIO-3) (Kipple 2002; Kipple and Gabriele 2007). Recent scientific investigations in Glacier Bay National Park report underwater noise being generated by a variety of small and large boats/vessels to range between 157 and 182 dB re 1 "Pa at 1 yard (Kipple 2009) with large cruise ships generating the higher underwater sounds. Wind wave generated noise is estimated at approximately 120 dB re 1 "Pa at 1 meter (Kipple 2009) and ambient underwater background levels reported for San Francisco Bay are "130 dB re 1 "Pa at 1 meter (Caltrans 2009). Consequently underwater noise generated by small recreational boats is only 27 dB greater than ambient noise levels and 37 dB greater than wind generated noise at 1 yard. Kipple (2007) estimated that these sounds would decrease a

minimum of 40 dB within 100 yards from the source of the sound resulting in visiting vessel noise dropping to below background levels with 100 yards of the boat.

Noise Impacts on Fish. Scientific investigations on the potential effect of noise on fish indicate that sound levels below 187 dB do not appear to result in any acute physical damage (barotraumas) or mortality to fish (Dalen and Knutsen 1986). **Table BIO-4** provides a summary of known acute and sub-lethal effects of noise on fish. Noise levels that result in startle responses in steelhead trout and salmon have been documented to occur at sound levels as low as 130 dB at a frequency of 100 Hz and between 180 and 186 dB in Pacific herring (San Luis and Delta Mendota Water Authority and C.H. Hanson 1996).

TABLE BIO-4: POTENTIAL EFFECTS TO FISH AT VARYING NOISE LEVELS

Taxa	Sound Level (dB)	Effect	Reference
Fish			
All fish > 2 grams in size	206 peak 187 (SEL)	Acute Barotraumas	Caltrans, 2009
All fish < 2grams	186 (SEL)	Acute Barotraumas	Caltrans, 2009
Pacific Herring	180-186	Avoidance behavior	Dales and Knudsen, 1986
Salmon, steelhead	166	Avoidance behavior	Loeffelman et al. 1991
Salmon, Steelhead	140-160	Startle response	San Luis and Delta Mendota Water Authority and C.H. Hanson. 1996

[1] Level A harassment is defined as any act of pursuit, torment, or annoyance with has the potential to injure a marine mammal or marine mammal stock in the wild.
[2] Level B harassment is defined as any act of pursuit, torment, or annoyance with has the potential to disturb a marine mammals or marine mammal stock in the wild.

The use of vibratory hammers is expected to generate noise lower than 187 dB for a short period of time within a zone extending out 154 feet from the piling (URS 2011, NMFS 2011). During pile driving activities, few if any fish are expected to be present within this zone, since the movement of the steel pipe through the shallow water or the Pier slip and initial contact with the Bay floor will result in detectable pressure and low intensity sound waves to cause any fish present to quickly leave the immediate area. Any fish species swimming near pile driving activities are therefore not expected to experience any acute effects or barotraumas from vibratory pile driving (Caltrans 2009, NOAA 2011).

The use of an impact hammer to drive larger concrete and steel piling can be expected, however, to generate in-water sound levels exceeding 187 dB and therein pose a risk to small fish such as herring, sardines, and anchovies as well as larger fish, which could modify their foraging and/or normal swimming behaviors (Table BIO-4). BMPs include sound attenuation devices such as bubble curtains and cushion blocks, which can be used, to reduce transmitted sounds levels and the distance over which potentially deleterious underwater sounds levels would travel.

Corroborating this determination, the NMFS 2007 programmatic consultation for ESA listed species established activity-specific criteria to avoid or minimize adverse effects to individuals and cumulative

instances of specific routine permitted activities (NMFS 2007b). These activities include bridge repair, bank stabilization, culvert replacement, navigational dredging, boat dock construction and maintenance, piling installation, pipeline repairs, and levee maintenance. As part of a project's consultation with NMFS, pursuant to the ESA, if the proposed activity included one of the above routine permitted activities and conformed to normal and routine type operations the activity would be allowed pursuant to specific requirements. Specific to piling installation, this programmatic consultation established that for any size of steel, wood, or concrete piling installation employing a vibratory hammer, that installation could occur year-round with no meaningful impact to fish.

Pile driving activities outside these general criteria would be subject to additional measures to ensure the reduction of pile driving noise and the potential for deleterious effects to fish and marine mammals.

Underwater noise generated by boats under speeds and conditions expected to be present during AC34 race events is expected to be below levels determined to result in either acute barotrauma or to illicit a startle response or otherwise alter normal swimming or foraging behavior of fishes (Table BIO-4) as well as be below ambient underwater background levels reported for Central San Francisco Bay.

Conclusion for Effects of Noise on Marine Taxa. The potential for noise affects to Central Bay fish species from installation of 18- 24-, and 72-inch piles by vibratory hammers is local, negligible and short- term. Potential impacts from impact hammer installation of 24-inch concrete and 66- and 90-inch steel pilings, with implementation of Protection Measure BIO-15, would be local, negligible, and short-term. The potential for increased underwater noise from race and spectator boats during AC34 race events is estimated to be local, negligible, and short- term.

Invasive Species. As discussed under potential Project related impacts to vegetation from NIS, although NIS is currently being introduced into San Francisco Estuary at a rate four times greater than in the 1960s, many fail to survive their introduction or do not spread. However some do survive and produce major ecological changes in resident biological communities, such as has occurred with the introduction of the Asian clams, *Corbula amurensis* and *Corbicula fluminea*, which has resulted in significant changes in native benthic infaunal communities in the western Delta and Sacramento and San Joaquin Rivers. Historically, the principle mechanism of introduction into the Bay has been ship fouling and release of ballast dwelling organisms. Introduced species include snails, shrimp, plankton, crabs, and marine algae such as *Undaria pinnatifida*).

The greatest potential risk for NIS to be introduced or spread from AC34 in-water Port infrastructure improvements would be from the removal of portable floating docks and moorings. These activities could accelerate the spread of invasive organisms already in the Bay to areas of Central Bay where the species has not been established. During removal of damaged pilings as part of the Pier improvements and the removal of temporary anchoring pilings, floating docks and vessel moorings, attached invasive organisms could be accidentally removed, allowing the individual to float to a new location, or remain attached and be transported to a new location when redeployed. Dredging and Port improvements are expected to be done by Bay located dredgers and vessels. These vessels, which may be berthed or located at locations within the Bay-Delta where invasive species have become established, can act as vectors for the spread of NIS. Additionally, visiting boats that have not taken appropriate action to clean their hulls and bilges before entering San Francisco Bay could be a vector for the introduction of NIS.

Although the introduction of NIS into Bay Estuary waters is a significant and ongoing problem and concern for the Estuary, the potential contribution of AC34 in-water construction activities and visiting boaters, as discussed above for potential impacts to Central San Francisco Bay marine vegetation, represents part of the existing condition in the Estuary and is minor in comparison to the risk posed by existing international shipping calling on Bay Ports and Marine Terminals.

The introduction or spread of NIS during removal of temporary AC34 floating docks, barges, anchor pilings, and mooring anchors or by visiting boaters is assessed to be regional, long-term, and minor to negligible. Implementation of Protection Measuress BIO-17 and HYD-3, along with existing and pending state and federal regulations controlling the introduction and spread of NIS, especially from hull fouling of commercial and recreational boats, would be expected to further reduce potential risk of NIS introduction to Bay waters.

ESA Protected Species. Potential direct and indirect impacts on Sensitive Listed Species (green sturgeon; central California coastal steelhead; California central valley steelhead; winter run, spring run, fall and late fall run Chinook salmon; and longfin smelt[1]) are the same as those posed for all fish species inhabiting Central San Francisco Bay discussed above under potential impacts to marine wildlife. AC34 in-water construction and race activities do not pose any threat to critical spawning habitat or migration corridors for any of these species since neither are located within the Project area. Central San Francisco Bay is identified as critical foraging habitat for green sturgeon, Chinook salmon, and steelhead. A recent study evaluating 30-years of Interagency Ecological Program (IEP) monthly mid-water fish trawl data and three-years of acoustic tag data of hatchery-raised salmonids suggests that the presence of out-migrating juvenile salmonids (steelhead and salmon) along the Port of San Francisco waterfront where in-water construction will occur appeared to be more the result of capture by tidal flow rather than active foraging or intentional swimming to those areas of the Bay (Jahn 2011). Longfin smelt utilize the waters of Central San Francisco Bay, including the waters encompassing Port facilities (Baxter et al 1999), for foraging during the summer and fall months of the year. All dredging will be conducted within established LTMS windows for protected species as well as any impact hammer pile driving.

Potential Project related impacts to ESA protected species with the implementation of project protection measures BIO-11, BIO-13, BIO-14, BIO-15, BIO-17, and HYD-2, is assessed to may affect to not likely to adversely affect, local, and short- term.

MMPA Protected Species. Potential direct and indirect impacts to protected marine mammals (harbor seal, California sea lion, Northern elephant seal, harbor porpoise, bottlenose dolphin, sea otter, California gray whale, and humpback whale) are from pile driving noise, media helicopter noise, firework display noise, and possible collision with either AC34 race or spectator boats. Each impact is discussed briefly below. Although most of these potential effects will occur under either Corps or USCG jurisdictional actions, some, like firework and helicopter noise, have the potential to affect marine mammals utilizing NPS land.

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[1] The longfin smelt *(Spirinchus thaleichthys)* has been identified by the USFWS as a candidate for federal endangered species listing, and is presently on the federal agency waiting list for such designation.

Noise Effects on Marine Mammals. Noise studies conducted on pinnipeds (seals and sea lions) indicate that harbor seals can detect sounds underwater as low as 65 dB at frequencies of 75 Hz and higher, and that avoidance behaviors are regularly exhibited at sound levels of 80 dB above hearing thresholds, or approximately 160–165 dB (Kastak and Schusterman 1998) (**Table BIO-5**). Of particular significance are the investigations of Kastelan (Kasterlan *et al*. 2006) in which it was reported that 12 kHz sounds produced a discomfort threshold for harbor seals at 107 dB and that 180 dB sounds at the same frequency maintained a discomfort zone extending out 4 miles. 12 kHz sounds are extremely low frequency sounds and as such can travel long distances with little decrease in sound intensity. The programmatic consultation (NMFS 2007a) between the Corps and NMFS for routine harbor and port maintenance activities established that when marine mammals were potentially present, a species-specific work window would apply. Thus the project may be required to have on-site monitors, and Incidental Harassment Permits from NMFS might be needed. The consultation further stated that the project would be required to:

- Maintain route mean square (RMS) underwater sound pressures below levels that can injure (180 dB re 1 micropascal) or affect the behavior (160 dB re 1 micropascal) of marine mammals
- Maintain a 500-meter safety zone around sound sources in the event the sound level is unknown or cannot be adequately predicted
- Maintain sound levels below 90 dB (averaged) in air when pinnipeds (seals and sea lions) are present
- Halt work activities when a marine mammal enters the 500-meter safety zone
- Bring loud mechanical equipment on-line slowly
- Vessel operations should adjust vessel speed when marine mammals are in the Project Area.

In their recent issuance of an Incidental Harassment Authorization (IHA) for the pier improvements at the Exploratorium (Piers 15-17) in which 72-inch steel pilings will be installed using vibratory and impact hammers similar to this project, NMFS determined that through the implementation of the measures outlined in the programmatic consultation, that Level A harassment (Acute barotraumas) could occur to marine mammals in San Francisco Bay within 65-feet of the sound source and that Level B harassment from impact hammers was expected to occur up to a distance of 354 feet from the sound source (NOAA 2011).

The Bay waters adjacent to Pier 30-32, where the only impact hammer pile driving will be conducted to seismically retrofit the Pier, are frequently used by harbor seals and California sea lions for foraging and transit to and from colonies and/or haul-out locations and foraging areas within the Bay and nearshore coastal waters. The other marine mammals reported occurring in Central San Francisco Bay are typically observed only in the western segment of Central Bay between the Golden Gate and Angel and Alcatraz Islands.

The potential for noise disturbance from impact hammer pile driving exists for harbor seals and California sea lions. The implementation of established and approves Corp and NMFS BMPs discussed above, as well as noise reduction practices outlined in project protection measures BIO-15, which is

TABLE BIO-5: POTENTIAL EFFECTS TO MARINE MAMMALS AND SPECIFICALLY HARBOR SEALS AT VARYING NOISE LEVELS

Taxa	Sound Level (dB)	Effect	Reference
All Marine Mammals	180-190	Level A[a] harassment out to 65 feet from sound source	NMFS, 2011
Harbor seals	180 at 12 kHz	Discomfort zone out to 4 miles	Kastelan et al. 2006
Harbor seals	166-195	Can be detected at distances up to 2.9 miles	Terhung et al. 2002
All Marine Mammals	160 from impact hammer	Level B[b] harassment out 328 feet from sound source	NMFS, 2011
All Marine Mammals	120 from vibratory hammer	Level B[a] harassment out to 1.2 miles	NMFS, 2011
Harbor seals	>155	Avoidance behavior	Terhune et al. 2002
Harbor seals	107 at 12 kHz	Discomfort zone out 20-meters from the sound source	Kastelan et al. 2006
Harbor seals	>75	Threshold level of detection	Kastak and Schusterman, 1998

[a] Level A harassment is defined as any act of pursuit, torment, or annoyance with has the potential to injure a marine mammal or marine mammal stock in the wild.
[b] Level B harassment is defined as any act of pursuit, torment, or annoyance with has the potential to disturb a marine mammals or marine mammal stock in the wild.

consistent with NMFS current programmatic review for pile driving activities in San Francisco Bay (NMFS 2007a) are expected to reduce the potential impact of pile driving noise on marine mammals.

The potential impact from pile driving noise on marine mammals is assessed at may affect, not likely to adversely affect, negligible, local, and short-term.

Helicopter Noise Effects on Marine Mammals. During the AC34 races, multiple helicopters will be used to provide live video coverage of the races at select spectator sites and to the media. Low flying aircraft noise could result in disturbance to any marine mammals present near the aircraft. A recent literature review of scientific studies using helicopters and planes to observe and track whales concluded that helicopter noise was detected by whales and elicited detectable avoidance behaviors at altitudes of less than 820 feet (250 meters) (Luksenburg and Parsons 2009). Maintaining 1000-foot vertical and horizontal buffer zones for helicopters when flying near or over NPS lands (including Alcatraz Island, Little Alcatraz, Crissy Field, Point Blunt, and Fort Baker) will avoid potential disturbance of any seals or sea lions temporarily hauled out at those locations. NOAA considers approaching any marine mammal by helicopter from an altitude of <1,000 feet to constitute potential harassment under the MMPA and requires an Incidental Harassment Permit. The closest year-round permanent harbor seal colony haul out is located on the south side of Yerba Buena Island, on USCG property. Although helicopter noise may momentarily startle seals and sea lions swimming in Central Bay waters during race activates, the potential congestion of boats and general activity in the area during race events would be expected to deter them from the area or result in their avoiding swimming on the surface of the water in the areas where boat congestion is occurring.

The greater potential risk to marine mammals from helicopter noise is to large cetaceans, such as gray or humpback whales. In the event that a whale were to enter the Bay or was attempting to leave the Bay during race activities, noise from a low flying helicopter could elicit erratic swimming and avoidance behavior by the whale in a potentially congested location, resulting in injury to the whale. However, gray whales are not present offshore California during August and September when AC34 race activities will be occurring. The likelihood of a humpback whale entering San Francisco Bay during the few hours each day when race activities are scheduled to occur can be expected to be extremely remote, in part because of the amount of on-water activity that will be occurring bayside of the Golden Gate. Additionally, the occurrence of humpback whales in San Francisco Estuary is considered infrequent, with one to two animals observed every 3-5 years.

The potential for helicopter noise to disturb or impact marine mammals is assessed at may affect to not likely to adversely affect, minor, local, and short- term.

Firework Display Noise Effects on Marine Mammals. As discussed in the "Noise" section there would potentially be up to four fireworks displays, two of which would be of a 30 minute duration and two of which could be up to 45 minutes in length in conjunction with opening and closing ceremonies for the 2013 LVC Challenger and AC34 Match Series, respectively. The location of the fireworks barge would be near Piers 27-29.

NOAA recently assessed the potential impact of aerial fireworks displays in the Monterey Bay National Marine Sanctuary (MBNMS) on marine mammals in preparation for issuance of an Incidental Harassment Authorization permit under the MMPS (NOAA 2011). This assessment of the potential effects of firework noise on marine mammals included all of the species observed in Central San Francisco Bay (NOAA 2011). This assessment determined that for injury to occur to marine mammals from fireworks, in-air sound levels would need to exceed 128 dB at a reference (re) 20 μPa. 20 μPa the level at which most human ears can detect sound. Noise studies done at Vandenberg Air Force Base (VAFB) following missile launches, reported that behavioral changes were observed at sound levels of 90-100 dB (re) 20 μPa. Sound monitoring conducted between 1993 and 2001 reported firework displays generating peak sound levels of 82 dB (re) 20 μPa at a 0.5-mile distance and average sound levels of 78 dB (re) 20 μPa. Below the noise level determined to cause either injury or behavioral responses in marine mammals. Ambient noise levels were recorded at 58 dB (re) 20 μPa. Both the VAFB and MBNMS monitoring studies reported that when marine mammals left their haul out and entered the water because of noises exceeding 90-10 dB, they would return within 4-15 hours (NOAA 2011). In conclusion, NOAA determined that any impact to marine mammals from firework displays would be negligible.

The potential for AC34 firework displays to result in impacts to marine mammals is extremely small or negligible since the closest established haul-outs range between 0.5 and 3.5 miles from Piers 27-29, and 2.5-2.8 miles from Pier 39. Consequently, the impact is assessed as having no effect.

Marine Mammal Collisions with Vessels. The potential for race boats or spectator boats striking marine mammals is a potential direct impact of the AC34 race events. The AC45 race boats, which will be used in 2012, have been documented to achieve speeds up to 20 knots, depending on sea and weather conditions. The potential speeds of the AC72 race boats are unknown at present since they are still being developed for the 2013 races, but their speeds are expected to be greater than 20 knots. Little

information is available on the frequency or occurrence of marine mammal strikes by any sailboats during races. San Francisco Bay is host to regular and frequent sailing regattas, and there are no known records of boat strikes by race boats. Most marine mammals present in the Bay avoid boats that are traveling at high speeds. The high speed ferries that frequent Bay waters, which are predominantly multi-hull boats like the planned AC34 race boats, travel at speeds in excess of 20 knots and regularly transit across the western part of the Central Bay; these vessels have not been reported to be involved in any known marine mammal strikes. Spectator boats would likely be moving at much lower speeds (under 10 knots) while congregated in the western part of the Central Bay to observe the races. As discussed above, NOAA (2011) in their recent assessment of the potential affects to marine mammals from firework displays between 1993 and 2001 in the Monterey Bay National Marine Sanctuary also observed the interaction of spectator boats with marine mammals during these events. The findings in this report show that the potential for spectator boats colliding with marine mammals during events such as firework displays, are virtually non-existent. This determination was based on no observed collisions during multiple events per year over 9 years and the observed avoidance of these congested areas by marine mammals (NOAA 2011). Finally, the use of Race Marshals, as described in the Water and Air Traffic Plan and in the Project Description, operating from small boats prior to and during races will be tasked with scanning for debris, obstructions, and the potential rare occurrence of a whale or other large marine mammal. Race Marshals establish a race course for each racing day within the conditions and parameters established under the SLR, final CEQA, and NEPA documents, and various regulatory approvals and permits. In the event a large marine mammal is observed in the racecourse, the Marshals can postpone or abandon the race, as warranted by the presence and behavior of the animal. Furthermore, avoiding collisions with marine mammals is the sole responsibility of the operator of every vessel. USCG regulations are explicit that the operator (captain) of a vessel is responsible for the safe operation of that vessel at all times. Under NOAA regulations, the operator of the vessel could be cited and fined for harassment of any kind to marine mammals under the *Marine Mammal Protection Act*.

The potential for collision between a race or spectator boat with marine mammals during AC34 race events is assessed at may effect, not likely to occur, negligible, local, and short-term.

MSA Managed Fish. Central San Francisco Bay is identified as essential fish habitat for three federally managed fish species (coastal pelagic, Pacific groundfish, and Pacific salmon). These species use Bay subtidal and open water habitat primarily for foraging area and potentially any loss of those habitats, as discussed for marine wildlife above, could affect specific fish species included within each managed fishery group. The assessment for potential impact to MSA managed fish species from the Project may effect, not likely to adversely affect, negligible, local, and short- term.

Species of Special Concern. Within San Francisco Bay three species are afforded distinction, as species of special concern because they are considered particularly sensitive to disturbance, possess unique or special ecological value, or are considered indicators of the overall ecological heath of the Bay (San Francisco Bay Subtidal Habitat Goals Project 2010). These include eelgrass beds, Pacific herring, and the native Olympia oyster. Potential impacts and project protections for eelgrass beds is discussed in detail above under vegetation. Similarly, Pacific herring is potentially exposed to the same Project related threats (noise, loss of foraging habitat (dredging pile placement, temporary moorings), increased predation from night lighting, exposure to organic and inorganic contaminants (dredging,

piling removal and placement, temporary moorings) as for all fish species that may be present in locations where in-water AC34 construction activities are planned to occur as discussed under marine wildlife impacts above. Native Olympia oysters are primarily threatened by habitat loss, siltation (dredging), and predation by native and non-native snails and birds. Project related impacts to Olympia oysters would primarily result from temporary habitat loss as a result of piling wraps installed south of Pier 28 where these oysters have been observed.

Potential impacts to eelgrass beds from project activities, after implementation of Protection Measures BIO-5, BIO-11, and BIO-13, would not likely to adversely affect, local, short-term, and negligible, depending on the degree of impact that might occur.

Project impacts to Pacific herring are assessed as local, short-term, and negligible as a result of strict adherence to LTMS (LTMS 1998) approved dredging windows, application of these windows to impact hammer pile driving activities, as well as implementation of project protection measures BIO-11, BIO-13, BIO-14, BIO-15, BIO-17, HYD-3, and BIO-20.

Project impacts to native Olympia oysters could occur from removal of damaged pier pilings, removal of floating docks and anchor pilings after 6-18 month deployments, and from introduction of NIS. Potential project impact to Olympia oysters are assessed to be may affect, not likely to adversely affect, local, short-term and negligible.

Summary of Conclusions for Alternative B

Conclusion for Vegetation. Impact would be local, short- term and negligible to minor.

Conclusion for Wildlife-Dredging. Dredging and burial impacts would be local, short- term and minor.

Conclusion for Wildlife-Entrainment. Entrainment of marine invertebrates and fish would be local, short- term and minor.

Conclusion for Wildlife-Contaminated Sediment Exposure. Exposure of marine invertebrates and fish to contaminated sediments from resuspended sediments during dredging, mooring anchor placement and removal and piling installation would be local, short- term and minor.

Conclusion for Wildlife-Increased Predation. Increased predation of marine invertebrates and fish would be local, short- term and negligible.

Conclusion for Wildlife-Noise. The potential for noise affects to Central Bay fish species from installation of pilings by vibratory hammers is local, negligible and short- term. The potential for increased underwater noise from race and spectator boats to fish during AC34 race events is estimated to be local, negligible, and short term.

Conclusion for Wildlife-NIS. The introduction or spread of NIS during in-water construction activities or by visiting boaters is assessed to be regional, long-term, and negligible to minor.

Conclusion for Special-status Species-Noise and Habitat Loss. Potential Project related impacts to ESA protected species (Chinook salmon, steelhead, and green sturgeon) from pile driving noise is assessed to no effect to not likely to adversely affect, minor, local, and short- term, depending on the source and degree of impact that might occur.

Conclusion for Special-status Species-Noise to Marine Mammals. The potential impact from pile driving noise on marine mammals is assessed at may affect, not likely to adversely affect, negligible, and short-term. Helicopter noise disturbance or impact to marine mammals is assessed at may affect, not likely to adversely affect, negligible, local, and short term. The potential for AC34 2012 and 2013 firework displays to result in impact to marine mammals is assessed as may affect, not likely to adversely affect and negligible.

Conclusion for Special-status Species-Marine Mammal Collisions. Collisions between race or spectator boats with marine mammals during AC34 race events is assessed at may effect, not likely to occur, negligible, local, and short- term.

Conclusion for Special-status Species-Managed Fish. The assessment for potential impact to MSA managed fish species from the Project is may affect, not likely to adversely affect, negligible, local, and short- term**.**

Conclusion for Special-status Species-Sensitive Habitats and Species. Impacts to eelgrass beds as a habitat of special concern would be assessed as may affect, not likely to adversely affect, minor to negligible, local, and short-term, depending on the degree of impact that might occur. Project impacts to Pacific herring are assessed as local, short-term, and negligible Native Olympia oyster impacts are assessed to be may affect, not likely to adversely affect, negligible, local, and short-term.

Cumulative Effects. Cumulative effects of Alternative B on park or federal natural resources and values would be negligible.

4.5.2.10 Impacts of Alternative C—No Organized Events on NPS Lands

In the discussion that follows, impacts for all categories of special-status species' are grouped, and will be evaluated using the same thresholds as described for listed special-status species.

Alternative C varies from Alternative B relative to in-water race related changes in areas under federal jurisdiction in that it does not include the docking of a support barge (approximately 60 foot x 80-foot floating barge) docked alongside Pier 2 at Fort Mason. Potential impacts from all other in-water construction activities at Port locations would remain for all marine taxa as would those identified in Alternative B for 2012 and 2013 race activities.

Impacts on Vegetation. All impacts would be similar to those of Alternative B.

Impacts on Wildlife. All impacts would be similar to those of Alternative B,

Impacts on Special-status Species. All impacts would be similar to those described in Alternative B. Since the proposed locations for the 2012 fireworks displays are beyond 0.5 miles from NPS lands and

beyond waters where marine mammals are known to haul out, the potential impact would remain unchanged as discussed for Alternative B.

Cumulative Effects. Cumulative effects of Alternative C on park or natural marine resources and values under federal jurisdiction would be negligible.

4.5.2.11 Impacts of Alternative D—Modified Program Alternative

Alternative D has the 2012 racecourse shifted slightly east of Crissy Field. The 2013 race area remains as described in Alternative B, but stays outside of a 500-foot boundary around Alcatraz and 1,000-foot offshore of Crissy Field.

Impacts on Vegetation. All impacts would remain unchanged or essentially similar to Alternative B for in-water construction activities and for race related impacts.

Impacts on Wildlife. All impacts would remain unchanged or essentially similar to Alternative B for in-water construction activities and for race related impacts. The requirement for race related helicopters to fly at an altitude of 2000-feet vs. 1,000-feet as in Alternatives B and C has no effect on noise impacts to marine mammals.

Impacts on Special-status Species. Potential impacts to special-status fish species would remain the same as the Sponsor Proposed Project (Alternative B). Concerning the potential impact to marine mammals from firework noise, the assessment would be the same as for Alternative B.

Cumulative Effects. Cumulative effects of Alternative D on park or natural marine resources and values under federal jurisdiction would be negligible.

4.5.2.12 Impacts of Alternative E—Preferred Alternative

Alternative E has the 2012 racecourse shifted slightly east of Crissy Field with the 2013 racecourse remaining as described in Alternative B. Use of the on-water areas of Fort Mason remain similar to Alternative C, with no barges stationed along Pier 2. Use of Pier 80 is similar to Alternative B but with fewer mooring anchors. Use of the marine areas of Piers 30-32 and 32-36 would be similar to Alternative B, with the exceptions that at Piers 30-32, there would be fewer floating docks, no seismic upgrades, and the use of concrete vs. helical mooring anchors. There would be substantially less dredging under Alternative E. Finally at Piers 9, 14, 19, 23, 27, and 29, the use of marine areas and effects to marine resources will be similar to Alternatives B.

Impacts on Vegetation. All impacts would remain unchanged or essentially similar to Alternative B for in-water construction activities and for race related impacts, although less in severity since no seismic work will occur at Piers 30-32.

Impacts on Wildlife. All potential impacts from in-water construction activities, as discussed in Alternative B, would remain, although they would be reduced in both potential severity and geographic extent as a result of decreases in the amount of seafloor being dredging, pile driving noise (no seismic upgrades at Pier 30-32), potential shading (fewer floating docks), spread of non-native

invasive species (no seismic upgrades at Piers 30-32 and fewer floating docks), and temporary habitat loss and disturbance (no seismic upgrades at Piers 30-32, reduced dredging, fewer mooring anchors). Racecourse and race related impacts would remain the same as discussed for Alternative B.

Impacts on Special-status Species. All potential impacts from in-water construction activities, as discussed in Alternative B, would remain, although they would be reduced in both potential severity and geographic extent as a result of decreases in the amount of seafloor dredging, pile driving noise (no seismic upgrades at Pier 30-32), potential shading (fewer floating docks), spread of non-native invasive species (no seismic upgrades at Piers 30-32 and fewer floating docks), and temporary habitat loss and disturbance (no seismic upgrades at Piers 30-32, reduced dredging, fewer mooring anchors). Racecourse and race related impacts would remain the same as discussed for Alternative B.

Cumulative Effects. Cumulative effects of Alternative E on park or natural marine resources and values under federal jurisdiction, including those associated with the Fleet Week events, would be negligible.

4.5.2.13 Mitigation Measures

No mitigation measures for impacts on marine biological resources would be warranted under any of the project alternatives.

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4.6 CULTURAL RESOURCES

4.6.1 Study Area/Context

Impacts on cultural resources are generally limited to the specific building, structure, object, or site that would be physically affected by project-related activities. However, if affected resources are contributing elements to a historic district or cultural landscape, such effects may diminish the overall integrity of the district or landscape to the point that it no longer qualifies for National Register listing. For example, effects on individual resources within the Forts Baker, Barry, and Cronkhite Historic District would need to be assessed to determine whether they would diminish the overall integrity of the district and its ability to convey its historic character. Similarly, effects on an individual cultural resource within Fort Mason could potentially diminish the integrity of both the Fort Mason (National Register) Historic District and the San Francisco Port of Embarkation, U.S. Army National Historic Landmark (NHL) District. For each programmed event venue or secondary viewing area, effects on any contributing resource within a given historic district or landscape are understood to have a corresponding effect on the entire district or landscape.

In this section, effects on previously identified sensitive cultural resources within the portions of the Area of Potential Effect (APE) under federal jurisdiction, as well as the Golden Gate Bridge, are assessed. Effects on cultural resources on non-federal lands (i.e., Port of San Francisco, Marina Green, Angel Island, and Treasure Island) that may result from construction of event venues or spectator gatherings have been addressed in *The 34th America's Cup and James R. Herman Cruise Terminal and Northeast Wharf Plaza Environmental Impact Report*, certified by the City and County of San Francisco on December 15, 2011. Effects on cultural resources under nonfederal jurisdiction that may result from in-water construction activities will be assessed by the Corps during its permitting process for dredging and construction within the Bay. Additional details regarding federal agency responsibilities and actions with regard to cultural resource regulations can be found in Section 3.6.3 and below, in Section 4.6.3.

4.6.2 Issues

Increased visitation by event spectators in both the programmed event venues and secondary viewing areas could have adverse effects on historic resources. Effects resulting from increased visitation could include trampling, turf degradation, erosion, or crumbling (of weathered concrete/brick) or other structural damage due to heavy pedestrian traffic and congregation, graffiti or other defacement, and removal of portable artifacts or feature elements. Crowds of spectators could also damage turf, shrubs, and trees in the significant cultural landscapes of Aquatic Park and Fort Mason. In-water facilities adjacent to Fort Mason piers could result in effects on the historic fabric of the piers, significant architectural resources that contribute to the National Register and National Historic Landmark (NHL) Districts. The proposed temporary spectator amenities (e.g., bleachers, tents, and video screens) could potentially detract from the historic setting and feeling of National Register and National Historic Landmark Districts within the APE.

4.6.3 Guiding Regulations and Policies

4.6.3.1 Federal Laws, Statutes, and Regulations

Numerous federal laws, statutes, and regulations have been enacted to protect the country's cultural heritage. The most applicable regulations to the proposed undertaking are summarized below.

American Antiquities Act (1906)

The federal government formally recognized the importance of cultural resources with passage of the American Antiquities Act of 1906 (16 United States Code [USC] 431-433). This act, with its implementing regulation 43 Code of Federal Regulations (CFR) Part 3, protects historic and prehistoric resources on federal lands and prohibits excavation or destruction of cultural resources. The act includes protection for objects of scientific interest, thereby providing protection for paleontological resources as well as those related to human activities and culture. Jurisdiction over resources on federal lands is given to the respective department with authority on those lands. The act also authorizes the president of the United States to declare areas of public lands as national monuments and to reserve or accept private lands for that purpose.

Historic Sites Act, as Amended (1935)

The Historic Sites Act (16 USC 461-467) established the National Historic Landmark program for archeological sites and historic buildings, sites, and objects of national significance. The act directs the National Park Service (NPS), on behalf of the Secretary of the Interior, to evaluate, acquire, restore/maintain, and manage such properties for the benefit of the public, and to identify them with a tablet to "commemorate historic or prehistoric places and events of national historical or archeological significance." The NPS Advisory Board and NPS Advisory Council are also established by this act.

National Historic Preservation Act, as Amended (1966)

Cultural resources are protected through the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470 et seq.), and its implementing regulation, Protection of Historic Properties (36 CFR Part 800). Under the NHPA, a cultural resource is considered significant if it meets the Criteria for Evaluation (36 CFR 60) for the National Register of Historic Places (NRHP, or National Register).

Prior to implementing an "undertaking" (i.e., "a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval"), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment on any undertaking that would potentially affect properties listed or eligible for listing in the National Register.

Section 106 Regulations (36 CFR Part 800.8) state that preparation of an environmental assessment (EA) and finding of no significant impact (FONSI) under the National Environmental Policy Act (NEPA) should include appropriate scoping, identification of historic properties, assessment of effects upon them, and consultation leading to resolution of any adverse effects. To that end, this section will assess the effects (or impacts) of the undertaking on historic properties.

The NHPA also provides heightened protection for designated National Historic Landmarks (NHLs) through Section 110(f) and the NHPA's implementing regulations (36 CFR 800.10). National Historic Landmarks are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States. Specifically, the NHPA requires that federal agencies shall, to the maximum extent possible, "undertake planning and actions necessary to minimize harm to any NHL that may be directly and adversely affected by an undertaking."

Each federal agency involved in the AC43 event, including the NPS, the Presidio Trust, the United States Coast Guard (USCG), and the United States Army Corps of Engineers (Corps) is pursuing compliance with Section 106 independently, yet in a coordinated fashion, to address effects on cultural resources that may occur as a result of their permitting activities. Provided below is a summary of the various agency's compliance processes to date. As required under NHPA regulations (36 C.F.R. 800.2(d)) this Environmental Assessment (EA) provides the public with information about each agency's proposed action(s) and their effects on historic properties. The comment period following publication of this draft will provide the public with an opportunity to comment on the agency actions under consideration.

Compliance with Sections 106 and 110(f) of the NHPA is being conducted by the NPS as a separate effort that has been coordinated with NEPA compliance. This compliance is being conducted in accordance with the Programmatic Agreements (PAs) between the NPS, the California SHPO, and the Advisory Council on Historic Preservation (ACHP). The GGNRA has entered into two PAs with SHPO and the ACHP: one that covers cultural resources parkwide and another that specifically addresses potential effects on the resources of the Presidio. Under these PAs, the GGNRA is exempted from further consultation with SHPO and the ACHP if all effects of a project on cultural resources can be reduced to a non-adverse level (i.e., no more than minor effects). SAFR and the Presidio Trust executed similar PAs with SHPO and the ACHP regarding the resources under its jurisdictions. The NPS and the Presidio report on all activities reviewed under these PAs on an annual basis, ensuring that both SHPO and the ACHP maintain oversight of these activities. The Presidio Trust will rely on the NPS to assess potential cumulative effects from AC34 for the Presidio NHL as a whole. Section 106 compliance for AC34-related activities that take place in Presidio Trust-administered lands (Area B) will be managed by the Trust's PA.

This EA, and a site conditions assessment report (AC34 Section 106 Report) prepared by ESA for the GGNRA and SAFR, will be used to determine if the finding of "No Adverse Effects" can be made for the AC34 project, and consequently, whether Section 106 review can be completed internally by the NPS under the PAs with SHPO and the ACHP. The AC34 Section 106 Report is being prepared to identify all cultural resources subject to project effects within the APE on GGNRA and SAFR lands, assess the current condition of each resource and its vulnerability to project effects, and identify

measures to protect the resources from adverse effects during the AC34 events. NPS use of the AC34 Section 106 Report to meet Section 106 requirements was discussed with SHPO in March and April 2011, as notification that the GGNRA and SAFR intended to conduct compliance activities for the AC34 project under the aforementioned PAs.

The USCG has determined that its permitting actions would have no potential to affect any historic properties, and that it has no further responsibilities under Section 106 for the AC34 project. Concurrence with this determination was received from SHPO on April 3, 2012 (Appendix G).

The United States Army Corps of Engineers (Corps) has made a similar determination regarding the potential cultural resources impacts of its permitting and subsequent in-water dredging and construction actions. A letter with the finding of no adverse effect to historic properties has been prepared and sent to SHPO for review. If SHPO concurs with the Corps' assessment, this agency will have fulfilled its responsibilities with regard to Section 106 compliance. Documentation relating to the Corps' Section 106 process for NHPA compliance is provided as an attachment to this document (Appendix G).

As described in Section 3.6.2, all federal agency documentation regarding compliance with Section 106 has been made available for public review and comment on the NPS Planning, Environment, and Public Comment (PEPC) website (http://parkplanning.nps.gov/).

National Register of Historic Places

The National Register was established by the NHPA of 1966 as "an authoritative guide to be used by federal, state, and local governments, private groups and citizens to identify the Nation's historic resources and to indicate what properties should be considered for protection from destruction or impairment" (36 CFR 60.2). The National Register recognizes both historic and prehistoric properties that are significant at the national, state, and local levels.

To be eligible for listing in the National Register, a resource must be significant in American history, architecture, archeology, engineering, or culture. As indicated in Section 101(d)(6)(A) of the NHPA, properties of traditional religious and cultural importance to an Indian tribe are eligible for inclusion in the National Register. Districts, sites, buildings, structures, and objects of potential significance may be eligible for the National Register if they:

A. Are associated with events that have made a significant contribution to the broad patterns of our history;

B. Are associated with the lives of persons significant in our past;

C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

Unless the property possesses exceptional significance, it must be at least 50 years old to be eligible for National Register listing (36 CFR 60.4).

In addition to meeting the criteria of significance, a property must have integrity, meaning the ability of a property to convey its significance. The National Register recognizes seven qualities that, in various combinations, define integrity. To retain historic integrity, a property must possess several of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance. The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association (36 CFR 60.4).

Archeological and Historic Preservation Act, as Amended (1974)

The Archeological and Historic Preservation Act (AHPA) (16 USC 469-469c) requires that federal agencies provide for the preservation or recovery of important scientific, historical, or archeological data that may be destroyed as a result of federal undertakings, or through federal funding or licensing of projects. Emergency projects, such as those related to a natural disaster, are exempt from compliance with AHPA if implementation of AHPA would impede the project.

American Indian Religious Freedom Act (1978)

The American Indian Religious Freedom Act (codified at 42 USC 1996, et seq. and regulated under 43 CFR 7) protects the right of American Indians, Eskimos, Aleuts, and Native Hawaiians to practice and express their traditional religious beliefs and ceremonies. It also ensures their access to sacred sites, as well as the use and possession of sacred objects. The act further directs federal entities to evaluate their policies and procedures in consultation with Native American traditional religious leaders to determine changes necessary to protect and preserve Native American cultural and religious practices.

Archeological Resources Protection Act (1979)

The Archeological Resources Protection Act (ARPA) was enacted primarily to better protect archeological resources and to increase scientific knowledge of archeological resources. ARPA provides for federal permitting of scientific investigation of archeological resources; substantial penalties for unauthorized removal, desecration, or trafficking of archeological resources; increased public awareness of the importance of archeological resources; and enhanced management of archeological resources. ARPA also encourages communication and interaction between professional and avocational archeologists.

Native American Graves Protection and Repatriation Act (1990)

The Native American Graves Protection and Repatriation Act (NAGPRA) (25 USC 3001 et seq.) provides for the protection and return of Native American and Native Hawaiian human remains, funerary objects, sacred objects, and objects of cultural patrimony, and establishes ownership hierarchy for human remains and associated artifacts found on federal lands. NAGPRA also sets penalties for violations of the act, calls for cultural resource inventories of federal agency holdings and federally funded repositories,

and contains provisions for the return of specified cultural items to the appropriate Native American tribe(s) and/or Native Hawaiian organization(s). NAGPRA is initiated when the project and the finds are situated on federal or tribal lands.

Abandoned Shipwreck Act (1987)

The Abandoned Shipwreck Act (43 USC 2101–210), is a federal-level legislative act but it does protect shipwrecks found in state waters. The Abandoned Shipwreck Act also states that the laws of salvage and finds do not apply to abandoned shipwrecks protected by the act.

4.6.3.2 National Park Service General Management Plans

Draft General Management Plan – Golden Gate National Recreation Area

The General Management Plan (GMP) for the GGNRA is a document that ensures that the park has a clearly defined direction that sets achievable and sustainable goals for resource preservation and visitor use. Since the park's establishment in 1972, it has doubled in size, and a better understanding of the park's natural and cultural resources and recreational uses has been gained. An update to the 1980 GMP is currently underway and is expected to guide management of the park and all its resources for the next 20 years. The preferred alternative for Marin, San Francisco, and San Mateo counties outlined in the draft GMP is one that would further the founding idea of "parks to the people" and would engage the community and other potential visitors in the enjoyment, understanding, and stewardship of the parks' resources and values. Park management would focus on ways to attract and welcome people, connect people with the resources, and promote understanding, enjoyment, preservation, and health (NPS 2011).

General Management Plan – San Francisco Maritime National Historical Park

The GMP for SAFR guides the management of resources, visitor use, and general development at the park over the next 15 to 20 years. It summarizes the final actions that were approved in the park's Final General Management Plan/Environmental Impact Statement completed in September 1997. The direction for future park management is based on the laws establishing the park, the purpose of the park, and the park's significant resources. The park is dedicated, through its collections, programs, and presentations, to the maritime history, technology, arts, humanities, and maritime activities of San Francisco Bay and its interaction with the Pacific Coast and worldwide maritime activity. Its significance is found in its collection of large vessels, small watercraft, artifacts, art, historic documents, books, and museum objects. The park's primary interpretive themes include Oceanic Trade, Coastal Trade, Bay and River, Marine Harvesting, and Marine Business, Labor and Shore-Based Support Activities (NPS 1997).

4.6.3.3 2006 National Park Service Management Policies

NPS policies related to cultural, archeological, and landscape resources include the following (NPS 2006):

5.3.5 Treatment of Cultural Resources. The Park Service will provide for the long-term preservation of, public access to, and appreciation of the features, materials, and qualities contributing to the significance of cultural resources. With some differences by type, cultural resources are subject to several basic treatments, including (1) preservation in their existing states; (2) rehabilitation to serve contemporary uses, consistent with their integrity and character; and (3) restoration to earlier appearances by the removal of later additions and replacement of missing elements.

5.3.5.1 Archeological Resources. Archeological resources will be managed in situ, unless the removal of artifacts or physical disturbance is justified by research, consultation, preservation, protection, or interpretive requirements. Preservation treatments will include proactive measures that protect resources from vandalism and looting, and will maintain or improve their condition by limiting damage due to natural and human agents.

5.3.5.2 Cultural Landscapes. Treatment decisions will be based on a cultural landscape's historical significance over time, existing conditions, and use. Treatment decisions will consider both the natural and built characteristics and features of a landscape, the dynamics inherent in natural processes and continued use, and the concerns of traditionally associated peoples. The treatment implemented will be based on sound preservation practices to enable long-term preservation of a resource's historic features, qualities, and materials. There are three types of treatment for extant cultural landscapes: preservation, rehabilitation, and restoration.

4.6.4 Assessment Methods/Thresholds

Assessment of effects on historic properties is regulated under 36 CFR Part 800.5. An adverse effect on a historic property "is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register" (36 CFR Part 800.5[1]). Characteristics that qualify a property for inclusion include the seven integrity factors (location, design, setting, materials, workmanship, feeling, and association). Adverse effects can include "reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative."

A determination of effects analysis for NEPA should include direct and indirect effects; duration of the effect (short-term, long-term); context of the effect (site-specific, local, regional); intensity of the effect (minor, moderate, or major, both adverse and beneficial, or negligible, which is considered neither adverse nor beneficial); and the cumulative nature of the effect.

The cultural resource impact thresholds can be further divided into thresholds for historic architectural resources, archeological resources, and cultural landscapes, as described below.

4.6.4.1 Historic Architectural Resources Analysis Thresholds

Historic architectural resources are typically determined eligible for listing in the National Register under criteria A through C, listed above, for their association with historical events or important people, or for their exhibition of distinctive characteristics of type, period, and method of construction. Eligible resources must also retain sufficient integrity to convey their historical significance. The following are the thresholds for determining the intensity of effects on historic architectural resources:

Negligible Impact: The undertaking would cause no alteration to a district, building, structure, object, or site that is listed or eligible for listing in the National Register of Historic Places (or alterations would be so minor as to be imperceptible). For the purposes of the National Historic Preservation Act Section 106, the determination of effect would be "no adverse effect."

Minor Impact: The undertaking would result in a modification to an eligible or listed district, building, structure, object, or site, but would not diminish the integrity of any of the characteristics that qualify the property for National Register inclusion. The Section 106 determination of effect would be "no adverse effect."

Moderate Impact: The undertaking would alter, directly or indirectly, one or more character-defining features of a district, building, structure, object, or site that is listed or eligible for listing in the National Register, in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. However, this impact would not diminish the integrity of the resource such that its eligibility for the National Register would be jeopardized. The Section 106 determination of effect would be "adverse effect."

Major Impact: The undertaking would have a substantial, noticeable, and permanent impact on a district, building, structure, object, or site listed or eligible for listing in the National Register. The undertaking would result in the alteration or modification of one or more characteristics that qualify the resource's inclusion in the National Register, diminishing the integrity of the property's location, design, setting, materials, workmanship, feeling or association to such an extent that the property is no longer eligible for listing in the National Register. The Section 106 determination of effect would be "adverse effect."

4.6.4.2 Archeological Resources Analysis Thresholds

Archeological resources (sites and districts) can be determined eligible for listing in the National Register under any of the four criteria listed above, but they are most often found eligible under criterion D for their potential to yield information important to prehistory or history. Resources must retain sufficient integrity to contribute to the understanding of current research questions, which means they must be relatively intact and undisturbed. The following are the thresholds for determining the intensity of effects on archeological resources:

Negligible Impact: The undertaking would not modify or alter archeological districts or sites listed or eligible for listing in the National Register. The Section 106 determination of effect would be "no adverse effect."

Minor Impact: The undertaking would result in a slight modification or alteration of an archeological district or site eligible for listing or listed in the National Register, but would not diminish the integrity of any of the characteristics that qualify the resource for National Register inclusion. The integrity of the resource would not be compromised. The Section 106 determination of effect would be "no adverse effect."

Moderate Impact: The undertaking would result in the modification or alteration of one or more of the characteristics that qualify the archeological district or site for inclusion in the National Register. The resource's integrity would be diminished, but not to the extent that the National Register eligibility of the resource would be jeopardized. The Section 106 determination of effect would be "adverse effect."

Major Impact: The undertaking would have a substantial, noticeable, and permanent impact on a district or site listed or eligible for listing in the National Register. The undertaking would result in the alteration or modification of one or more characteristics that qualify the resource for inclusion in the National Register, diminishing the integrity of the resource to such an extent that it is no longer eligible for listing in the National Register. The Section 106 determination of effect would be "adverse effect."

4.6.4.3 Cultural Landscape Analysis Thresholds

Cultural landscapes are typically determined eligible for listing in the National Register under criteria A through C, listed above, for their association with historical events or important people, or for their exhibition of distinctive design characteristics. Eligible resources must also retain sufficient integrity to convey their historical significance. The following are the thresholds for determining the intensity of effects on cultural landscapes:

Negligible Impact: The undertaking would cause no alteration to the historically designed or other contributing features of a cultural landscape that is listed or eligible for listing in the National Register of Historic Places (or alterations would be so minor as to be imperceptible). For the purposes of the National Historic Preservation Act Section 106, the determination of effect would be "no adverse effect."

Minor Impact: The undertaking would result in a modification to one or more contributing elements of an eligible or listed cultural landscape, but would not diminish the integrity of any of the characteristics that qualify the property for National Register inclusion. The Section 106 determination of effect would be "no adverse effect."

Moderate Impact: The undertaking would alter, directly or indirectly, one or more character-defining features of a cultural landscape that is listed or eligible for listing in the National Register, in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association. However, this impact would not diminish the integrity of the resource such that its eligibility for the National Register would be jeopardized. The Section 106 determination of effect would be "adverse effect."

Major Impact: The undertaking would have a substantial, noticeable, and permanent impact on a cultural landscape listed or eligible for listing in the National Register. The undertaking would result in the alteration or modification of one or more characteristics that qualify the resource's inclusion in the National Register, diminishing the integrity of the landscape's location, design, setting, materials, workmanship, feeling, or association to such an extent that the landscape is no longer eligible for listing in the National Register. The Section 106 determination of effect would be "adverse effect."

4.6.4.4 Project-Specific Methodology

As part of the Section 106 compliance process, NPS staff members were consulted to determine which of the many cultural resources found within their jurisdictions would be vulnerable to effects from the project, and to decide on an appropriate course of action to prevent adverse effects. A series of site conditions assessments was selected as the best way to document the current condition of vulnerable cultural resources, together with a series of recommended protection measures to prevent or minimize adverse effects. The conditions assessments (to be documented in the AC34 Section 106 Report) will

first be conducted prior to any of the AC34 construction or events, a second time following the 2012 races, and a third and final time after the completion of the 2013 races and removal of all venue infrastructure and equipment. In this way, the assessments can be used as an adaptive management tool to identify and implement appropriate prevention and/or treatment methods, then determine the effectiveness of each method following the 2012 races so that any needed adjustments can be implemented prior to the 2013 events. The first set of draft site conditions assessments was conducted by ESA staff between September 29 and October 19, 2011, in order to provide a baseline of each sensitive resource's pre-project condition. The completed AC34 Section 106 Report will be used by the GGNRA and SAFR to complete Section 106 compliance review under their PAs with SHPO and the ACHP, as described above.

4.6.5 Impacts of Alternative A—No Action

Under Alternative A–No Action, the AC34 races would not be held in San Francisco Bay during either 2012 or 2013. No event venue construction would take place, and no substantial increase in the number of visitors to each venue area would be anticipated. Significant cultural resources on GGNRA, SAFR, and Presidio Trust lands would not be affected as described below for the action alternatives; however, impacts could result from other projects and events on these lands, as well as from daily visitor use of sensitive areas. The conditions observed at sensitive cultural resources during 2011 site assessment visits would not be expected to change substantially over the course of 2012 and 2013, although deteriorating conditions at some of the more heavily visited resources (Battery East, Ridge Battery, and Battery Spencer) could continue. None of the protection measures proposed for the various action alternatives would be implemented, meaning that interpretive signs on Battery Spencer and Ridge Battery would not be replaced. Fencing would not be installed at any of the sensitive resource locations, possibly resulting in continued visitor trespass onto sensitive earthworks and continued safety hazards from unprotected steep slopes or drop-offs.

Under Alternative A, none of the effects described below for the action alternatives would occur. However, sensitive cultural resources may experience continued erosion and degradation from daily visitor use, and other projects on lands within the APE may have minor adverse affects on archeological, historic architectural, and cultural landscape resources.

4.6.6 Impacts Common to All Action Alternatives

Construction or installation of venue facilities under all proposed action alternatives could alter the characteristics of previously unrecorded and significant archeological resources, if such resources are damaged during ground-disturbing activities. Gatherings of spectators at venues within the GGNRA, SAFR, Presidio Trust, and other locations could also result in effects on sensitive historic architectural resources in these areas under all of the proposed action alternatives. Effects on sensitive cultural resources are summarized by resource type and location, below.

4.6.6.1 Archeological Resources

Construction of venue facilities for the proposed AC34 project could alter, directly or indirectly, the characteristics of previously unrecorded and significant archeological resources. This would be a negligible effect, and no mitigation measures would be warranted.

Based on the results of the background research, there is a high probability that important, early indigenous resources are currently buried under natural alluvial/aeolian sediment or imported historic-era fill within the proposed event venues and secondary viewing areas. However, there is no potential for encountering previously unrecorded and significant archeological resources during implementation of the AC34 project. Minor ground disturbances may occur at programmed event venues and secondary viewing areas; these disturbances may include use of tent weights/stakes, installation of temporary bleachers and portable restrooms, and general turf trampling and erosion resulting from large crowds of spectators. These disturbances would affect no more than the top six inches of soil, and would be most concentrated in areas that are covered with imported fill. Programmed events would avoid areas with known archeological sensitivity (including sites **CA-SFR-129, CA-SFR-31**, the **Battery Lancaster dump**, the **DeRussey Residence dump**, and the **Yellow Bluff/East Fort Baker dump**), and protection measures would be implemented for known resources, as discussed in the alternatives analysis presented below. The potential for effects on previously unknown and significant archeological resources as a result of project activities is negligible. No mitigation measures would be warranted.

4.6.6.2 Historic Architectural Resources

Gatherings of spectators at Crissy Field, other portions of the Presidio, SAFR, Fort Mason, Fort Baker, and the Marin Headlands could result in effects on sensitive historic architectural resources in these areas under all of the proposed action alternatives. Management actions included in each of the action alternatives would reduce effects to a non-adverse level. No additional mitigation measures would be warranted.

Sensitive historic resources at Crissy Field, the Presidio, SAFR, Fort Mason, Fort Baker, and the Marin Headlands would be subject to effects from gatherings of spectators under all of the action alternatives. These areas provide unimpeded views to all of the proposed race course areas, and their expected use as secondary viewing areas could result in effects on several military and recreational features that are contributing elements to National Register or NHL Districts, and/or National Register-eligible cultural landscapes. Temporary event facilities, equipment, and public services in these locations would contribute to the effects at these locations under some of the alternatives.

Crissy Field

The Signal Cable Hut and Crissy Airfield would be subject to effects under each of the four action alternatives. Large crowds of spectators could climb on the Signal Cable Hut, possibly causing structural damage and/or erosion and degradation of turf. The airfield would also be subject to turf degradation and erosion, an impact that would be most intense under those alternatives that include event facilities on the airfield (Alternatives B and D). Protection measures are included with each of

the alternatives to reduce these impacts to a negligible level. Other architectural resources within Crissy Field (the USCG Station Golden Gate and the Seaplane Ramp) would not experience adverse effects under any of the action alternatives. No adverse visual effects on the Presidio NHL District would occur under any of the action alternatives, given that Crissy Field was historically used for large public events and festivals. Furthermore, all visual changes associated with the project would be temporary and fully reversible.

Presidio (Areas A and B)

Although no programmed event venues are planned at the Presidio under any of the action alternatives, public services and possibly merchandise vendors would be allowed in Area B. This would also be a secondary viewing area under each of the action alternatives, and spectator actions would have impacts that would be common to all alternatives. The Fort Point Seawall and West San Francisco Batteries (Boutelle, Marcus Miller, and Cranston) are durable and partially fenced, and would experience no adverse impacts under any of the proposed action alternatives. **Battery East**, however, would be subject to trespassing and resultant erosion and damage or vandalism to masonry features under each of the action alternatives. This effect would be most intense under Alternative B. Protection measures are included with each of the action alternatives to reduce this effect to a negligible level. No adverse visual effects on the Presidio NHL District in either Area A or B would occur under any of the action alternatives, since all visual changes associated with the AC34 events would be temporary and fully reversible.

San Francisco Maritime NHP

Sensitive cultural resources within the San Francisco Maritime NHP that would be subject to effects from all of the action alternatives include **Municipal Pier,** the historic ships along the **Hyde Street Pier**, and the **East and West Roundhouses** (former convenience stations) as well as elements of the **Aquatic Park Cultural Landscape**. Municipal Pier has been assessed as structurally unsound to support large numbers of people; use of the pier would create a safety hazard as well as potentially endangering the integrity of a contributing element of the Aquatic Park NHL District. The Hyde Street Pier and some of the NHL vessels of the San Francisco Maritime NHP are currently open to the public; however, a dramatic increase in the number of visitors could result in damage to the pier or the ships, diminishing their historic integrity. The roofs of the East and West Roundhouses are typically open to visitors and provide good views of the Bay; however, overloading of the roofs and/or staircases could result in structural damage to these contributing structures. Crowds of spectators, expected at SAFR under all of the action alternatives, could result in the trampling or degrading of historically designed plantings that contribute to the Aquatic Park Cultural Landscape. Without treatment, effects from spectators anticipated under all of the action alternatives would range from minor to major adverse, with more intense effects the result of the larger spectator crowds anticipated under Alternative B. Protection measures have been included in each of the action alternatives to reduce these potential effects to a negligible level. No adverse visual effects on the Aquatic Park National Register Historic District/ NHL District would occur under any of the action alternatives, given the park's historic use and current mission as a public gathering space and spectator venue for maritime events. Furthermore, all changes to the visual character of the park would be temporary and fully reversible.

Fort Mason

Spectator-related effects on properties at Upper Fort Mason could occur under each of the action alternatives. Erosion and degradation of integrity could occur at the **Black Point/Point San Jose Batteries**, the **Northwest Embankment**, and the **East Black Point Trails**. Monitoring of these resources, and temporary fencing of vulnerable battery features, has been included with each of the action alternatives as a protection measure, so that impacts would be reduced to a negligible level. Impacts on the Parade Ground would be negligible under each of the action alternatives; although adverse effects on some Lower Fort Mason properties (Piers 2 and 3) could occur under Alternatives B and D. No adverse visual effects on the Fort Mason National Register Historic District/San Francisco Port of Embarkation, U.S. Army NHL District would occur under any of the action alternatives, since all visible changes resulting from the AC34 events would be temporary and fully reversible.

Alcatraz Island

All of Alcatraz Island has been designated as a National Historic Landmark, and the cellhouse is a central component of the island's historic significance. Three of the action alternatives (Alternatives B, D, and E) describe potential use of the Alcatraz cellhouse for after-hours corporate and private hospitality events, as well as installation of weather monitoring and communications satellites. This could result in adverse impacts on the cellhouse; however, this use would not occur under Alternatives C. It is expected that Alcatraz Island would also be an attractive secondary viewing location under all of the action alternatives. However, because access to the island is controlled by the NPS and limited to the current capacity of the existing Alcatraz Island ferry service, no effects of visitation beyond those typical in daily use would occur. There would be no effects on Alcatraz Island that would be common to all action alternatives.

Fort Baker

Some of the military features at Fort Baker would be subject to spectator-related impacts under each of the action alternatives. Battery Duncan and Lime Point would not be subject to effects under any alternative, as they are inaccessible to visitors. The Fort Baker Pier (Mine Wharf) would only be subject to effects under Alternative B, which includes an after-hours hospitality venue on the pier. No adverse visual effects on the Forts Baker, Barry, and Cronkhite Historic District would occur under any of the action alternatives, since all visual changes resulting from the AC34 events would be temporary and fully reversible. Other resources are discussed individually below.

Battery Cavallo is currently enclosed by a 6-foot-high chain link fence topped by barbed wire and secured with a locked gate. Signs are placed at intervals along the fence, indicating the historic and natural resource sensitivity of the area. (The battery also provides habitat for the endangered Mission blue butterfly.) Although the fencing and signs would likely deter most visitors from access, this location does afford a clear view of the race area, and evidence of previous fence-cutting indicates that determined trespassers could still cause damage to the vulnerable earthworks. Minor adverse effects, including erosion and vandalism, would be possible under all action alternatives. Monitoring has been included in the project as a means of keeping effects less than adverse.

Battery Yates is currently open to the public, with interpretive signs placed at intervals and safety rails installed along stairs and above drop-offs. The concrete structures are not vulnerable to erosion, but graffiti and other defacement could present a minor adverse effect under all of the action alternatives. Additionally, steep slopes leading from the back (east side) of the battery down to the shoreline are currently unfenced and could present a safety hazard. Monitoring has been included in the project as a means of keeping effects less than adverse.

The military features located above and to the **North of Battery Duncan** (including a concrete searchlight mount and two keyhole-shaped concrete sandbag bunkers) are not along any major access routes within Fort Baker; however, they are moderately accessible and afford a fair view of the race area. Anticipated minor adverse effects from all of the action alternatives include graffiti and displacement of concrete sandbags.

Protection measures, including fencing and other access restrictions as well as cultural resource monitoring, have been included with each of the action alternatives that would eliminate effects on these resources or reduce effects to a negligible level.

Marin Headlands

No event facilities or programmed venues would be located in the Marin Headlands under any of the action alternatives. All effects would be the result of spectator activity. Effects could include erosion, crumbling of fragile masonry or concrete features, vandalism (graffiti), and other trespassing impacts. Batteries Kirby and Orlando Wagner, the unfinished battery (Battery Construction Number 129) at Hawk Hill, and the military features at Slacker Hill are not subject to noticeable effects under any of the action alternatives. **Battery Spencer** and **Ridge Battery** would experience spectator-related minor to moderate adverse effects under each of the action alternatives. No significant differences in impact intensity would be seen among the four action alternatives. Protection measures have been incorporated into each of the action alternatives to improve the current condition of these two resources through repair or replacement of damaged or missing interpretive signs, as well as cultural resources monitoring and placement of temporary or supplemental fencing to deter trespass. This would result in a minor beneficial effect at Ridge Battery and Battery Spencer.

Golden Gate Bridge

Although spectators would likely gather along the pedestrian walkway of the Golden Gate Bridge under all of the action alternatives, no adverse effects on this historic structure would result. The bridge is designed with a maximum weight capacity far greater than could be exceeded by the number of anticipated spectators, and the Golden Gate Bridge, Highway and Transportation District (GGBHTD) would reserve the right to limit pedestrian crossings to maintain visitor safety standards.

Conclusion

Impacts common to all of the action alternatives include effects related to the inadvertent discovery of archeological resources during construction activities and as a result of spectator gatherings, and impacts on sensitive historic architectural resources and cultural landscapes resulting from large

gatherings of spectators to view the AC34 races. Protection measures included with each of the action alternatives would serve to eliminate or reduce effects on historic architectural resources and cultural landscapes to a negligible level. Impacts on unknown archeological resources would be negligible, as no ground disturbance would affect archeologically sensitive soils.

4.6.7 Impacts of Alternative B—Sponsor Proposed Project

Under Alternative B–Sponsor Proposed Project, each of the sensitive cultural resources identified in Section 3.6 would potentially be subject to adverse effects resulting from construction of event venue facilities and/or large gatherings of pedestrian spectators. However, this alternative includes several protection measures designed to reduce or eliminate any such effects. These project components have been developed in coordination with NPS staff, race management, and other stakeholders. Sensitive cultural resources are listed below by their geographical context (event venue or secondary viewing location name), and their current condition is described according to the data collected in the recent site conditions assessments. Potential effects are summarized for each resource, and measures to reduce or eliminate such effects that are part of Alternative B are described. If any effects would occur following the implementation of all protection measures of Alternative B, these are listed and described according to their intensity and duration. **Table CUL-2**, below, summarizes this information for each of the sensitive cultural resources associated with Alternative B.

4.6.7.1 Crissy Field

Programmed events at Crissy Field would include bleacher-style viewing stands on central Crissy Airfield; an event stage with amplified sound, night lighting, and three large video screens; and various tents and other temporary structures for hospitality services, food and beverage concessions, first aid kiosks, hand washing stations, educational installations, and portable restrooms. Up to two evening events would be held in 2012, and as many as five would be possible in 2013. Additional bleacher-style seating would be provided in the parking lot of the St. Francis Yacht Club, just east of Crissy Field Center. The availability of nearby seating and amenities, combined with excellent views of the race course areas in both 2012 and 2013, would likely draw large numbers of visitors to Crissy Field (on peak weekend race days, up to 27,300 people in 2012, and up to 62,790 people in 2013 would be expected to visit east and west Crissy Field).

Effects on CA-SFR-129

During the site conditions assessment visit to Crissy Field, it was observed that this indigenous archeological site (CA-SFR-129) is currently buried, thickly covered by native plants and landscaping, and fenced in a natural resource protection area. Under Alternative B, the ground above the site could be subject to erosion and trampling resulting from the large crowds expected at the east Crissy Field viewing area on peak weekend race days. At least some of those visitors could be reasonably expected to cross the low fence that currently surrounds the site, in hopes of obtaining a better view of the race area. However, the site itself is well protected, and degradation of cultural materials (e.g., artifacts and midden deposits) and stratigraphic context would not occur. As noted in Chapter 2 - Alternatives, protection measures for the Crissy Field venue would include installation of supplemental fencing, signage, and natural resource

TABLE CUL-2: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE B

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Crissy Field			
Crissy Field archeological site (CA-SFR-129; GOGA00008)	None/negligible: Site is well-protected and not subject to erosion or trampling effects; natural resource protection area fencing and monitors will exclude spectators.	None warranted	None/negligible
USCG Station Golden Gate	Negligible: Locked gate prevents spectators from using pier and boathouse; other facilities are occupied and thereby protected from vandalism.	None warranted	Negligible
Signal Cable Hut (building 946)	Minor to moderate adverse: Existing social trails could entice spectators to climb to the top of the earthen structure, causing erosion and exacerbating turf degradation.	Provide supplemental temporary fencing around hut; fencing to remain in place through 2012 and 2013 race periods.	Negligible
Airfield	Moderate adverse: Large crowds, and placement of bleachers, event stage, and amenities tents/structures, could cause degradation of turf and subsequent erosion of engineered airfield.	Repair and replace turf, both ongoing through 2012 and 2013 race periods on days with no races, and following removal of event facilities after each season.	Negligible
Seaplane Ramp	Negligible: Submerged ramp would not provide good views for land-based spectators, and all race, support, and motorized spectator boats would be required to remain beyond the non-motorized craft zone extending out from the shore.	None warranted	Negligible
Visual Effects on Presidio NHL District\	Negligible: Event venue facilities and crowds of spectators could alter the historical feeling and military association of Crissy Field. However, similar large public festival-like events occurred during the period of significance. All changes would be temporary and fully reversible.	None warranted	Negligible
Presidio Area A			
Battery East (GOGA00038)	Moderate adverse: Erosion of earthworks and damage or defacement of masonry magazines and tunnel could result.	Provide supplemental fencing/ signage and cultural resource monitoring/ law enforcement presence during race days (2012 and 2013).	None/negligible
Battery Lancaster Dump (GOGA00023)	None: Not accessible	None warranted	None
DeRussey Residence dump (CA-SFR-109H)	None/negligible: Thick vegetation and poor race area visibility make this an unattractive spot for spectators.	None warranted	None/negligible
Fort Point Seawall	None: Not accessible on northwest side; none of the wall is subject to spectator effects.	None warranted	None

TABLE CUL-2: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE B (CONTINUED)

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Presidio Area A (cont.)			
West San Francisco Batteries (Boutelle, Marcus Miller, and Cranston)	Negligible: Poor viewing location; Coastal Trail Fencing Plan fencing limits access to sensitive features.	None warranted	Negligible
Visual Effects on Presidio NHL District and Fort Point National Historic Site	Negligible: Spectator crowds and temporary fencing would intermittently and temporarily change the aspects of feeling and association.	None warranted	Negligible
Presidio Area B			
Visual Effects on Presidio NHL District	Negligible: Spectator crowds and merchandise vendors would intermittently and temporarily change the aspects of feeling and association.	None warranted	Negligible
San Francisco Maritime NHP			
Municipal Pier	Major adverse: Pier is structurally unable to support large numbers of spectators; attachment of weather monitoring equipment could diminish integrity.	Close public access to the pier during races (2012 and 2013); comply with NPS Special Events Permit restrictions on weather monitoring equipment, including plan review in consultation with NPS cultural resources preservation assessment review staff.	Negligible
Hyde Street Pier Historic Fleet	Moderate to major adverse: Large numbers of spectators could overload pier and/or damage boats; uncontrolled vessels in cove could strike historic vessels.	Limit access to pier during races (2012 and 2013); use cultural resource monitors on pier and in water on an as-needed basis (to be determined by SAFR).	None/negligible
East and West Roundhouses	Moderate to major adverse: Overcrowding of the roundhouse roofs could cause structural damage and create a safety hazard.	Close stairways leading to roofs of both roundhouses.	None
Trees, shrubs, grass, and other plantings of the Aquatic Park Cultural Landscape	Minor to moderate adverse: Spectators could trample plantings and damage turf; event facilities could degrade turf and lead to erosion.	Fence historically designed low planting beds with temporary fencing during both race seasons; repair or replace turf as needed following each race season.	Negligible
Visual Effects on the Aquatic Park National Register Historic District/NHL District	None: The visual effects of the AC34 events would complement the historical setting and association, and the present-day purpose and mission of the park.	None warranted	None
Fort Mason			
Archeological site CA-SFR-31 (GOGA00007)	Negligible: No site components would be exposed, and AC34-related erosion would be unlikely due to steep slope and poor view of race area.	None warranted	Negligible

TABLE CUL-2: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE B (CONTINUED)

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Fort Mason (cont.)			
East Black Point Trails area (historic paths and retaining walls)	Minor adverse: Paths are overgrown and partially fenced; however, graffiti and damage to stone walls could result from crowds.	Provide cultural resources monitor at Upper Fort Mason (for East Black Point Trails, Northwest Embankment, and Black Point/Point San Jose Batteries).	Negligible
Black Point/ Point San Jose Batteries (West Battery GOGA00027; East Battery GOGA00026)	Minor adverse: Restored batteries are currently open to the public; erosion of earthworks could degrade structures.	Provide temporary fencing for sensitive features, as well as a cultural resources monitor at Upper Fort Mason (for Black Point/Point San Jose Batteries, Northwest Embankment, and East Black Point Trails).	Negligible
Northwest Embankment (slope below Great Meadow)	Minor adverse: AC34-related erosion could occur if spectators traverse steep slope.	Provide cultural resources monitor at Upper Fort Mason (for Northwest Embankment, Black Point/Point San Jose Batteries, and East Black Point Trails).	Negligible
Parade Ground	Negligible: Views of race areas would be limited, and the number of expected spectators would not significantly damage turf.	None warranted	Negligible
Piers 2 and 3, Lower Fort Mason	Minor adverse: Installation of media equipment and media/hospitality facilities could temporarily diminish integrity.	Comply with NPS Special Events Permit restrictions for attachments to historic structures, including plan review in consultation with NPS cultural resources preservation assessment review staff.	Negligible
Visual Effects on Fort Mason National Register Historic District/San Francisco Port of Embarkation, U.S. Army NHL District	Negligible: Limited outdoor event facilities would be temporary and would not detract noticeably from the historic military feeling and association of the districts.	None warranted	Negligible
Alcatraz Island			
Main Cellhouse	Minor to moderate adverse: Installation of facilities and equipment for corporate and private hospitality functions, as well as external weather monitoring and communications equipment, could diminish integrity.	Comply with NPS Special Events Permit regulations for use of historic structures, including plan review in consultation with NPS cultural resources preservation assessment review staff.	Negligible
Fort Baker			
Fort Baker Pier (Mine Wharf)	Minor adverse: Securing of hospitality tent could damage historic fabric of pier.	Comply with NPS Special Events Permit restrictions for anchoring tent, including plan review in consultation with NPS cultural resources preservation assessment review staff.	Negligible

TABLE CUL-2: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE B (CONTINUED)

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Fort Baker (cont.)			
Battery Duncan	None: Battery is inaccessible to the public and would afford poor views of the race area.	None warranted	None
North of Battery Duncan (Battery Duncan Field Fortifications GOGA00390, and Lateral Fire Site (GOGA00389)	Minor adverse: Vandalism could result in graffiti or displacement of concrete sandbags.	Provide cultural resource monitor and/or law enforcement personnel during race events (2012 and 2013).	None/negligible
Battery Cavallo (GOGA00071)	Minor adverse: Effects could include erosion of earthworks and vandalism from trespassing spectators.	Provide cultural resource monitor and/or law enforcement officer on site during race events (2012 and 2013).	None/negligible
Battery Yates	Minor adverse: Effects could include graffiti/vandalism and safety hazard from steep slopes.	Provide a cultural resources monitor and/or law enforcement officer during race events (2012 and 2013).	None/negligible
Lime Point (CA-MRN-648H; GOGA00018)	None: Not accessible	None warranted	None
Yellow Bluff / East Fort Baker dump (CA-MRN-649H; GOGA00072)	None: Not accessible	None warranted	None
Visual Effects on the Forts Baker, Barry, and Cronkhite Historic District	Negligible: Proposed hospitality tent and temporary fencing would not be noticed by most visitors. Nighttime lighting would be infrequent and of limited duration, and all visually incompatible elements would be temporary.	None warranted	Negligible
Marin Headlands			
Battery Spencer (GOGA00392)	Minor to moderate adverse: Effects could include continued concrete damage, graffiti/ vandalism, and public safety concerns.	Provide temporary fencing along the top of slopes, restrict access to Administration Building, replace missing/ illegible signs, and provide a cultural resources monitor at Battery Spencer and Ridge Battery during race events (2012 and 2013).	Minor beneficial
Ridge Battery (GOGA00068)	Moderate adverse: Effects could include erosion of earthworks and crumbling of brick from heavy use, and graffiti/vandalism.	Provide additional fencing to secure access to earthworks, replace missing/ damaged signs, and cultural resource monitoring (shared with Battery Spencer) during 2012 and 2013 race events.	Minor beneficial

TABLE CUL-2: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE B (CONTINUED)

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Marin Headlands (cont.)			
Slacker Hill (Fire Control Station GOGA00167; Cistern GOGA00170)	None/negligible: Poor access would discourage spectators, and durable features are not subject to use wear or erosion.	None warranted	None/negligible
Battery Orlando Wagner	Negligible: Poor access and obstructed views would discourage spectators from gathering.	None warranted	Negligible
Battery Kirby / Gravelly Beach (GOGA00067)	Negligible: Limited vehicular access would prevent large crowds of spectators from gathering, and concrete batteries are not subject to erosion.	None warranted	Negligible
Hawk Hill/Battery Construction Number 129	None/negligible: Distance to race area would discourage spectators, and durable features are not subject to use wear or erosion.	None warranted	None/negligible
Golden Gate Bridge	None: Bridge weight capacity could not be exceeded by pedestrian spectators; visitor safety limits would be enforced by the Golden Gate Bridge, Highway and Transportation District (GGBHTD).	None warranted	None
SOURCE: ESA 2012			

monitors, along with law enforcement, to protect sensitive biological resources. Specifically, the low fence that currently protects the site would be supplemented by higher temporary fencing, and a biological resource monitor would be present at the site during race days to ensure that spectators do not trespass within the natural resource protection area. Site CA-SFR-129 would experience negligible effects from Alternative B.

Effects on USCG Station Golden Gate

The station house of the USCG Station Golden Gate is currently used as a visitor center for the Farallones Marine Sanctuary Association. Other buildings and structures associated with the station are occupied by the National Oceanic and Atmospheric Administration (NOAA). The pier leading to the 1920 boathouse is gated and locked to prevent unauthorized entry. By maintaining the locked pier gate, the GGNRA ensures that the potential effects on the station from spectator trespass would be negligible. Other facilities associated with the station are also afforded protection from vandalism and related spectator effects by virtue of being inhabited by the Farallones Marine Sanctuary Association and NOAA. No additional protection measures are warranted.

Effects on Signal Cable Hut

The low earthen mound of the Signal Cable Hut would provide an elevated viewpoint for the AC34 races in both 2012 and 2013. It is currently encircled by a low fence; however, at least one readily visible social trail leading to the top of the feature demonstrates that Crissy Field visitors regularly cross the fence to climb the hut. If this were to occur repeatedly during AC34 races, it is likely that the social trail would become entrenched and widened, leading to turf degradation and increased erosion of the structure, a minor to moderate adverse effect. As described in Chapter 2, protection measures included with Alternative B call for supplemental and/or temporary fencing around the Signal Cable Hut to more effectively prohibit spectator entry. This fencing would remain in place through the 2012 race season and again in 2013 until the completion of all AC34 races. As a result, effects on the Signal Cable Hut would be reduced to a negligible level.

Effects on Crissy Airfield

Crissy Airfield, restored in 1999 to the original 1921 grass configuration, is a proposed event venue that would host large tents and smaller portable structures, bleachers, an event stage, and thousands of spectators in both 2012 and 2013 under the Sponsor Proposed Project. The race event facilities, although temporary, would remain in place long enough to damage turf and potentially compress the ground surface in limited areas, creating depressions and divots in the smooth airfield. Trampling by spectators would exacerbate this effect, creating social trails and leading to turf damage and erosion. This would constitute a moderate adverse effect on the historic airfield. Protection measures included with Alternative B call for repair of localized turf damage (through placement of sod and/or reseeding and fencing small areas to exclude spectators) on non-race days during the 2012 and 2013 race seasons, and larger-scale repair of the airfield surface and replacement of turf (through sod or seeding) following completion of each race season and removal of event facilities. The GGNRA would make the final determination of the success of turf repair. By including this protection measure in Alternative B, effects on Crissy Airfield would be reduced to a negligible level.

Effects on Seaplane Ramp

The 1920s concrete seaplane ramp that extends into the Bay near the western end of the airfield is partially or completely submerged in the Bay waters, depending on tides. Most visitors to Crissy Field would remain unaware of the existence of the Seaplane Ramp, and it is not anticipated to provide a good location for viewing race events. Non-motorized personal watercraft (i.e., kayaks and canoes) would not present a threat to the concrete ramp, and the non-motorized craft zone along the shore of Crissy Field (as described in Chapter 2) would ensure that no noticeable effects on the seaplane ramp would occur as a result of Alternative B.

Visual Effects on the Presidio of San Francisco NHL District

Crissy Field is an important part of the Presidio of San Francisco NHL District. The proposed event venue facilities and crowds of spectators would lend a festival-like atmosphere to the area that could be considered incompatible with the historic feeling and military association of Crissy Field. However, during the period of Crissy Field's primary historic significance (1921-1936), several public events,

such as aerobatic airshows and airplane races, resulted in large crowds of spectators at Crissy Field and would have similarly altered the typical military feeling of this portion of the NHL District (Haller 1994). The temporary lessening of these two aspects of integrity would be a negligible effect that would not alter the significance of any of the contributing elements of the NHL District.

4.6.7.2 Presidio Area A

Although no programmed event venues are proposed for the Presidio bluffs and shoreline overlooking the Golden Gate under Alternative B, these areas would still be expected to receive a considerable number of visitors (as many as 4,430 people in 2012 and up to 7,250 people in 2013 during peak race weekend days). Cultural resources within areas of the Presidio beyond Crissy Field that may be vulnerable to effects from Alternative B are related to the military history of the area. Battery East, the Battery Lancaster dump, the DeRussey Residence dump, and Fort Point are in an area that is expected to receive a fairly high number of race spectators on peak weekend days. The West San Francisco Batteries (Boutelle, Marcus Miller, and Cranston) are also considered sensitive, although spectators that gather in these areas would have an impeded view of the Alternative B race area(s). Each of these resources, and many others within Areas A and B, are contributing features of the Presidio NHL District.

Effects on Battery East

Potential effects at Battery East include erosion of earthen batteries from spectators climbing up for a better view, possible defacement (graffiti), and damage to the masonry tunnels and magazine entrances from unauthorized entry and climbing. The initial site conditions assessment of Battery East confirmed that although fencing and signs have been installed along most pathways to discourage entry to the earthworks, gaps in the fences allow visitors to climb to the top of the four magazines and an associated tunnel. Informal trails were observed in two areas where vegetation had been trampled and removed by erosion. During the AC34 events, this vantage point would be inviting to those seeking a better view of the race area on the Bay. Unmitigated, erosion of earthen magazines associated with Battery East could result in a moderate adverse effect. However, the management actions associated with Alternative B include supplemental signage, fencing, and a cultural resource monitor and/or law enforcement personnel at the site on race days in both 2012 and 2013. These actions would reduce the effects on Battery East to a negligible level or eliminate effects completely.

Effects on Battery Lancaster Dump

The dump, associated with nearby Battery Lancaster, would potentially be subject to erosion and damage to or removal of artifacts by spectators. However, during the site assessment visit it was found that the Battery Lancaster dump is not visible (covered by wood chips) and completely inaccessible to pedestrians due to a high chain-link fence extending along and across two pedestrian paths that would provide the only access to the site. This fence has been erected by the Department of Homeland Security to prevent unauthorized access to the south footings of the Golden Gate Bridge. Provided this fencing remains in place through the AC34 events, Alternative B would have no effect on the Battery Lancaster dump.

Effects on DeRussey Residence Dump

The domestic refuse dump associated with the DeRussey residence would be subject to similar effects as the Lancaster dump, if spectators trampled vegetation and exposed artifacts to theft or erosional forces. However, the dump is located on a thickly vegetated, steep slope with a poor view of the Alternative B race course areas. A developed path above the site would offer a much more attractive viewing area for spectators. Proposed AC34 events associated with Alternative B would have, at most, a negligible effect.

Effects on Fort Point Seawall

Fort Point is a popular visitor attraction at the shoreline almost directly underneath the Golden Gate Bridge. Under Alternative B, the historic Fort Point Seawall could potentially be damaged or defaced by AC34 spectators seeking an optimal viewing location. During the site conditions assessment visit to the fort, a high chain-link and barbed-wire fence was found along the northwestern end of the seawall, effectively preventing access. This fence has been erected by the Department of Homeland Security to prevent unauthorized access to the south footings of the Golden Gate Bridge. As long as this fencing remains in place during the AC34 events, no effects would occur to the portion of the seawall directly in front of Fort Point. Eastern portions of the seawall are unprotected, but the huge granite blocks forming the top of the wall would not be subject to inadvertent effects from AC34 spectators.

Effects on West San Francisco Batteries (Boutelle, Marcus Miller, and Cranston)

These contributing elements of the Presidio NHL District are located to the southwest of the Golden Gate Bridge. These batteries include earthen, masonry, and concrete fortifications that would be subject to erosion, crumbling, and defacement from large numbers of spectators. Although spectators who gather in these areas would have an impeded view of the Alternative B race area(s), it is possible that visitors unfamiliar with San Francisco's geography might follow the Coast Trail along these batteries in hopes of finding a location with a clear view of the race area. However, during the site conditions assessment visit, no obvious access points to clear viewing areas were found. Fencing exists in places along features with steep slopes in accordance with the Coastal Trail Fencing Plan, and this would be sufficient to deter all but the most determined spectators from climbing on sensitive resources. Alternative B would result in a negligible effect on the West San Francisco Batteries.

Visual Effects on Presidio NHL District and Fort Point National Historic Site

Area A of the Presidio would likely function as secondary viewing areas during the races. Large crowds of spectators would somewhat detract from the historic feeling and military association of the Presidio NHL District; however, no programmed event venue facilities or other physical alterations to the NHL District are proposed, other than temporary fencing to prohibit visitor access to Battery East and sensitive natural resource areas. The changes in feeling and association would be of short and intermittent duration (only during race days), and would be temporary, ending at the completion of the 2012 and 2013 race seasons. Visual effects on the Presidio NHL District in Area A and on the Fort Point National Historic Site would be negligible.

4.6.7.3 Presidio Area B

Race merchandise vendors (both indoor and outdoor) may be allowed on Area B of the Presidio during both race seasons, and spectators would likely gather here to watch the races. Public service facilities, such as restrooms and first aid stations, may be located within Area B. Large crowds of spectators and merchandise tents or carts would somewhat detract from the historic feeling and military association of the Presidio NHL District; however, no programmed event venue facilities or other physical alterations to the NHL District are proposed. The changes in feeling and association would be of short and intermittent duration (only during race days), and would be temporary, ending at the completion of the 2012 and 2013 race seasons. Visual effects on the Presidio NHL District in Area B would be negligible.

4.6.7.4 San Francisco Maritime NHP (Aquatic Park and Hyde Street Pier)

Under Alternative B, event facilities would be located within the Aquatic Park NHL District/National Register Historic District in 2012 and 2013. Facilities in the park would include small tents or structures to house first aid kiosks, hand washing stations, portable restrooms, and exhibition materials. Up to six exhibition vessels (such as historic racing yachts) would be moored within Aquatic Park Cove, and a small temporary weather monitoring station would be attached to Municipal Pier. Multiple large video screens are proposed for areas in front of or alongside the east and west bleachers. The built-in seating of these bleachers would make this a prime spectator venue. The park could attract up to 12,920 visitors in 2012, and 16,120 visitors in 2013, during peak race weekend days. Special indoor events could occur in the Maritime Museum (historic Bathhouse). Other areas of SAFR (primarily the Hyde Street Pier) would also function as secondary viewing areas for the 2012 and 2013 races, and spectator boats may attempt to congregate in the cove. Sensitive cultural resources within SAFR that would be subject to effects from Alternative B include Municipal Pier, the East and West Roundhouses, and vegetation in historic designed plantings within Aquatic Park, as well as the National Historic Landmark ships moored along the Hyde Street Pier.

Effects on Municipal Pier

Municipal Pier has been assessed as structurally unsound to support large numbers of people; use of the pier would create a safety hazard and may endanger the integrity of a contributing element of the Aquatic Park NHL District/National Register Historic District (a major adverse effect). The weather monitoring station proposed for Municipal Pier measures approximately 6 inches by 6 inches by 14 inches and weighs approximately 3 pounds. It would be raised to a height of approximately 10 meters and anchored to the pier during the 2012 and 2013 race seasons. If anchored incorrectly, placement of the weather monitoring equipment could result in a minor adverse effect on the pier. As noted in Chapter 2, a protection measure associated with Alternative B would mitigate effects from spectators exceeding the weight limits of Municipal Pier; the pier would be closed on race days during the periods that AC34 races occur. As further described in Chapter 2, compliance with the NPS Special Events Permit restrictions (including plan review of the proposed action in consultation with NPS cultural resources preservation assessment staff) for attaching the weather monitoring equipment would ensure no measurable impacts from that action. With implementation of these measures, effects on the pier would negligible.

Effects on Historic Vessels of SAFR at Hyde Street Pier

The Hyde Street Pier and some of the National Historic Landmark vessels are currently open to the public; however, a significant increase in the number of visitors could result in damage to the pier or the ships, diminishing their historic integrity. Furthermore, the anchoring of exhibition boats (and likely presence of spectator boats) in Aquatic Park Cove raises the possibility of damage to the historic fleet if one or more of the exhibition or spectator boats were to break its moorings and drift or be propelled into one of the NHL vessels. Unmitigated, impacts from spectators expected under Alternative B could be moderate to major adverse. However, protection measures have been included in the description of Alternative B that would eliminate these effects or reduce them to a negligible level. The management actions described in Chapter 2 - Alternatives include provisions that access to the Hyde Street Pier be controlled during AC34 races. Also under consideration is the use of resource monitors on SAFR boats and the Hyde Street Pier; this may be enacted on an as-needed basis, to be determined by SAFR staff. An additional in-water monitor may be used to direct spectator boat traffic and provide intervention in the event of a broken mooring.

Effects on East and West Roundhouses

These former "convenience stations" no longer contain functioning restrooms or concession facilities and are primarily used for park storage. However, staircases lead to the roofs of the buildings, providing attractive viewing areas for the AC34 races from the former lifeguard stations. If overcrowded, the roofs of the roundhouses could suffer structural damage and create an unsafe situation for spectators, a moderate to major adverse effect. The roof of the West Roundhouse is currently closed to park visitors; a protection measure associated with Alternative B would maintain this closure and lead to the closure of the East Roundhouse roof during race days. This would eliminate effects on the roundhouses associated with Alternative B.

Effects on Vegetation of the Aquatic Park Cultural Landscape

The professionally designed plantings of trees, shrubs, flowers, and turf contribute to the integrity of the historic landscape of Aquatic Park. Installation of event facilities and crowds of spectators could trample low plantings and damage turf, leading to erosion and loss of integrity. This would be a minor to moderate adverse effect but, with the implementation of the protection measure listed in Chapter 2, this effect would be reduced to a negligible level. The protection measures listed for the Aquatic Park Cultural Landscape call for the fencing of historically designed planter beds as appropriate to prevent spectator access, along with repair or replacement of turf as needed following the 2012 and 2013 race seasons and removal of all event facilities.

Visual Effects on the Aquatic Park NHL District/National Register Historic District and Other Resources of SAFR

One of the primary historic purposes of Aquatic Park was to provide a public gathering space for Bay-oriented recreational activities and events. The 34th America's Cup is a major sailing event that fits well with the maritime tradition and mission of SAFR. Event facilities, exhibition vessels moored in the cove,

and crowds of spectators associated with the races would visually promote and enhance these themes, encapsulating the spectacle of a historic maritime event in the making. No effects would occur.

4.6.7.5 Fort Mason

Proposed event facilities at Fort Mason under Alternative B would include hospitality services at Pier 2 and an international broadcasting center and media center at Pier 3. While these facilities would be located inside the existing historic buildings on these piers, additional external media services would include a floating media barge moored between Piers 2 and 3 and an array of up to 10 satellite dishes attached to the Pier 3 apron. A small, temporary media accreditation station would be located near the entrance to Pier 3, and portable restrooms would potentially be provided above Fort Mason Center, just north of the Great Meadow. Although there are no public events planned for Fort Mason, as many as 5,380 people would be expected to visit the park during 2012 and 2013 peak race weekends under Alternative B. Cultural resources at Fort Mason that would be sensitive to effects under Alternative B include an indigenous archeological site (CA-SFR-31) as well as various features related to the long military history of the fort.

Effects on CA-SFR-31

Spectators could potentially cause erosion and artifact displacement at CA-SFR-31, a site reported to contain midden soils and shell fragments near the ground surface. However, upon a visit to the site location to assess its condition, it was found that leaves and tree litter thickly cover the slope where the site is located. No evidence of CA-SFR-31 was visible on the ground surface at the time of the visit. This slope does not provide a clear view of the proposed AC34 race course areas and is not likely to be traversed by many park visitors, since concrete stairs are conveniently located nearby. Effects on CA-SFR-31 resulting from Alternative B would be negligible.

Effects on East Black Point Trails

Spectators could congregate along trails in the East Black Point Trails area, potentially climbing on stacked stone walls and displacing stones, or vandalizing stuccoed retaining walls with graffiti. The East Black Point Trails area is only partially accessible, as fencing has been placed along several pathways. While portions of some paths and retaining walls with built-in seats are accessible, none provide unimpeded views of the 2012 or 2013 race course areas, nor are they located in a high-traffic corridor between potential prime race viewing areas. A cultural resources monitor would be stationed in Upper Fort Mason under the protection measures applicable to Alternative B; as a result, the anticipated minor adverse effects on the East Black Point Trails would be reduced to a negligible level and would likely be indistinguishable from the effects of daily use by the public.

Effects on Black Point/Point San Jose Batteries

Point San Jose Battery West has recently been restored and has interpretive signs advising visitors to stay off earthworks. Archeological remains of Battery East, if any exist, are not identifiable on the ground surface. There are only limited views of the Bay from this area, and it does not present an attractive race viewing location. However, heavy visitation by spectators could result in damage to the

masonry magazine and earthen-covered features of the battery. Erosion and structural damage to earthworks would be a minor adverse effect. The protection measures associated with Alternative B include the use of temporary or supplemental permanent fencing to protect sensitive features, and a cultural resources monitor stationed in Upper Fort Mason to provide crowd management at the Black Point/Point San Jose Batteries, the Northwest Embankment, and the East Black Point Area. As a result, effects on the Black Point/Point San Jose Batteries from Alternative B would be reduced to a negligible level.

Effects on Northwest Embankment

The historic engineered slope of the Northwest Embankment provides access, via two concrete staircases, between Upper and Lower Fort Mason. The slope itself is too steep to provide an attractive viewing location for the 2012 and 2013 AC34 races, and views of the Bay are impeded by the Monterey cypress trees that help stabilize the midslope, as well as by the buildings of Lower Fort Mason. However, erosion due to spectator crowding along the slope could result in a minor adverse effect. As described in Chapter 2 - Alternatives, a cultural resources monitor would be stationed at Upper Fort Mason during Alternative B races, to prevent overcrowding at the Northwest Embankment, as well as at the Black Point/Point San Jose Batteries and on the trails of the East Black Point Area. As a result, effects of Alternative B would be reduced to a negligible level at the Northwest Embankment.

Effects on Parade Ground

The historic parade ground of Upper Fort Mason is an open grassy area above the Northwest Embankment. The parade ground does not provide a clear view of the AC34 race areas. The turf is anticipated to be able to withstand the expected number of park visitors without damage related to trampling or erosion. Negligible effects would occur under Alternative B.

Effects on Piers 2 and 3, Lower Fort Mason

These piers, part of the San Francisco Port of Embarkation, U.S. Army NHL District, are home to the Herbst Pavilion and Festival Pavilion, respectively, and are routinely rented out for private events such as festivals, exhibitions, conferences, and weddings. The proposed uses of the pavilions under Alternative B would be consistent with the mission of Fort Mason Center. However, the temporary attachment of satellite dishes and the anchoring of a media barge in the water between the piers have a potential to reduce the integrity of the NHL district by damaging the historic fabric of the piers, if improper attachment methods or mooring anchors are used. This would be a minor adverse effect, which would be reduced to a negligible level by adherence to the NPS Special Events Permit restrictions on attachments to historic structures. These restrictions include plan review of the proposed action in consultation with NPS cultural resources preservation assessment review staff.

Visual Effects on Fort Mason National Register Historic District/San Francisco Port of Embarkation, U.S. Army NHL District

The event facilities and crowds of spectators that would be present at Fort Mason under Alternative B would potentially introduce elements to the historic districts that would be incompatible with the

historic feeling and associations of the military history of Fort Mason. However, all introduced visual elements would be relatively unobtrusive, temporary, and fully reversible following completion of all races in 2012 and again in 2013. Visual effects from Alternative B would be negligible.

4.6.7.6 Alcatraz Island

It is expected that Alcatraz Island would be an attractive secondary viewing location during race events; however, because access to the island is controlled by the NPS and limited to the current capacity of the existing Alcatraz Island ferry service (5,200 people per day), no effects of visitation beyond typical daily use would occur. Alternative B would include use of the Alcatraz cellhouse for after-hours corporate and private hospitality events up to two times in 2012 and up to five times in 2013. This would include the installation of temporary facilities and equipment inside various rooms of the cellhouse that are designated for such functions. Additionally, weather monitoring and communications satellite dishes and other equipment would be installed on or near the cellhouse. Unmitigated, these actions could result in a minor to moderate adverse effect on the cellhouse, which is a contributor to the Alcatraz NHL District. However, as described in Chapter 2 - Alternatives, the programmed uses would be governed under NPS Special Events Permit regulations, including plan review in consultation with NPS cultural resources preservation assessment review staff. This would effectively reduce effects from Alternative B to a negligible level.

4.6.7.7 Fort Baker

Although only the Fort Baker Pier (Mine Wharf) would host AC34 programmed events under Alternative B (a tent for after-hours private and corporate hospitality functions), the rest of the Fort grounds would be a secondary viewing area and subject to effects from large numbers of visitors (on peak race weekend days, up to 2,050 in 2012 and 2,170 in 2013). Sensitive cultural resources that could be affected through trampling, erosion or crumbling of structural elements, defacement, and other damage include Batteries Duncan, Cavallo, and Yates, as well as bunkers and related military features north of Battery Duncan; the Yellow Bluff/East Fort Baker dump archeological site (CA-MRN-649H); and the historic fog signal station at Lime Point (CA-MRH-648H). Each of these resources was visited for an initial site condition assessment.

Effects on Fort Baker Pier (Mine Wharf)

The hospitality venue proposed for the Fort Baker Pier would only be used between the hours of 7:00 p.m. and 11:00 p.m., and would be restricted in capacity by the weight limit for the pier. The temporary hospitality tent would be anchored or otherwise secured to the pier; this has the potential to result in a minor adverse effect on the historic fabric of the pier. However, as described in Chapter 2, anchoring of the hospitality tent would comply with the Secretary of the Interior's "Temporary Structure Approach" treatment guidelines, as specified in the NPS Special Events Permit restrictions, including plan review in consultation with NPS cultural resources preservation assessment review staff. Therefore, effects resulting from Alternative B would be negligible.

Effects on Battery Duncan

Battery Duncan is currently enclosed by a 6-foot-high chain link fence topped by barbed wire and secured with a locked gate; furthermore, all views of the race area from the battery are heavily obstructed by trees. It is inaccessible to the public and would not be affected by Alternative B.

Effects on Battery Cavallo

Battery Cavallo is currently enclosed by a 6-foot-high chain link fence topped by barbed wire and secured with a locked gate. Signs are placed at intervals along the fence, indicating the historic and natural resource sensitivity of the area. (The battery also provides habitat for the endangered Mission blue butterfly.) Although the fencing and signs would likely deter most visitors from access, this location does afford a clear view of the race area, and evidence of previous fence-cutting indicates that determined trespassers could still cause damage to the vulnerable earthworks, a minor adverse effect. The protection measures associated with Alternative B (see Chapter 2) include fencing and monitoring plans for Fort Baker -- specifically, the presence of a cultural resources monitor or law enforcement officer at Battery Cavallo during race events. These measures would reduce effects at Battery Cavallo to a negligible level.

Effects on Battery Yates

This battery is currently open to the public, with interpretive signs placed at intervals and safety rails installed along stairs and above drop-offs. The concrete structures are not vulnerable to erosion, but graffiti and other defacement could present a minor adverse effect. Additionally, steep slopes leading from the back (east side) of the battery down to the shoreline are currently unfenced and could present a safety hazard. Protection measures have been included with Alternative B to reduce these effects to a negligible level. The monitoring plan described in Chapter 2 - Alternatives includes the presence of cultural resource monitors and/or law enforcement personnel during race events.

Effects on Features North of Battery Duncan

The military features located above Battery Duncan (including a concrete searchlight mount and two keyhole-shaped concrete sandbag bunkers) are not along any major access routes within Fort Baker; however, they are moderately accessible and afford a fair view of the race area. Anticipated minor adverse effects from Alternative B include graffiti and displacement of concrete sandbags. However, these effects would be reduced to a negligible level by enactment of the protection measures included in Alternative B-- specifically, the presence of a cultural resources monitor during race events.

Effects on Lime Point

The Lime Point fog signal station (CA-MRN-648H) would be vulnerable to graffiti and other vandalism by crowds of spectators; however, during a site conditions assessment visit, it was found that all of Lime Point is currently inaccessible. The Department of Homeland Security has placed fencing across the access road leading to the point, in order to prevent unauthorized access to the

northern footings of the Golden Gate Bridge. Provided that this fencing remains in place through the AC34 events, there would be no effects on Lime Point as a result of Alternative B.

Effects on Yellow Bluff/East Fort Baker Dump

The Yellow Bluff/East Fort Baker dump (CA-MRN-649H) is an archeological site containing artifacts dating primarily to the early 1940s, associated with military activities in Horseshoe Bay. The site has been vandalized previously in 2004 and could potentially be subject to similar impacts from increased visitation to the area as a result of Alternative B. However, a visit to the site location for a conditions assessment did not find any evidence of the site, which is primarily located along the top edge of and in shoreline coves at the base of a 30-foot-high cliff. Access to the top of the cliff was difficult, with poor visibility of the ground surface and of the Bay due to trees and shrubby undergrowth. Although a rope tied to a tree suggests access to the shoreline coves, descent to the bottom of the cliff was not attempted. Implementation of Alternative B would not affect the site.

Visual Effects on the Forts Baker, Barry, and Cronkhite Historic District

Proposed Alternative B event facilities at Fort Baker would consist of a hospitality tent on the Fort Baker Mine Wharf. The proposed hospitality venue on the Fort Baker Mine Wharf does contain a provision for nighttime lighting, which could detract from the historic feeling and association of the district. However, because the lighting would be used infrequently, and only between the hours of 7:00 p.m. and 11:00 p.m. on race days when hospitality functions are planned, there would be only intermittent, short-term effects on the military setting and association of this portion of the Forts Baker, Barry, and Cronkhite Historic District. Likewise, the visual effect of the tent itself, as well as any temporary fencing associated with Alternative B's protection measures, would be considered short-term and negligible.

4.6.7.8 Marin Headlands

No programmed event venues or other facilities are planned in the Marin Headlands. However, spectators could gather in various areas of the Forts Baker, Barry, and Cronkhite Historic District in attempt to view the AC34 races in both 2012 and 2013. Some of the military features associated with this historic district would be vulnerable to effects from increased visitation associated with Alternative B. Up to 2,630 visitors would be expected along Conzelman Road on peak weekend race days in both 2012 and 2013. Sensitive cultural resources that would be accessible in this area include Batteries Spencer, Wagner, and Kirby; Ridge Battery; an unfinished battery at Hawk Hill (Battery Construction 129); and a military fire control station and cistern on Slacker Hill. Initial site conditions assessments were conducted at each resource.

Effects on Battery Spencer

Battery Spencer is currently open to the public. While the concrete structures of this battery would not be subject to general erosion, crumbling concrete in some locations suggests that heavy visitor traffic, although not anticipated, could exacerbate existing damage. Interpretive signs and safety fencing are found throughout the various gun mounts and buildings; however, graffiti, localized concrete damage,

and other vandalism could result in a minor to moderate adverse effect. The high elevation of the battery affords good views of the Bay, and public safety could be a concern if spectators attempt to cross existing fencing and access steep slopes. The protection measures described in Chapter 2 - Alternatives would change Alternative B's effects on Battery Spencer to minor beneficial levels. These measures would consist of additional temporary and/or permanent supplemental fencing and sealing of open doorways and windows that allow access to the interior of the Administration Building, replacement of illegible or missing signs, and a cultural resource monitor stationed at Battery Spencer and Ridge Battery on race days in 2012 and 2013.

Effects on Ridge Battery

This battery is located just uphill from Battery Spencer and is likewise open to the public. The brick gun mounts and earthworks are subject to vandalism, as well as erosion and/or crumbling from heavy visitor use, especially in areas with inadequate fencing and signage. Existing fences allow gaps along the edge of structures, and informal trails are visible where visitors have entered restricted areas. Although interpretive signs have been installed throughout the battery, many are faded, defaced, or have been removed. The addition of spectators associated with Alternative B, if it were to occur, could exacerbate existing damage, resulting in a moderate adverse effect. However, the protection measures provided as part of Alternative B would eliminate adverse effects and create a minor beneficial effect. These measures would include additional temporary and/or permanent supplemental fencing to close gaps, replacement of missing or damaged signs, and the presence of a cultural resource monitor and/or law enforcement officer patrolling Ridge Battery and Battery Spencer during race events in both 2012 and 2013.

Effects on Battery Orlando Wagner

Battery Wagner is located south of Conzelman Road, along a short informal path. The battery has only moderate views of the race area and access is unmarked and unimproved. Nearly every surface of the concrete battery is decorated with modern graffiti, and recent litter (beer and soda bottles, snack wrappers) suggests it is a well-known gathering site among certain local residents. Effects on the battery from Alternative B would likely be a continuation of the ongoing graffiti defacement, which at this point would constitute a negligible effect.

Effects on Battery Kirby

Battery Kirby (including the remnants of the earlier Gravelly Beach Battery) is reached along an access-controlled roadway leading to a day-use area and four-site campground along the shore of the Golden Gate. There are partial views to the race area; however, the limited vehicular access would likely deter spectators from gathering in the area. Furthermore, the concrete battery features are durable and not particularly subject to adverse impacts from small groups of race spectators. Effects on Battery Kirby from Alternative B would be negligible.

Effects on Slacker Hill

The military cultural resources at Slacker Hill (a fire control station and a cistern) are moderately accessible via a steep dirt trail. The location offers an unimpeded view of the Bay; however, the distance from the race area and the difficult access would likely be a deterrent to spectator use. The remaining features (an emergency helipad, a concrete "ready room" foundation, and a concrete gun mount) are durable and are not likely to be adversely affected by the limited number of AC34 spectators who might attempt to find a viewing area. Impacts, if any occur, would be negligible.

Effects on Hawk Hill (Battery Construction Number 129)

The unfinished battery at Hawk Hill is accessible via a trail leading from a turnout on Conzelman Road. Some safety fencing and interpretive signs are present, as is minor graffiti. The location affords an unimpeded (if distant) view of the race area, although on the first attempt at a site conditions assessment visit on an overcast day in September, the site was above the cloud line and offered no views at all. Under Alternative B, the location is not likely to be a major gathering area for spectators watching the AC34 races, and only negligible vandalism effects, if any, would occur.

4.6.7.9 Golden Gate Bridge

No programmed events or facilities are planned for the Golden Gate Bridge under Alternative B; however, it would likely serve as a secondary viewing area, since the pedestrian walkway would afford a clear view of the 2012 and 2013 race course areas. Increases in visitors to the Golden Gate Bridge are not anticipated to result in impacts on this historic resource, as the bridge was designed to withstand the weight of many more times the number of cars and pedestrians than use it currently. Furthermore, the Golden Gate Bridge, Highway and Transportation District (GGBHTD) has the ability to restrict the number of pedestrians on the bridge at any time if crowding becomes a safety concern. No effects on the bridge would occur under Alternative B.

4.6.7.10 Cumulative Impacts

The analysis of cumulative effects on cultural resources considers the potential effects of past, present, and reasonably foreseeable actions in the APE and immediate vicinity in addition to the potential effects of Alternative B. The projects identified include those that could affect historic architectural resources and cultural landscapes within the APE or immediate vicinity by substantially altering them or otherwise diminishing their integrity, as well as ground-disturbing activities in archeologically sensitive areas.

There are a number of projects recently completed, ongoing, or planned within or in the vicinity of the APE. Projects within or in proximity to the APE that are not specifically associated with one particular venue or spectator viewing area include the James R. Herman Cruise Terminal and Northeast Wharf Plaza, the San Francisco Marina Renovation Project, the Bay Trail Plan and related projects along the shoreline in San Francisco and Marin counties, the California Coastal Trail project, various rehabilitation and development projects at the Port of San Francisco, and the Fisherman's Wharf Public Realm Plan.

Additional relevant projects are listed below by the venue or secondary viewing area they most closely relate to.

Crissy Field

- Crissy Field Center Relocation Project

Presidio

- Doyle Drive Improvement Project
- Vegetation Management Plan for the Presidio of San Francisco
- Fort Point Accessibility Retrofits
- Presidio Coastal Trail Project

San Francisco Maritime NHP

- Aquatic Park Bathhouse and Amphitheater Rehabilitation
- Municipal Pier Rehabilitation Project
- Rehabilitation of the Belt Line Railway Tracks
- Maritime Heritage Learning Center
- Rehabilitation of the Sea Scout Base and Moorings
- Aquatic Park Bathhouse Exhibit Plan and Installation
- Annual Fleet Week and Fourth of July Events

Fort Mason

- Seismic Upgrades to Building E
- Solar Panel Installation Project on the roof of the Pier 2 Shed
- Fort Mason Center Long-Term Lease

Alcatraz Island

- Energy Improvements on Alcatraz Island

Fort Baker

- Fort Baker Plan
- Battery Cavallo Preservation and Interpretation Plan

Marin Headlands

- Marin Headlands and Fort Baker Transportation Infrastructure and Management Plan

Golden Gate Bridge

- Golden Gate Bridge Seismic Retrofit

Additional projects or plans that affect multiple areas of the APE include fire management, habitat restoration, long-range transportation, dog management, and general management plans that span the entire GGNRA.

Implementation of standard mitigation measures to ensure the protection of both known and unknown cultural resources are included in the various environmental documents that have evaluated, or will evaluate, the environmental effects of each of these projects. These measures include worker education and inadvertent discovery measures for buried archeological resources (including human remains), as required by NEPA and Section 106 of the NHPA, as well as other federal and state legislation. In addition, structural changes to historic properties located on NPS-managed properties would generally be required to comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties, further mitigating the intensity of the effects on these properties. In Area B of the Presidio, no programmed event venue facilities or other physical alterations to the District are proposed.

While it is possible that one or more of the cumulative scenario projects could result in adverse effects on NRHP-listed or -eligible resources, the negligible effects of Alternative B would not significantly contribute to this cumulative effect.

4.6.7.11 Conclusion

The implementation of Alternative B, including all implementation plans and impact-reducing protection measures, would result in a negligible effect on sensitive cultural resources within the APE on federal lands. Potential effects on archeological sites, historic architectural resources, and cultural landscapes from erosion, trampling, crumbling of brick or concrete, graffiti, artifact collection, or other vandalism would be uniformly reduced or eliminated through the use of fencing, signs, other access restriction, and/or resource monitoring as appropriate in each location. A total of approximately 1,050 feet of new fencing is recommended, including 650 feet of temporary fencing (moveable steel barriers or orange construction type), and 400 feet of permanent fencing (wood post and wire type). Public safety hazards associated with large groups of spectators gathering near steep slopes and unprotected drop-offs would also be reduced to a negligible level through these same measures. Compliance with the Secretary of the Interior's Standards ("Temporary Structure Approach") or other NPS Special Events Permit restrictions (including plan review in consultation with NPS cultural resources preservation assessment review staff) would reduce to a negligible level the effects of event venues or equipment located inside or attached to historic architectural resources. In Area B of the Presidio, no programmed event venue facilities or other physical alterations to the District are proposed. In some locations, repair or replacement of interpretive signage would result in a minor beneficial impact. The effects that may occur as a result of Alternative B would not contribute significantly to a cumulative effect when viewed in combination with other effects from past, present, and reasonably foreseeable projects within or near the APE.

4.6.8 Impacts of Alternative C—No Organized Events on NPS Lands

As described in Chapter 2 - Alternatives, the absence of programmed events on NPS lands under Alternative C–No Organized Events on NPS Lands would result in decreased numbers of spectators on those lands relative to Alternative B, but still substantially higher visitation than would be expected without the AC34 races. A few private event venues, public service facilities, and small pieces of equipment would still be included in various NPS locations under Alternative C, as described below. As the analysis of impacts under Alternative B demonstrates, many of the anticipated effects on cultural resources would result from large numbers of spectators gathering on or near sensitive resources, rather than from construction or major facilities associated with programmed events. Therefore, although the intensity of effects would generally be lessened proportionally to the decrease in spectators on lands that would not host programmed spectator venues under Alternative C, the types of effects on sensitive cultural resources at each venue/viewing area would remain essentially unchanged from those identified for Alternative B above.

The change in impact intensity would only apply to sensitive cultural resources in those locations that would host programmed events under Alternative B but not under Alternative C. Some of the sensitive cultural resources at Crissy Field, San Francisco Maritime NHP, Fort Mason, Alcatraz Island, and Fort Baker would therefore experience a lessened impact intensity under Alternative C compared to Alternative B. All other effects would remain the same as described for Alternative B.

Table CUL-3 summarizes the effects of Alternative C by each geographic location and resource, noting the protection measures that would occur under Alternative C to eliminate or reduce each corresponding effect to a non-adverse level.

4.6.8.1 Crissy Field

Under Alternative C, no tents, bleachers, event stage, video screens, food and beverage concessions, or freestanding educational exhibits would be located on Crissy Field. There would be no evening events, and no use of nighttime lighting. Public services such as portable restrooms, hand washing stations, and first aid kiosks would still be located here on peak and medium-high weekends, as visitor numbers are expected to be high even without programmed events (as many as 14,570 in 2012 and up to 26,010 in 2013, during peak weekend race days). Effects on **CA-SFR-129**, the **USCG Station Golden Gate**, and the **Seaplane Ramp** would remain at a negligible level under Alternative C as they are under Alternative B. Similarly, visual effects on the **Presidio NHL District** would be negligible under both alternatives. Effects to other properties at Crissy Field where effects of Alternative C would differ from those of Alternative B are described individually below.

Effects on Signal Cable Hut

Effects on the Signal Cable Hut under Alternative C would be similar to, but less intense than, those expected under Alternative B. Erosion and turf degradation from spectators seeking a better view of the AC34 races from the top of the hut would be a minor adverse effect. Protection measures included with Alternative C are the same as those proposed under Alternative B and include supplemental temporary fencing around the Signal Cable Hut to more effectively prohibit spectator entry. This

TABLE CUL-3: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE C

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Crissy Field			
Crissy Field archeological site (CA-SFR-129; GOGA00008)	None/negligible: Site is well-protected and not subject to erosion or trampling effects; natural resource protection area fencing and monitors would exclude spectators.	None warranted	None/negligible
USCG Station Golden Gate	Negligible: Locked gate prevents spectators from using pier and boathouse; other facilities are occupied and therefore protected from vandalism or other spectator effects.	None warranted	Negligible
Signal Cable Hut (building 946)	Minor adverse: Existing social trails could entice spectators to climb to the top of the earthen structure, causing erosion and exacerbating turf degradation.	Provide supplemental temporary fencing around hut; fencing to remain in place through 2012 and 2013 race periods.	Negligible
Airfield	Minor adverse: Large crowds could cause degradation of turf and subsequent erosion of engineered airfield.	Repair and replace turf following removal of event facilities after each season.	Negligible
Seaplane Ramp	Negligible: Submerged ramp would not provide good views for land-based spectators, and all race, support, and motorized spectator boats would be required to remain beyond the non-motorized craft zone extending out from the shore.	None warranted	Negligible
Visual Effects on Presidio NHL District	Negligible: Crowds of spectators could alter the historical feeling and military association of Crissy Field. However, similar large public festival-like events occurred during the period of significance. All changes would be temporary and fully reversible.	None warranted	Negligible
Presidio Area A			
Battery East (GOGA00038)	Minor adverse: Erosion of earthworks and damage or defacement of masonry magazines and tunnel could result.	Provide supplemental fencing/signage and cultural resource monitoring/ law enforcement presence during race days (2012 and 2013).	None/negligible
Battery Lancaster dump (GOGA00023)	None: Not accessible	None warranted	None
DeRussey Residence dump (CA-SFR-109H)	None/negligible: Thick vegetation and poor race area visibility make this an unattractive spot for spectators.	None warranted	None/negligible
Fort Point Seawall	None: Not accessible on northwest side; none of the wall is subject to spectator effects.	None warranted	None
West San Francisco Batteries (Boutelle, Marcus Miller, and Cranston)	Negligible: Poor viewing location; Coastal Trail Fencing Plan fencing limits access to sensitive features.	None warranted	Negligible

TABLE CUL-3: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE C (CONTINUED)

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Presidio Area A (cont.)			
Visual Effects on Presidio NHL District and Fort Point National Historic Site	Negligible: Spectator crowds and temporary fencing would intermittently and temporarily change the aspects of feeling and association.	None warranted	Negligible
Presidio Area B			
Visual Effects on Presidio NHL District	Negligible: Spectator crowds and merchandise vendors would intermittently and temporarily change the aspects of feeling and association.	None warranted	Negligible
San Francisco Maritime NHP			
Municipal Pier	Moderate to major adverse: Pier is structurally unable to support large numbers of spectators.	Close public access to the pier during races (2012 and 2013).	Negligible
Hyde Street Pier Historic Fleet	Moderate adverse: Large numbers of spectators could overload pier and/or damage boats.	Limit access to pier during races (2012 and 2013); use cultural resource monitor on pier on an as-needed basis (to be determined by SAFR).	None/negligible
East and West Roundhouses	Moderate adverse: Overcrowding of the roundhouse roofs could cause structural damage and create a safety hazard.	Close stairways leading to roofs of both roundhouses.	None
Trees, shrubs, grass, and other plantings of the Aquatic Park Cultural Landscape	Minor adverse: Spectators could trample plantings and damage turf; event facilities could degrade turf and lead to erosion.	Fence historically designed low planting beds with temporary fencing during both race seasons; repair or replace turf as needed following each race season.	Negligible
Visual Effects on the Aquatic Park National Register Historic District/NHL District	None: The visual effects of the AC34 events would complement the historical setting and association, and the present-day purpose and mission of the park.	None warranted	None
Fort Mason			
Archeological site CA-SFR-31 (GOGA00007)	Negligible: No site components would be exposed, and AC34-related erosion would be unlikely due to steep slope and poor view of race area.	None warranted	Negligible
East Black Point Trails area (historic paths and retaining walls)	Minor adverse: Paths are overgrown and partially fenced; however, graffiti and damage to stone walls could result from crowds.	Provide cultural resources monitor at Upper Fort Mason (for East Black Point Trails, Northwest Embankment, and Black Point/Point San Jose Batteries).	Negligible
Black Point/ Point San Jose Batteries (West Battery GOGA00027; East Battery GOGA00026)	Minor adverse: Restored batteries are currently open to the public; erosion of earthworks could degrade structures.	Add temporary and/or permanent supplemental fencing to prevent access to sensitive earthen features, and provide a cultural resources monitor at Upper Fort Mason (for Black Point/Point San Jose Batteries, Northwest Embankment, and East Black Point Trails).	Negligible

TABLE CUL-3: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE C (CONTINUED)

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Fort Mason (cont.)			
Northwest Embankment (slope below Great Meadow)	Minor adverse: AC34-related erosion could occur if spectators traverse steep slope.	Provide cultural resources monitor at Upper Fort Mason (for Northwest Embankment, Black Point/Point San Jose Batteries, and East Black Point Trails).	Negligible
Parade Ground	Negligible: Views of the race areas would be limited, and the number of expected spectators would not significantly damage turf.	None warranted	Negligible
Piers 2 and 3, Lower Fort Mason	None: No installation of media equipment or media/hospitality facilities would occur.	None warranted	None
Visual Effects on Fort Mason National Register Historic District/San Francisco Port of Embarkation, U.S. Army NHL District	None: No outdoor event facilities would be located within Fort Mason to detract from the historic military feeling and association of the districts.	None warranted	None
Alcatraz Island			
Main Cellhouse	Negligible: No after-hours hospitality events or equipment installation would occur, and use as a secondary viewing area would be regulated by ferry capacity	None warranted	Negligible
Fort Baker			
Fort Baker Pier (Mine Wharf)	None: No after-hours hospitality venue would be erected on the pier.	None warranted	None
Battery Duncan	None: Battery is inaccessible to the public and would afford poor views of the race area.	None warranted	None
North of Battery Duncan (Battery Duncan Field Fortifications GOGA00390, and Lateral Fire Site GOGA00389)	Minor adverse: Vandalism could result in graffiti or displacement of concrete sandbags.	Provide cultural resources monitor and/or law enforcement personnel during race events (2012 and 2013).	None/negligible
Battery Cavallo (GOGA00071)	Minor adverse: Effects could include erosion of earthworks and vandalism due to trespassing within fence.	Provide a cultural resources monitor and/or law enforcement officer on site during race events (2012 and 2013).	None/negligible
Battery Yates	Minor adverse: Effects could include graffiti/vandalism and safety hazard from steep slopes.	Provide cultural resources monitor and/or law enforcement officer during race events (2012 and 2013).	None/negligible
Lime Point (CA-MRN-648H; GOGA00018)	None: Not accessible	None warranted	None

TABLE CUL-3: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE C (CONTINUED)

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Fort Baker (cont.)			
Yellow Bluff / East Fort Baker dump (CA-MRN-649H; GOGA00072)	None: Not accessible	None warranted	None
Visual Effects on the Forts Baker, Barry, and Cronkhite Historic District	Negligible: The only physical changes to the district would be the addition of temporary fencing for protection measures; these would not noticeably detract from the historic feeling of the district.	None warranted	Negligible
Marin Headlands			
Battery Spencer (GOGA00392	Minor to moderate adverse: Effects could include continued concrete damage, graffiti/ vandalism, and public safety concerns.	Provide temporary fencing along the top of slopes, restrict access to the Administration Building, replace missing/ illegible signs, and provide a cultural resources monitor (for both Battery Spencer and Ridge Battery) during race events (2012 and 2013).	Minor beneficial
Ridge Battery (GOGA00068)	Moderate adverse: Effects could include erosion of earthworks and crumbling of brick from heavy use, and graffiti/vandalism.	Provide additional fencing to secure access to earthworks, replace damaged signs, and cultural resources monitoring (shared with Battery Spencer) during 2012 and 2013 race events.	Minor beneficial
Slacker Hill (Fire Control Station GOGA00167; Cistern GOGA00170)	None/negligible: Poor access would discourage spectators, and durable features are not subject to use wear or erosion.	None warranted	None/negligible
Battery Orlando Wagner	Negligible: Poor access and obstructed views would discourage spectators from gathering.	None warranted	Negligible
Battery Kirby / Gravelly Beach (GOGA00067)	Negligible: Limited vehicular access would discourage large groups of spectators, and concrete battery features are durable and not subject to spectator-related impacts.	None warranted	Negligible
Hawk Hill/Battery Construction Number 129	None/negligible: Distance to race area would discourage spectators, and durable features are not subject to use wear or erosion.	None warranted	None/negligible
Golden Gate Bridge	None: Bridge weight capacity could not be exceeded by pedestrian spectators; visitor safety limits would be enforced by GGBHTD.	None warranted	None
SOURCE: ESA 2012			

fencing would remain in place through the 2012 race season and again in 2013 until the completion of all AC34 races. As a result, effects on the Signal Cable Hut would be reduced to a negligible level.

Effects on Crissy Airfield

Because no event facilities such as tents, bleachers, and a stage would be erected on Crissy Airfield under Alternative C, impacts on the turf of the historic airfield would be somewhat reduced. Spectator trampling would still have a potential to damage the turf, resulting in a minor adverse impact; however, protection measures included with Alternative C would still ensure that turf would be repaired or replaced (through sod or seeding) following completion of each race season. By including this protection measures in Alternative C, effects on the airfield would be reduced to a negligible level.

4.6.8.2 Presidio Area A

Similar to Alternative B, Alternative C would not include programmed events in the portion of the Presidio beyond Crissy Field that includes the bluffs and shoreline overlooking the Golden Gate. Compared to Alternative B, Alternative C the park would be expected to receive fewer visitors (3,120 in 2012 and 3,970 in 2013, during peak race weekends). Correspondingly, effects on sensitive cultural resources in the Presidio would be somewhat reduced or remain the same. Effects on the **Battery Lancaster dump,** the **DeRussey Residence dump**, the **Fort Point Seawall**, and the **West San Francisco Batteries** that were negligible under Alternative B would remain negligible under Alternative C. Similarly, visual effects on the **Presidio NHL District** and **Fort Point National Historic Site** would remain negligible under Alternative C as they are under Alternative B. Resources in Area A where effects of Alternative C would differ from those of Alternative B are described individually below.

Effects on Battery East

Spectator-caused erosion of earthen magazines could result in a minor adverse effect, a somewhat lessened intensity when compared to Alternative B. However, the protection measures associated with Alternative C would include supplemental fencing, signage, and a cultural resources monitor and/or law enforcement personnel at the site on race days in both 2012 and 2013. This would reduce the effects on Battery East to a negligible level or eliminate effects completely.

4.6.8.3 Presidio Area B

A few temporary public service facilities, such as portable restrooms, could be located on Presidio Trust lands near Crissy Field. Merchandise vendors (both indoor and outdoor) would also still be possible in Area B of the Presidio under Alternative C. Spectators would likely gather here to watch the races. Large crowds of spectators and merchandise tents or carts would somewhat detract from the historic feeling and military association of the Presidio NHL District; however, no programmed event venue facilities or other physical alterations to the NHL District are proposed. The changes in feeling and association would be of short and intermittent duration (only during race days), and would be

temporary, ending at the completion of the 2012 and 2013 race seasons. Visual effects on the Presidio NHL District in Area B would be negligible.

4.6.8.4 San Francisco Maritime NHP

Under Alternative C, there would be no programmed events at Aquatic Park, and no corresponding temporary venue facilities such as exhibitions, boat displays, and video screens. No weather monitoring station would be attached to Municipal Pier. As in Alternative B, public services such as portable restrooms, hand washing stations, and first aid kiosks would be available to visitors, but only on peak and high-medium attendance race weekends. Special indoor events could also take place in the Maritime Museum (historic Bathhouse). The San Francisco Maritime NHP would still be considered a prime secondary viewing location. Daily visitation on peak race weekend days in 2012 could be up to 11,320 people, and up to 12,920 in 2013. Visual effects on the **Aquatic Park National Register Historic District/NHL District** and other resources of the **San Francisco Maritime NHP** would be negligible under both Alternative B and Alternative C. Resources at SAFR where effects of Alternative C would be different from those of Alternative B are described individually below.

Effects on Municipal Pier

Municipal Pier at Aquatic Park would be subject to a moderate to major adverse effect under Alternative C if large numbers of spectators were to exceed the pier's weight capacity. The intensity of the impact under Alternative C would be somewhat lessened compared to Alternative B, due to the lower numbers of anticipated spectators. The access restrictions developed for Alternative B would also be included with Alternative C, in order to ensure that effects on the pier and public safety would be eliminated.

Effects on Historic Vessels of SAFR at Hyde Street Pier

Visitors would create a moderate adverse effect on the Hyde Street Pier historic vessels under Alternative C, as compared to a moderate to major adverse effect under Alternative B. However, implementation of the protection measures developed for the pier under Alternative B would still be applied, reducing effects to a negligible or nonexistent level. There would be no exhibition vessels anchored in Aquatic Park Cove, and consequently no potential for boats to break their moorings and drift into the historic fleet. No in-water monitoring would be warranted.

Effects on East and West Roundhouses

As under Alternative B, the roofs of the roundhouses could suffer structural damage and create an unsafe situation for spectators if Alternative C were to be implemented. Due to the reduced spectator numbers, this would be a moderate adverse effect under Alternative C, as compared to the moderate to major adverse effect anticipated under Alternative B. The same protection measure would ensure closure of both roundhouse roofs during race days. This would eliminate effects on the roundhouses under Alternative C.

Effects on Vegetation of the Aquatic Park Cultural Landscape

Trampling of low plantings and damage to turf could still occur under Alternative C, albeit possibly to a somewhat lesser extent compared to Alternative B. This would be a minor adverse effect; however, the protection measure calling for fencing of sensitive historically designed planting beds and repair or replacement of turf as needed following the 2012 and 2013 race seasons would be implemented for Alternative C. This would reduce the effect to a negligible level.

4.6.8.5 Fort Mason

No event facilities would be installed at Fort Mason under Alternative C. Piers 2 and 3 would not be used for a hospitality venue or media center, no satellite dishes would be attached to the Pier 3 apron, and no media barge would be moored between the piers. Fort Mason would still draw visitors as a secondary viewing area, although spectator numbers would be reduced compared to Alternative B. Daily park visitation on peak race weekends could be as high as 5,380 in 2012 and 4,980 in 2013.

Indigenous archeological site **CA-SFR-31** and the Upper Fort Mason **Parade Ground** would experience negligible effects, if any, from spectator use under Alternative B. This same situation would also apply to Alternative C; no additional management actions or protection measures are proposed. Similarly, visual effects on the **Fort Mason National Register Historic District/San Francisco Port of Embarkation**, **U.S. Army NHL District** would be negligible under Alternative C and Alternative B.

The **Black Point/Point San Jose Batteries**, **Northwest Embankment**, and **East Black Point Trails** would be subject to the same minor adverse effects as those identified under Alternative B. The same protection measures would also apply to Alternative C, reducing effects to a negligible level.

Resources at Fort Mason where effects of Alternative C would differ from those of Alternative B are described individually below.

Effects on Piers 2 and 3 at Lower Fort Mason

Because no media or hospitality venues would be located in the Herbst and Festival Pavilions, on the Pier 3 apron, or between the piers, no potential for damage would exist as a result of Alternative C.

4.6.8.6 Alcatraz Island

Alternative C would not include an after-hours private hospitality venue inside the cellhouse, nor would any weather monitoring or communications equipment be installed on or near the cellhouse. The number of race spectators would be similar to Alternative B, as the Alcatraz Ferry would set a maximum limit of 5,200 visitors per day. No effects on Alcatraz Island would occur under Alternative C.

4.6.8.7 Fort Baker

Under Alternative C, there would be no hospitality venue on the Fort Baker Mine Wharf. Spectators would still be drawn to the area to view the races. Under Alternative C, daily visitation to the park

during peak race weekends would be around 2,050 in 2012 and 2,170 in 2013. Effects on **Battery Duncan**, the **Lime Point fog signal station**, and the **Yellow Bluff/East Fort Baker dump** would be nonexistent or negligible under Alternative C, as they would be under Alternative B. Visual effects on the **Forts Baker**, **Barry**, and **Cronkhite Historic District** would similarly not occur under either alternative.

Effects at **Battery Cavallo**, **Battery Yates**, and the features **North of Battery Duncan** would be identical to those anticipated under Alternative B (minor adverse). The same monitoring protection measures that would be in effect under Alternative B would also apply to Alternative C, thereby reducing the effects from spectator trespass and vandalism or inadvertent damage to a negligible level.

Because no after-hours hospitality venue would be located on the **Fort Baker Pier (Mine Wharf)**, no effects on this resource would occur under Alternative C.

4.6.8.8 Marin Headlands

Because no programmed event venues are planned under either Alternative B or Alternative C, effects on the historic military features within the Forts Baker, Barry, and Cronkhite National Historic District would be identical under both alternatives. Spectator numbers are also anticipated to be essentially equivalent under both alternatives. Alternative C would have the same effects as Alternative B on **Ridge Battery**; **Batteries Spencer**, **Orlando Wagner**, and **Kirby**; and the military features at **Slacker Hill** and unfinished Battery Construction Number 129 at **Hawk Hill**. The same protection measures would be implemented, leading to minor beneficial effects at Ridge Battery and Battery Spencer. Effects at Batteries Kirby and Orlando Wagner, the Hawk Hill Battery Construction Number 129, and the features on Slacker Hill would be negligible, and no protection measures would be warranted.

4.6.8.9 Golden Gate Bridge

As with Alternative B, no programmed events or venues are planned on the Golden Gate Bridge under Alternative C. It is anticipated that spectators would gather on the bridge to view the AC34 races, but no effects on the bridge would occur, and the Golden Gate Bridge, Highway and Transportation District (GGBHTD) would reserve the right to limit pedestrians on the bridge to maintain safety standards.

4.6.8.10 Cumulative Impacts

Each of the past, present, and reasonably foreseeable projects in or near the APE listed in Section 4.6.7.10 would also apply to the cumulative scenario for Alternative C.

Implementation of standard mitigation measures to ensure the protection of both known and unknown cultural resources are included in the various environmental documents that have evaluated, or will evaluate, the environmental effects of each of these projects. These measures include worker education and inadvertent discovery measures for buried archeological resources (including human remains), as required by NEPA and Section 106 of the NHPA, as well as other federal and state legislation. In

addition, structural changes to historic properties located on NPS-managed properties would generally be required to comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties, further mitigating the intensity of the effects on these properties. In Area B of the Presidio, no programmed event venue facilities or other physical alterations to the District are proposed.

While it is possible that one or more of the cumulative scenario projects could result in adverse effects on NRHP-listed or -eligible resources, the negligible effects of Alternative C would not contribute significantly to this cumulative effect.

4.6.8.11 Conclusion

The implementation of Alternative C, including all implementation plans and impact-reducing protection measures, would result in a negligible effect on sensitive cultural resources under federal jurisdiction within the APE. Potential effects on archeological sites, historic architectural resources, and cultural landscapes from erosion, trampling, crumbling of brick or concrete, graffiti, artifact collection, or other vandalism would be uniformly reduced or eliminated through the use of fencing, signs, other access restrictions, and/or resource monitoring as appropriate in each location. A total of approximately 1,050 feet of new fencing is recommended, including 650 feet of temporary fencing (moveable steel barriers or orange construction type), and 400 feet of permanent fencing (wood post and wire type). Public safety hazards associated with large groups of spectators gathering near steep slopes and unprotected drop-offs would also be reduced to a negligible level through these same measures. Compliance with Special Events Permit restrictions (including plan review in consultation with NPS cultural resources preservation assessment review staff) would reduce to a negligible level the effects of event venues located inside historic buildings. In Area B of the Presidio, no programmed event venue facilities or other physical alterations to the District are proposed. In some locations, repair or replacement of safety fencing and interpretive signage would result in a minor beneficial impact. The negligible effects that may occur as a result of Alternative C would not contribute significantly to a cumulative effect when viewed in combination with other effects from past, present, and reasonably foreseeable projects within or near the APE.

4.6.9 Impacts of Alternative D—Modified Program Alternative

The variations in race course locations and changes in programmed race-related events and facilities on NPS lands under Alternative D–Modified Program Alternative would generally result in cultural resources effects similar to or somewhat less than those anticipated under Alternative B. Large numbers of race spectators gathering on sensitive archeological and historic architectural resources and cultural landscapes could result in erosion, crumbling, or trampling of those resources, as well as graffiti, artifact removal/dislocation, or other types of vandalism. Protection measures included in the description of Alternative D would reduce these effects to a negligible level or eliminate effects of the alternative entirely.

Under Alternative D, programmed events and secondary viewing areas at Crissy Field, SAFR, Fort Mason, Alcatraz Island, and Fort Baker would be somewhat more limited in scope as compared to Alternative B. Effects on sensitive cultural resources in these locations are anticipated to be the same as

or less than those described for Alternative B, above. The protection measures included for Alternative D in many of these locations are the same as those described for Alternative B. These would reduce the cultural resources impacts to a negligible level or eliminate the effect of Alternative D completely. Effects in other secondary viewing locations would be reduced or remain the same as those described for Alternative B.

Table CUL-4 summarizes the cultural resources effects that would occur under Alternative D, as well as the protection measures that would be implemented to eliminate any adverse effects or reduce them to a negligible level.

4.6.9.1 Crissy Field

Programmed events at Crissy Field under Alternative D would be more limited than those proposed under Alternative B. Public services such as restrooms, first aid kiosks, and hand washing stations would be available on peak and high-medium attendance race weekends, and smaller spectator seating bleachers would be erected on Crissy Airfield. Hospitality tents, food and beverage concessions, and the stage with amplified sound and video screens would not be provided. Instead, Wi-Fi kiosks would be available to transmit race feed to hand-held mobile computing devices. There would be no evening events and no use of nighttime lighting. Total visitation would decrease compared to Alternative B, with an estimated 10,340 peak race weekend visitors in 2012 (for both east and west Crissy Field), and 34,800 in 2013.

For those resources that would experience a negligible effect under Alternative B (**CA-SFR-129,** the **USCG Station Golden Gate, Seaplane Ramp**, and visual effects on the **Presidio NHL District**), effects would remain negligible under Alternative D. Effects on the **Signal Cable Hut** would remain at a level of minor to moderate adverse, as they would be under Alternative B. The same protection measures would be implemented for Alternative D so that these effects would be reduced to a negligible level.

Effects on **Crissy Airfield** would be slightly lessened compared to Alternative B, due to the absence of the event stage and the smaller size of spectator bleachers. However, the potential erosion and degradation of turf would continue to be a minor to moderate adverse effect, and protection measures similar to those for Alternative B would be implemented. With this repair and replacement of turf on an as-needed basis and following the completion of each race season, effects on the airfield would be reduced to a negligible level.

4.6.9.2 Presidio Area A

No event venues or facilities would be provided on Presidio lands beyond Crissy Field under Alternative D. Compared to Alternative B, total visitation under Alternative D is expected to be lower (2,890 in 2012 and 4,900 in 2013 on peak weekend race days). On those properties that would experience a negligible or nonexistent effect under Alternative B (the **Battery Lancaster dump**, **DeRussey Residence dump, Fort Point Seawall**, and the **West San Francisco Batteries**), effects would remain at this level under Alternative D. Visual effects on the **Presidio NHL District** would also remain at a negligible level.

TABLE CUL-4: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE D

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Crissy Field			
Crissy Field archeological site (CA-SFR-129; GOGA00008)	None/negligible: Site is well-protected and not subject to erosion or trampling effects; natural resource protection area fencing and monitors would exclude spectators.	None warranted	None/negligible
USCG Station Golden Gate	Negligible: Locked gate prevents spectators from using pier and boathouse; other facilities are occupied and therefore protected from vandalism and other spectator effects	None warranted	Negligible
Signal Cable Hut (building 946)	Minor to moderate adverse: Existing social trails could entice spectators to climb to the top of the earthen structure, causing erosion and exacerbating turf degradation.	Provide supplemental temporary fencing around hut; fencing to remain in place through 2012 and 2013 race periods.	Negligible
Airfield	Minor to moderate adverse: Large crowds, bleachers, tents, and other event facilities could cause degradation of turf and subsequent erosion of engineered airfield.	Repair and replace turf in limited areas on non-race days as needed, and following removal of event facilities after each season.	Negligible
Seaplane Ramp	Negligible: Submerged ramp would not provide good views for land-based spectators, and all race, support, and motorized spectator boats would be required to remain beyond the non-motorized craft zone extending out from the shore.	None warranted	Negligible
Visual Effects on Presidio NHL District	Negligible: Crowds of spectators could alter the historical feeling and military association of Crissy Field. However, similar large public festival-like events occurred during the period of significance. All changes would be temporary and fully reversible.	None warranted	Negligible
Presidio			
Battery East (GOGA00038)	Minor adverse: Erosion of earthworks and damage or defacement of masonry magazines and tunnel could result.	Provide supplemental fencing/ signage and cultural resource monitoring/ law enforcement presence during race days (2012 and 2013).	None/negligible
Battery Lancaster dump (GOGA00023)	None: Not accessible	None warranted	None
DeRussey Residence dump (CA-SFR-109H)	None/negligible: Thick vegetation and poor race area visibility make this an unattractive spot for spectators.	None warranted	None/negligible
Fort Point Seawall	None: Not accessible on northwest side; none of the wall is subject to spectator effects.	None warranted	None

TABLE CUL-4: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE D (CONTINUED)

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Presidio (cont.)			
West San Francisco Batteries (Boutelle, Marcus Miller, and Cranston)	Negligible: Poor viewing location; Coastal Trail Fencing Plan fencing limits access to sensitive features.	None warranted	Negligible
Visual Effects on Presidio NHL District and Fort Point National Historic Site	Negligible: Spectator crowds and temporary fencing would intermittently and temporarily change the aspects of feeling and association.	None warranted	Negligible
Presidio Area B			
Visual Effects on Presidio NHL District	Negligible: Spectator crowds and merchandise vendors would intermittently and temporarily change the aspects of feeling and association.	None warranted	Negligible
San Francisco Maritime NHP			
Municipal Pier	Moderate to major adverse: Pier is structurally unable to support large numbers of spectators; attachment of a weather monitoring station could diminish integrity of the pier.	Close public access to the pier during races (2012 and 2013); comply with NPS Special Events Permit restrictions for attachment of the weather monitoring equipment, including plan review in consultation with NPS cultural resources preservation assessment review staff.	Negligible
Hyde Street Pier Historic Fleet	Moderate adverse: Large numbers of spectators could overload pier and/or damage boats; uncontrolled vessels in cove could strike historic vessels.	Limit access to pier during races (2012 and 2013); use cultural resource monitor on an as-needed basis (to be determined by SAFR).	None/negligible
East and West Roundhouses	Moderate adverse: Overcrowding of the roundhouse roofs could cause structural damage and create a safety hazard.	Close stairways leading to roofs of both roundhouses.	None
Trees, shrubs, grass, and other plantings of the Aquatic Park Cultural Landscape	Minor adverse: Spectators could trample plantings and damage turf; event facilities could degrade turf and lead to erosion.	Fence historically designed low planting beds with temporary fencing during both race seasons; repair or replace turf as needed following each race season.	Negligible
Visual Effects on the Aquatic Park National Register Historic District/NHL District	None: The visual effects of the AC34 events would complement the historical setting and association, and the present-day purpose and mission of the park.	None warranted	None
Fort Mason			
Archeological site CA-SFR-31 (GOGA00007)	Negligible: No site components would be exposed, and AC34-related erosion would be unlikely due to steep slope and poor view of race area.	None warranted	Negligible

TABLE CUL-4: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE D (CONTINUED)

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Fort Mason (cont.)			
East Black Point Area historic paths and retaining walls	Minor adverse: Paths are overgrown and partially fenced; however, graffiti and damage to stone walls could result from crowds.	Provide cultural resources monitor at Upper Fort Mason (for East Black Point Trails, Northwest Embankment, and Black Point/Point San Jose Batteries).	Negligible
Point San Jose/Black Point Batteries (West Battery GOGA00027; East Battery GOGA00026)	Minor adverse: Restored batteries are currently open to the public; erosion of earthworks could degrade structures.	Add temporary fencing to restrict access to sensitive features, and provide a cultural resources monitor at Upper Fort Mason (for Black Point/Point San Jose Batteries, Northwest Embankment, and East Black Point Trails).	Negligible
Northwest Embankment (slope below Great Meadow)	Minor adverse: AC34-related erosion could occur if spectators traverse steep slope.	Provide cultural resources monitor at Upper Fort Mason (for Northwest Embankment, Black Point/Point San Jose Batteries, and East Black Point Trails).	Negligible
Parade Ground	Negligible: Views of race areas would be limited, and the number of expected spectators would not significantly damage turf.	None warranted	Negligible
Piers 2 and 3, Lower Fort Mason	Minor adverse: Anchoring of media barge and indoor media/hospitality facilities could temporarily diminish integrity.	Comply with NPS Special Events Permit regulations, including plan review in consultation with NPS cultural resources preservation assessment review staff.	Negligible
Visual Effects on Fort Mason National Register Historic District/San Francisco Port of Embarkation, U.S. Army NHL District	Negligible: Limited outdoor event facilities would be temporary, and would not detract noticeably from the historic military feeling and association of the districts.	None warranted	Negligible
Alcatraz Island			
Main Cellhouse	Minor to moderate adverse: Installation of facilities and equipment for corporate and private hospitality functions, as well as external weather monitoring and communications equipment, could diminish integrity.	Comply with NPS Special Events Permit regulations for use of historic structures, including plan review in consultation with NPS cultural resources preservation assessment review staff.	Negligible
Fort Baker			
Fort Baker Pier (Mine Wharf)	None: No after-hours hospitality venue would be erected on the pier.	None warranted	None
Battery Duncan	None: Battery is inaccessible to the public and would afford poor views of the race area.	None warranted	None

TABLE CUL-4: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE D (CONTINUED)

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Fort Baker (cont.)			
North of Battery Duncan (Battery Duncan Field Fortifications GOGA00390 and Lateral Fire Site GOGA00389)	Minor adverse: Vandalism could result in graffiti or displacement of concrete sandbags.	Provide cultural resources monitor and/or law enforcement personnel during race events (2012 and 2013).	None/negligible
Battery Cavallo (GOGA00071)	Minor adverse: Effects could include erosion of earthworks and vandalism due to trespassing within fence.	Provide cultural resources monitor and/or law enforcement officer on site during race events (2012 and 2013).	None/negligible
Battery Yates	Minor adverse: Effects could include graffiti/vandalism and safety hazard from steep slopes.	Provide a cultural resources monitor and/or law enforcement officer during race events (2012 and 2013).	None/negligible
Lime Point (CA-MRN-648H; GOGA00018)	None: Not accessible	None warranted	None
Yellow Bluff / East Fort Baker Dump (CA-MRN-649H; GOGA00072)	None: Not accessible	None warranted	None
Visual Effects on the Forts Baker, Barry, and Cronkhite Historic District	Negligible: The only physical changes to the district would be the addition of temporary fencing for protection measures; these would not noticeably detract from the historic feeling of the district.	None warranted	Negligible
Marin Headlands			
Battery Spencer (GOGA00392)	Minor to moderate adverse: Effects could include continued concrete damage, graffiti/ vandalism, and public safety concerns.	Provide temporary fencing along the top of slopes, restrict access to the Administration Building, replace missing/illegible signs, provide a cultural resources monitor at Battery Spencer and Ridge Battery during race events (2012 and 2013).	Minor beneficial
Ridge Battery (GOGA00068)	Moderate adverse: Effects could include erosion of earthworks and crumbling of brick from heavy use, and graffiti/vandalism.	Provide additional fencing to secure access to earthworks, replace damaged signs, cultural resources monitoring during 2012 and 2013 race events.	Minor beneficial
Slacker Hill (Fire Control Station GOGA00167; Cistern GOGA00170)	None/negligible: poor access would discourage spectators, and durable features are not subject to use wear or erosion.	None warranted	None/negligible
Battery Orlando Wagner	Negligible: Poor access and obstructed views would discourage spectators from gathering.	None warranted	Negligible

TABLE CUL-4: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE D (CONTINUED)

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Marin Headlands (cont.)			
Battery Kirby / Gravelly Beach (GOGA00067)	Negligible: Limited vehicle access would discourage large gatherings of spectators, and concrete battery features are not subject to erosion or other use wear.	None warranted	Negligible
Hawk Hill/Battery Construction Number 129	None/negligible: Distance to race area would discourage spectators, and durable features are not subject to use wear or erosion.	None warranted	None/negligible
Golden Gate Bridge	None: Bridge weight capacity could not be exceeded by pedestrian spectators; visitor safety limits would be enforced by the Golden Gate Bridge, Highway and Transportation District (GGBHTD).	None warranted	None
SOURCE: ESA 2012			

Under Alternative D, fewer spectators are expected in the portion of the Presidio that overlooks the Bay; however, effects from erosion and possible masonry damage would be a minor adverse effect at **Battery East**, reduced from a moderate adverse effect expected under Alternative B. The same protection measures, including temporary fencing, additional signs, and a cultural resources monitor, would be implemented for Alternative D, reducing these effects to a negligible level.

4.6.9.3 Presidio Area B

Under Alternative D, public services such as portable restrooms could be provided on Presidio Trust lands near the Crissy Field picnic area, and indoor and/or outdoor merchandise vendors would also be allowed in this area. Spectators would be unlikely to gather in Area B in large numbers during the 2012 races, as views would be limited; however, Presidio Trust land would likely be a secondary viewing ***area*** in 2013. As with Alternative B, crowds of spectators and merchandise tents or carts would somewhat detract from the historic feeling and military association of the Presidio NHL District; however, no programmed event venue facilities or other physical alterations to the ***NHL*** District are proposed. The changes in feeling and association would be of short and intermittent duration (only during race days) and would be temporary, ending at the completion of the 2012 and 2013 race seasons. Visual effects on the Presidio NHL District in Area B would be negligible.

4.6.9.4 San Francisco Maritime NHP

Under Alternative D, sponsor exhibits and educational displays would be erected in Aquatic Park, as would public services such as restrooms, hand washing stations, and first aid kiosks (although only on peak and high-medium attendance race weekends). A small weather monitoring station would be

attached to Municipal Pier, as in Alternative B. However, there would be no exhibition vessels anchored in Aquatic Park Cove, nor would video screens be provided near the east and west bleachers. Instead, the venue would host Wi-Fi kiosks for transmission of race broadcasting feeds directly to handheld mobile computing devices. Compared to Alternative B, total visitation would decrease under Alternative D, with the exception of a slight increase in 2012. On peak race weekend days in 2012 and 2013, daily park visitation would be approximately 13,720. Visual effects on the **Aquatic Park National Register Historic District/ NHL District and other resources of the San Francisco Maritime NHP** would be negligible under Alternative D, as they would be under Alternative B. Resources within SAFR where effects of Alternative D would differ from those of Alternative B are discussed individually below.

Effects on Municipal Pier

Municipal Pier would be subject to a moderate to major adverse effect under Alternative D if large numbers of spectators were to exceed the pier's weight capacity. The intensity of the impact under Alternative D would be somewhat lessened compared to Alternative B, due to the lower numbers of anticipated spectators. Attachment of weather monitoring equipment to the pier has the same potential for minor adverse effects as under Alternative B. The NPS Special Events Permit restrictions on access and attachment of equipment developed for Alternative B would also be included with Alternative D, in order to ensure that effects on the pier and public safety would be eliminated. These restrictions include plan review in consultation with NPS cultural resources preservation assessment review staff.

Effects on Historic Vessels of SAFR at Hyde Street Pier

Visitors would create a moderate adverse effect on the Hyde Street Pier historic vessels under Alternative D, as compared to a moderate to major adverse effect under Alternative B. However, implementation of the monitoring protection measure developed for the pier under Alternative B would still be applied, reducing effects to a negligible or nonexistent level. Because no exhibition boats would be anchored within Aquatic Park Cove, there would be no chance of an untethered vessel drifting into the hulls of the historic fleet and no need for in-water monitoring.

Effects on East and West Roundhouses

As under Alternative B, the roofs of the roundhouses could suffer structural damage and create an unsafe situation for spectators if Alternative D were to be implemented. Due to the reduced spectator numbers, this would be a moderate adverse effect under Alternative D, as compared to the moderate to major adverse effect anticipated under Alternative B. The same protection measure would ensure closure of both roundhouse roofs during race days. This would eliminate Alternative D's effects on the roundhouses.

Effects on Vegetation of the Aquatic Park Cultural Landscape

Trampling of low plantings and damage to turf could still occur under Alternative D, albeit to a somewhat lesser extent compared to Alternative B due to lower anticipated numbers of spectators.

This would be a minor adverse effect under Alternative D. The protection measure calling for fencing of sensitive historically designed planting beds and repair or replacement of turf as needed following the 2012 and 2013 race seasons would be implemented for Alternative D. This would reduce the effect to a negligible level.

4.6.9.5 Fort Mason

Fort Mason would host hospitality venues and an international media center at Piers 2 and 3 under Alternative D, as it would under Alternative B. A floating media barge would be anchored between the two piers, but no satellite dishes would be attached to the Pier 3 apron under Alternative D. Alternative D is expected to attract roughly the same number of visitors as that for Alternative B – 5,380 during peak weekend days in both 2012 and 2013. Effects on indigenous archeological site **CA-SFR-31** and the **Parade Ground** at Upper Fort Mason would be negligible under both Alternatives B and D. Likewise, the visual effects on the **Fort Mason National Register Historic District and the San Francisco Port of Embarkation, U.S. Army NHL District** would be negligible under both alternatives. Effects on the **East Black Point Trails**, **Black Point/Point San Jose Batteries**, and **Northwest Embankment** would be minor adverse under both alternatives. The protection measures listed for Alternative B (provide a cultural resources monitor for all of Upper Fort Mason, and supplemental temporary fencing for the Black Point/Point San Jose Batteries) would also apply to Alternative D, reducing effects to a negligible level.

Potential effects on **Piers 2 and 3**, **Lower Fort Mason** from uses proposed under Alternative D would include damage to the piers themselves from overcrowding on the piers, or inappropriate equipment installation or mooring of the media barge. This would be considered a minor adverse effect and would be reduced to a negligible level by implementation of the protection measure specified for Alternative B; namely, compliance with the requirements and guidelines of the NPS Special Events Permit, including plan review in consultation with NPS cultural resources preservation assessment review staff.

4.6.9.6 Alcatraz Island

Alternative D would include an after-hours private hospitality venue inside the cellhouse, similar to that proposed under Alternative B. Weather monitoring and communications satellite equipment could also be installed on or near the cellhouse. The number of race spectators would be similar to Alternative B, as the Alcatraz Ferry would set a maximum limit of 5,200 visitors per day. The proposed hospitality venue could result in a minor to moderate adverse effect on the cellhouse, which is a contributor to the Alcatraz Island NHL District. However, as described for Alternative B, the programmed uses would be governed under NPS special use regulations and NHPA Section 106 requirements for non-sequential special event activities. This would effectively reduce effects from Alternative D to a negligible level.

4.6.9.7 Fort Baker

No programmed events would occur at Fort Baker under Alternative D. There would be no after-hours hospitality venue on the Fort Baker Mine Wharf. Up to 2,050 visitors would be anticipated at Fort Baker on a peak weekend race day in 2012, and as many as 2,170 on a similar day in 2013.

Spectator-related impacts at most Fort Baker sensitive cultural resources would remain comparable to those associated with Alternative B; **Battery Duncan**, the **Lime Point fog signal station**, and the **Yellow Bluff/East Fort Baker dump** would be subject to negligible effects under Alternative D. Visual effects on the **Forts Baker**, **Barry**, **and Cronkhite Historic District** would also be negligible under both alternatives.

Effects at **Battery Cavallo**, **Battery Yates**, and the features **North of Battery Duncan** would be identical to those anticipated under Alternative B (minor adverse). The same monitoring protection measures that would be in effect for Alternative B would also apply to Alternative D, thereby reducing the effects from spectator trespass and vandalism or inadvertent damage to a negligible level.

Because no after-hours hospitality venue would be located on the **Fort Baker Pier (Mine Wharf)**, no effects on the pier would occur under Alternative D.

4.6.9.8 Marin Headlands

Because no programmed event venues are planned under either Alternative B or Alternative D, effects on the historic military features within the Forts Baker, Barry, and Cronkhite National Historic District would be identical under both alternatives. Spectator numbers are also anticipated to be essentially equivalent under both alternatives. Alternative D would have the same effects as Alternative B on **Ridge Battery**; **Batteries Spencer**, **Orlando Wagner**, and **Kirby**; and the military features at **Slacker Hill** and unfinished Battery Construction Number 129 at **Hawk Hill**. The same protection measures would be implemented, leading to minor beneficial effects at Ridge Battery and Battery Spencer. Effects at Batteries Kirby and Orlando Wagner, the Hawk Hill Battery Construction Number 129, and the features on Slacker Hill would be negligible, and no protection measures would be warranted.

4.6.9.9 Golden Gate Bridge

As with Alternative B, no programmed events or venues are planned on the Golden Gate Bridge under Alternative D. It is anticipated that spectators would gather on the bridge to view the AC34 races, but no effects on the bridge would occur, and the Golden Gate Bridge, Highway and Transportation District (GGBHTD) would reserve the right to limit pedestrians on the bridge to maintain safety standards.

4.6.9.10 Cumulative Impacts

Each of the past, present, and reasonably foreseeable projects in or near the APE listed in Section 4.6.7.10 would also apply to the cumulative scenario for Alternative D.

Implementation of standard mitigation measures to ensure the protection of both known and unknown cultural resources are included in the various environmental documents that have evaluated, or will evaluate, the environmental effects of each of these projects. These measures include worker education and inadvertent discovery measures for buried archeological resources (including human remains), as required by NEPA and Section 106 of the NHPA, as well as other federal and state legislation. In addition, structural changes to historic properties located on NPS-managed properties would generally be required to comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties, further mitigating the intensity of the effects on these properties. In Area B of the Presidio, no programmed event venue facilities or other physical alterations to the District are proposed.

While it is possible that one or more of the cumulative scenario projects could result in adverse effects to NRHP-listed or -eligible resources, the negligible effects of Alternative D would not significantly contribute to this cumulative effect.

4.6.9.11 Conclusion

The implementation of Alternative D, including all implementation plans and impact-reducing protection measures, would result in a negligible effect on sensitive cultural resources on federal lands within the APE. Potential effects on archeological sites, historic architectural resources, and cultural landscapes from erosion, trampling, crumbling of brick or concrete, graffiti, artifact collection, or other vandalism would be uniformly reduced or eliminated through the use of fencing, signs, other access restrictions, and/or resource monitoring as appropriate in each location. A total of approximately 1,050 feet of new fencing is recommended, including 650 feet of temporary fencing (moveable steel barriers or orange construction type), and 400 feet of permanent fencing (wood post and wire type). Public safety hazards associated with large groups of spectators gathering near steep slopes and unprotected drop-offs would also be reduced to a negligible level through these same measures. Compliance with lease regulations or Special Events Permit restrictions would reduce to a negligible level the effects of event venues located inside historic buildings. Restrictions include plan review in consultation with NPS cultural resources preservation assessment review staff. In some locations, repair or replacement of safety fencing and interpretive signage would result in a minor beneficial impact. The negligible impacts that may occur as a result of Alternative D would not significantly contribute to a cumulative effect when viewed in combination with other impacts from past, present, and reasonably foreseeable projects within or near the APE.

4.6.10 Impacts of Alternative E—Preferred Alternative

As described in Chapter 2 - Alternatives, the reduction or absence of most programmed events on NPS lands under Alternative E–Preferred Alternative would result in decreased numbers of spectators on those lands relative to Alternatives B or D, but greater numbers than would be anticipated under Alternative C and substantially higher visitation than would be expected without the AC34 races. A few private event venues, public service facilities, and small pieces of equipment would still be included in various NPS locations under Alternative E, as described below. As the analysis of impacts under Alternative B demonstrates, many of the anticipated effects on cultural resources would result from large

numbers of spectators gathering on or near sensitive resources, rather than from construction or major facilities associated with programmed events. Therefore, although the intensity of effects would generally be lessened proportionally to the decrease in spectators on lands that would not host programmed spectator venues under Alternative E, the types of effects on sensitive cultural resources at each venue/viewing area would remain essentially unchanged from those identified for Alternative B above.

The change in impact intensity would only apply to sensitive cultural resources in those locations that would host programmed events under Alternative B but not under Alternative E. Some of the sensitive cultural resources at Crissy Field, San Francisco Maritime NHP, Fort Mason, Alcatraz Island, and Fort Baker would therefore experience reduced impact intensity under Alternative E compared to Alternative B. All other effects would remain the same as described for Alternative B.

Table CUL-5 summarizes the effects of Alternative E by each geographic location and resource, noting the protection measures that would occur under Alternative E to eliminate or reduce each corresponding effect to a non-adverse level.

4.6.10.1 Crissy Field

Under Alternative E, no tents, bleachers, event stage, video screens, food and beverage concessions, or freestanding educational exhibits would be located on Crissy Field. Public services such as portable restrooms, hand washing stations, and first aid kiosks would still be located here, but only on peak and high-medium attendance weekends. There would be no evening events, and no use of nighttime lighting. Visitor numbers are expected to be high even without programmed events (as many as 10,220 in 2012 and up to 25,520 in 2013, during peak race weekends). Effects on **CA-SFR-129**, **the USCG Station Golden Gate**, and the **Seaplane Ramp** would remain at a negligible level under Alternative E as they would be under Alternative B. Similarly, visual effects on the **Presidio NHL District** would be negligible under both alternatives. Properties at Crissy Field where effects of Alternative E would differ from those of Alternative B are described individually below.

Effects on Signal Cable Hut

Effects on the Signal Cable Hut under Alternative E would be similar to, but less intense than, those expected under Alternative B. Erosion and turf degradation from spectators seeking a better view of the AC34 races from the top of the hut would be a minor adverse effect. Protection measures included with Alternative E are the same as those proposed under Alternative B and include supplemental temporary fencing around the Signal Cable Hut to more effectively prohibit spectator entry. This fencing would remain in place through the 2012 race season and again in 2013 until the completion of all AC34 races. As a result, effects on the Signal Cable Hut would be reduced to a negligible level.

Effects on Crissy Airfield

Because no event facilities such as tents, bleachers, and a stage would be erected on Crissy Airfield under Alternative E, impacts on the turf of the historic airfield would be somewhat reduced. Spectator trampling would still have a potential to damage the turf, resulting in a minor adverse impact; however, protection measures included with Alternative E would still ensure that turf would be repaired or

TABLE CUL-5: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE E

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Crissy Field			
Crissy Field archeological site (CA-SFR-129; GOGA00008)	None/negligible: Site is well-protected and not subject to erosion or trampling effects; natural resource protection area fencing and monitors would exclude spectators.	None warranted	None/negligible
USCG Station Golden Gate	Negligible: Locked gate prevents spectators from using pier and boathouse; other facilities are inhabited and are not subject to vandalism or other spectator effects.	None warranted	Negligible
Signal Cable Hut (building 946)	Minor adverse: Existing social trails could entice spectators to climb to the top of the earthen structure, causing erosion and exacerbating turf degradation.	Provide supplemental temporary fencing around hut; fencing to remain in place through 2012 and 2013 race periods.	Negligible
Airfield	Minor adverse: Large crowds could cause degradation of turf and subsequent erosion of engineered airfield.	Repair and replace turf following removal of event facilities after each season.	Negligible
Seaplane Ramp	Negligible: Submerged ramp would not provide good views for land-based spectators, and all race, support, and motorized spectator boats would be required to remain beyond the non-motorized craft zone extending out from the shore.	None warranted	Negligible
Visual Effects on Presidio NHL District	Negligible: Crowds of spectators could alter the historical feeling and military association of Crissy Field. However, similar large public festival-like events occurred during the period of significance. All changes would be temporary and fully reversible.	None warranted	Negligible
Presidio Area A			
Battery East (GOGA00038)	Minor adverse: Erosion of earthworks and damage or defacement of masonry magazines and tunnel could result.	Provide supplemental fencing/ signage and cultural resource monitoring/ law enforcement presence during race days (2012 and 2013).	None/negligible
Battery Lancaster dump (GOGA00023)	None: Not accessible	None warranted	None
DeRussey Residence dump (CA-SFR-109H)	None/negligible: Thick vegetation and poor race area visibility make this an unattractive spot for spectators.	None warranted	None/negligible
Fort Point Seawall	None: Not accessible on northwest side; none of the wall is subject to spectator effects.	None warranted	None
West San Francisco Batteries (Boutelle, Marcus Miller, and Cranston)	Negligible: Poor viewing location; Coastal Trail Fencing Plan fencing limits access to sensitive features.	None warranted	Negligible

TABLE CUL-5: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE E (CONTINUED)

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Presidio Area A (cont.)			
Visual Effects on Presidio NHL District and Fort Point National Historic Site	Negligible: Spectator crowds and temporary fencing would intermittently and temporarily change the aspects of feeling and association.	None warranted	Negligible
Presidio Area B			
Visual Effects on Presidio NHL District	Negligible: Spectator crowds and merchandise vendors would intermittently and temporarily change the aspects of feeling and association.	None warranted	Negligible
San Francisco Maritime NHP			
Municipal Pier	Moderate to major adverse: Pier is structurally unable to support large numbers of spectators.	Close public access to the pier during races (2012 and 2013).	Negligible
Hyde Street Pier Historic Fleet	Moderate adverse: Large numbers of spectators could overload pier and/or damage boats.	Limit access to pier during races (2012 and 2013); use cultural resource monitor on pier on an as-needed basis (to be determined by SAFR).	None/negligible
East and West Roundhouses	Moderate adverse: Overcrowding of the roundhouse roofs could cause structural damage and create a safety hazard.	Close stairways leading to roofs of both roundhouses.	None
Trees, shrubs, grass, and other plantings of the Aquatic Park Cultural Landscape	Minor adverse: Spectators could trample plantings and damage turf; event facilities could degrade turf and lead to erosion.	Fence historically designed low planting beds with temporary fencing during both race seasons; repair or replace turf as needed following each race season.	Negligible
Visual Effects on the Aquatic Park National Register Historic District/NHL District	None: The visual effects of the AC34 events would complement the historical setting and association, and the present-day purpose and mission of the park.	None warranted	None
Fort Mason			
Archeological site CA-SFR-31 (GOGA00007)	Negligible: No site components would be exposed, and AC34-related erosion would be unlikely due to steep slope and poor view of race area.	None warranted	Negligible
East Black Point Trails area (historic paths and retaining walls)	Minor adverse: Paths are overgrown and partially fenced; however, graffiti and damage to stone walls could result from crowds	Provide cultural resources monitor at Upper Fort Mason (for East Black Point Trails, Northwest Embankment, and Black Point/Point San Jose Batteries)	Negligible
Black Point/ Point San Jose Batteries (West Battery GOGA00027; East Battery GOGA00026)	Minor adverse: Restored batteries are currently open to the public; erosion of earthworks could degrade structures	Add temporary and/or permanent supplemental fencing to prevent access to sensitive earthen features, and provide a cultural resources monitor at Upper Fort Mason (for Black Point/Point San Jose Batteries, Northwest Embankment, and East Black Point Trails)	Negligible

TABLE CUL-5: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE E (CONTINUED)

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Fort Mason (cont.)			
Northwest Embankment (slope below Great Meadow)	Minor adverse: AC34-related erosion could occur if spectators traverse steep slope	Provide cultural resources monitor at Upper Fort Mason (for Northwest Embankment, Black Point/Point San Jose Batteries, and East Black Point Trails)	Negligible
Parade Ground	Negligible: Views of the race areas would be limited, and the number of expected spectators would not significantly damage turf	None warranted	Negligible
Piers 2 and 3, Lower Fort Mason	None: No installation of media equipment or media/hospitality facilities would occur	None warranted	None
Visual Effects on Fort Mason National Register Historic District/San Francisco Port of Embarkation, U.S. Army NHL District	None: No outdoor event facilities would be located within Fort Mason to detract from the historic military feeling and association of the districts	None warranted	None
Alcatraz Island			
Main Cellhouse	Minor to moderate: Potential installation of facilities and equipment for corporate and private hospitality functions, as well as external weather monitoring and communications equipment, could diminish integrity.	None warranted	Negligible
Fort Baker			
Fort Baker Pier (Mine Wharf)	None: No after-hours hospitality venue would be erected on the pier	None warranted	None
Battery Duncan	None: Battery is inaccessible to the public and would afford poor views of the race area	None warranted	None
North of Battery Duncan (Battery Duncan Field Fortifications GOGA00390 and Lateral Fire Site GOGA00389)	Minor adverse: Vandalism could result in graffiti or displacement of concrete sandbags	Provide cultural resources monitor and/or law enforcement personnel during race events (2012 and 2013)	None/negligible
Battery Cavallo (GOGA00071)	Minor adverse: Effects could include erosion of earthworks and vandalism due to trespassing within fence	Provide a cultural resources monitor and/or law enforcement officer on site during race events (2012 and 2013)	None/negligible
Battery Yates	Minor adverse: Effects could include graffiti/vandalism and safety hazard from steep slopes	Provide cultural resources monitor and/or law enforcement officer during race events (2012 and 2013)	None/negligible
Lime Point (CA-MRN-648H; GOGA00018)	None: Not accessible	None warranted	None

TABLE CUL-5: EFFECTS ON SENSITIVE CULTURAL RESOURCES UNDER ALTERNATIVE E (CONTINUED)

Resource Name and Number	Potential Effect	Protection Measures Designed to Reduce/ Eliminate Effect	Residual Effect
Fort Baker (cont.)			
Yellow Bluff / East Fort Baker dump (CA-MRN-649H; GOGA00072)	None: Not accessible	None warranted	None
Visual Effects on the Forts Baker, Barry, and Cronkhite Historic District	Negligible: The only physical changes to the district would be the addition of temporary fencing for protection measures; these would not noticeably detract from the historic feeling of the district	None warranted	Negligible
Marin Headlands			
Battery Spencer (GOGA00392)	Minor to moderate adverse: Effects could include continued concrete damage, graffiti/ vandalism, and public safety concerns	Provide temporary fencing along the top of slopes, restrict access to the Administration Building, replace missing/ illegible signs, and provide a cultural resources monitor (for both Battery Spencer and Ridge Battery) during race events (2012 and 2013)	Minor beneficial
Ridge Battery (GOGA00068)	Moderate adverse: Effects could include erosion of earthworks and crumbling of brick from heavy use, and graffiti/vandalism	Provide additional fencing to secure access to earthworks, replace damaged signs, and cultural resources monitoring (shared with Battery Spencer) during 2012 and 2013 race events	Minor beneficial
Slacker Hill (Fire Control Station GOGA00167; Cistern GOGA00170)	None/negligible: Poor access would discourage spectators, and durable features are not subject to use wear or erosion	None warranted	None/negligible
Battery Orlando Wagner	Negligible: Poor access and obstructed views would discourage spectators from gathering	None warranted	Negligible
Battery Kirby / Gravelly Beach (GOGA00067)	Negligible: Limited vehicular access would discourage large groups of spectators, and concrete battery features are durable and not subject to spectator-related impacts	None warranted	Negligible
Hawk Hill/Battery Construction Number 129	None/negligible: Distance to race area would discourage spectators, and durable features are not subject to use wear or erosion	None warranted	None/negligible
Golden Gate Bridge	None: Bridge weight capacity could not be exceeded by pedestrian spectators; visitor safety limits would be enforced by the Golden Gate Bridge, Highway and Transportation District (GGBHTD).	None warranted	None
SOURCE: ESA 2012			

replaced (through sod or seeding) following completion of each race season. By including this protection measure in Alternative E, effects on the airfield would be reduced to a negligible level.

4.6.10.2 Presidio Area A

Similar to Alternative B, Alternative E would not include programmed events in the portion of the Presidio that includes the bluffs and shoreline overlooking the Golden Gate. Compared to Alternative B, Alternative E is expected to attract fewer visitors (2,890 in 2012 and 3,970 in 2013) to such areas. Correspondingly, effects on sensitive cultural resources in the Presidio would be somewhat reduced or remain the same. Effects on the **Battery Lancaster dump**, the **DeRussey Residence dump**, the **Fort Point Seawall**, and the **West San Francisco Batteries** that were negligible under Alternative B would remain negligible under Alternative E. Similarly, visual effects on the **Presidio NHL District and Fort Point National Historic Site** would remain negligible under Alternative E as they are under Alternative B. Resources in Area A where effects of Alternative E would differ from those of Alternative B are described individually below.

Effects on Battery East

Spectator-caused erosion of earthen magazines could result in a minor adverse effect, a somewhat lessened intensity when compared to Alternative B. However, the protection measures associated with Alternative E would include supplemental fencing, signage, and a cultural resources monitor and/or law enforcement personnel at the site on race days in both 2012 and 2013. This would reduce the effects on Battery East to a negligible level or eliminate effects completely.

4.6.10.3 Presidio Area B

A few temporary public service facilities, such as portable restrooms, could be located on Presidio Trust lands near Crissy Field. Merchandise vendors (both indoor and outdoor) would also still be possible in Area B of the Presidio under Alternative E. Spectators would likely gather here to watch the races. Large crowds of spectators and merchandise tents or carts would somewhat detract from the historic feeling and military association of the Presidio NHL District; however, no programmed event venue facilities or other physical alterations to the NHL District are proposed. The changes in feeling and association would be of short and intermittent duration (only during race days), and would be temporary, ending at the completion of the 2012 and 2013 race seasons. Visual effects on the Presidio NHL District in Area B would be negligible.

4.6.10.4 San Francisco Maritime NHP

Under Alternative E, public services such as portable restrooms, hand washing stations, and first aid kiosks would be available to visitors in Aquatic Park on peak and high-medium attendance race weekends. Exhibitions could be developed, including up to six boat displays in Aquatic Park Cove. Small video screens and Wi-Fi kiosks could provide live race feeds, and a public address system could be used. Weather monitoring equipment would be installed on Municipal Pier, as in Alternative B. The San Francisco Maritime NHP would be considered a prime viewing location. Daily park visitation on

peak race days in 2012 would total 13,720, while that of 2013 would be 16,120. Visual effects on the **Aquatic Park National Register Historic District/NHL District** and other resources of the **San Francisco Maritime NHP** would be negligible under both Alternative B and Alternative E. Anticipated effects on **Municipal Pier** and the **historic vessels of SAFR at the Hyde Street Pier** would be the same as in Alternative B, that is, major adverse and moderate to major adverse, respectively. All protection measures for these resources developed for Alternative B would also be applied to Alternative E, thereby eliminating effects or reducing them to a negligible level. Resources at SAFR where effects of Alternative E would be different from those of Alternative B are described individually below.

Effects on East and West Roundhouses

As under Alternative B, the roofs of the roundhouses could suffer structural damage and create an unsafe situation for spectators if Alternative E were to be implemented. Due to the reduced spectator numbers in 2013, this would be a moderate adverse effect under Alternative E, as compared to the moderate to major adverse effect anticipated under Alternative B. The same protection measure would ensure closure of both roundhouse roofs during race days. This would eliminate effects on the roundhouses under Alternative E.

Effects on Vegetation of the Aquatic Park Cultural Landscape

Trampling of low plantings and damage to turf could still occur under Alternative E, albeit possibly to a somewhat lesser extent compared to Alternative B. This would be a minor adverse effect; however, the protection measure calling for fencing of sensitive historically designed planting beds and repair or replacement of turf as needed following the 2012 and 2013 race seasons would be implemented for Alternative E. This would reduce the effect to a negligible level.

4.6.10.5 Fort Mason

No event facilities would be installed at Fort Mason under Alternative E. Piers 2 and 3 would not be used for a hospitality venue or media center, no satellite dishes would be attached to the Pier 3 apron, and no media barge would be moored between the piers. Fort Mason would still draw visitors as a secondary viewing area, although total visitation would be reduced in 2013 compared to Alternative B, with an estimated 5,380 visitors on peak weekend race days in 2012 and 4,980 in 2013.

Indigenous archeological site **CA-SFR-31** and the Upper Fort Mason **Parade Ground** would experience negligible effects, if any, from spectator use under Alternative B. This same situation would also apply to Alternative E; no additional management actions or protection measures are proposed. Similarly, visual effects on the **Fort Mason National Register Historic District/San Francisco Port of Embarkation, U.S. Army NHL District** would be negligible under Alternative E and Alternative B.

The **Black Point/Point San Jose Batteries, Northwest Embankment**, and **East Black Point Trails** would be subject to the same minor adverse effects as those identified under Alternative B. The same protection measures would also apply to Alternative E, reducing effects to a negligible level.

Resources at Fort Mason where effects of Alternative E would differ from those of Alternative B are described individually below.

Effects on Piers 2 and 3 at Lower Fort Mason

Because no media or hospitality venues would be located in the Herbst and Festival Pavilions, on the Pier 3 apron, or between the piers, no potential for damage at Lower Fort Mason would exist as a result of Alternative E.

4.6.10.6 Alcatraz Island

Alternative E may include an after-hours private hospitality venue inside the cellhouse, similar to that proposed under Alternative B. Weather monitoring and communications satellite equipment could also be installed on or near the cellhouse. The number of race spectators would be similar to Alternative B, as the Alcatraz Ferry would set a maximum limit of 5,200 visitors per day. Use of the site as a hospitality venue could result in a minor to moderate adverse effect on the cellhouse, which is a contributor to the Alcatraz Island NHL District. However, as described for Alternative B, the programmed uses would be governed under NPS special use regulations and NHPA Section 106 requirements for non-sequential special event activities. This would effectively reduce effects from Alternative E to a negligible level.

4.6.10.7 Fort Baker

Under Alternative E, there would be no hospitality venue on the Fort Baker Mine Wharf. Spectators would still be drawn to the area; Alternative E is expected to attract an estimated 2,050 visitors on peak weekend race days in 2012, increasing to 2,170 in 2013. Effects on **Battery Duncan**, the **Lime Point fog signal station**, and the **Yellow Bluff/East Fort Baker dump** would be nonexistent or negligible under Alternative E as they would be under Alternative B. Visual effects on the **Forts Baker**, **Barry**, **and Cronkhite Historic District** would similarly not occur under either alternative.

Effects at **Battery Cavallo**, **Battery Yates,** and the area **North of Battery Duncan** would be identical to those anticipated under Alternative B (minor adverse). The same monitoring protection measures that would be in effect for Alternative B would also apply to Alternative E, thereby reducing the effects from spectator trespass and vandalism or inadvertent damage to a negligible level.

Because no after-hours hospitality venue would be located on the **Fort Baker Pier (Mine Wharf)**, no effects would occur under Alternative E.

4.6.10.8 Marin Headlands

Because no programmed event venues are planned under either Alternative B or Alternative E, effects on the historic military features within the Forts Baker, Barry, and Cronkhite National Historic District would be identical under both alternatives. Spectator numbers are also anticipated to be essentially equivalent under both alternatives. Alternative E would have the same effects as Alternative B on **Ridge Battery**; **Batteries Spencer**, **Orlando Wagner**, and **Kirby**; and the military features at

Slacker Hill and unfinished Battery Construction Number 129 at **Hawk Hill**. The same protection measures would be implemented, leading to minor beneficial effects at Ridge Battery and Battery Spencer. Effects at Batteries Kirby and Orlando Wagner, the Hawk Hill Battery Construction Number 129, and the features on Slacker Hill would be negligible, and no protection measures would be warranted.

4.6.10.9 Golden Gate Bridge

As with Alternative B, no programmed events or venues are planned on the Golden Gate Bridge under Alternative E. It is anticipated that spectators would gather on the bridge to view the AC34 races, but no effects on the bridge would occur, and the Golden Gate Bridge, Highway and Transportation District (GGBHTD) would reserve the right to limit pedestrians on the bridge to maintain safety standards.

4.6.10.10 Cumulative Impacts

Each of the past, present, and reasonably foreseeable projects in or near the APE listed in Section 4.6.7.9 would also apply to the cumulative scenario for Alternative E, with the exception of annual Fleet Week activities. Under Alternative E, the 2012 AC34 races and Fleet Week events would partially overlap, boosting overall spectator numbers throughout the APE. However, the protection measures designed for Alternative E would effectively reduce impacts on cultural resources resulting from the cumulative spectator numbers during this time.

Implementation of standard mitigation measures to ensure the protection of both known and unknown cultural resources are included in the various environmental documents that have evaluated, or will evaluate, the environmental effects of each of these projects. These measures include worker education and inadvertent discovery measures for buried archeological resources (including human remains), as required by NEPA and Section 106 of the NHPA, as well as other federal and state legislation. In addition, structural changes to historic properties located on NPS-managed properties would generally be required to comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties, further mitigating the intensity of the effects on these properties. In Area B of the Presidio, no programmed event venue facilities or other physical alterations to the District are proposed.

While it is possible that one or more of the cumulative scenario projects could result in adverse effects on NRHP-listed or -eligible resources, the negligible effects of Alternative E would not significantly contribute to this cumulative effect.

4.6.10.11 Conclusion

The implementation of Alternative E, including all implementation plans and impact-reducing protection measures, would result in a negligible effect on sensitive cultural resources under federal jurisdiction within the APE. Potential effects on archeological sites, historic architectural resources, and cultural landscapes from erosion, trampling, crumbling of brick or concrete, graffiti, artifact collection, or other vandalism would be uniformly reduced or eliminated through the use of fencing,

signs, other access restrictions, and/or resource monitoring as appropriate in each location. A total of approximately 1,050 feet of new fencing is recommended, including 650 feet of temporary fencing (moveable steel barriers or orange construction type), and 400 feet of permanent fencing (wood post and wire type). Public safety hazards associated with large groups of spectators gathering near steep slopes and unprotected drop-offs would also be reduced to a negligible level through these same measures. Compliance with Special Events Permit restrictions would reduce to a negligible level the effects of event venues located inside historic buildings. These restrictions include plan review in consultation with NPS cultural resources preservation assessment review staff. In some locations, repair or replacement of safety fencing and interpretive signage would result in a minor beneficial impact. The negligible effects that may occur as a result of Alternative E would not contribute significantly to a cumulative effect when viewed in combination with other effects from past, present, and reasonably foreseeable projects within or near the APE.

4.6.11 Mitigation Measures

No mitigation would be warranted with regard to cultural resources under any of the project alternatives. All potential effects on archeological and historic architectural resources and cultural landscapes have been addressed through site-specific protection measures and management actions associated with each of the project alternatives. No adverse effects would occur.

4.6.12 References

Environmental Science Associates

2012 *The 34th America's Cup, San Francisco, California: Cultural Resources Condition Assessment Report.* Prepared for USDI National Park Service, Golden Gate National Recreation Area and San Francisco Maritime National Historical Park.

Haller, Stephen A.

1994 *The Last Word in Airfields: A Special History Study of Crissy Field, Presidio of San Francisco, California,* NPS GGNRA.

National Park Service (NPS)

1997 *General Management Plan: San Francisco Maritime National Historical Park, San Francisco County, California*. U.S. Department of the Interior, National Park Service.

2006 *Management Policies 2006*. U.S. Department of the Interior, National Park Service.

2011 *Golden Gate National Recreation Area/Muir Woods National Monument: Draft General Management Plan/Environmental Impact Statement.* U.S. Department of the Interior, National Park Service.

4.7 VISITOR USE AND EXPERIENCE

4.7.1 Study Area/Context

The geographic study area for visitor use and experience is the AC34 primary and secondary viewing areas, as well as adjacent areas that could be affected by AC34 activities. These areas have been described in Chapter 3 and include:

Primary

- San Francisco Maritime National Historical Park
- Fort Mason
- Crissy Field (Presidio Area A)

Secondary

- Fort Point and Bay Trail (Presidio Area A)
- Golden Gate Overlook
- Fort Baker
- Marin Headlands/Conzelman Road

Other Adjacent Areas Potentially Affected

- Baker Beach (Presidio Area A)/Presidio West Bluffs
- Alcatraz Island
- Presidio of San Francisco (Area B)
- Marin Headlands (proper)
- United States Coast Guard Managed Nearshore Areas

4.7.2 Issues

The proposed use of NPS lands and waters for the AC34 event and use as primary and secondary viewing areas, as well as subsequent increased visitation of parklands by AC34 participants and viewers, may affect the existing visitor experiences and uses of parklands and offshore areas on the Bay if the management and facilities capacities of these areas is exceeded and visitor density in an area becomes unsafe and/or unsatisfactory. Related visitor experience and use issues include:

- Visitor safety – emergency response times, site conditions, adherence to fire codes, public health standards, and increased potential of unsafe site conditions;

- Visitor uses – the degree to which recreational and other visitors uses of the park would be able to continue typical activities in existing areas during and following AC34;

- Visitor satisfaction – visitor enjoyment of a park area related to the quality of facilities, services, and recreational opportunities available; and

- Visitor understanding – knowledge that visitors gain from their visit to a park area, including the natural, cultural, and scenic resources therein.

4.7.3 Guiding Regulations and Policies

NPS *Management Policies 2006* (NPS 2006) state that the enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks and that the NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks. Because many forms of recreation do not require a national park setting and may even be more appropriate to other venues, the NPS will seek to (NPS 2006):

- Provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the superlative natural and cultural resources found in a particular unit; and
- Defer to local, state, and other federal agencies; private industry; and non-governmental organizations to meet the broader spectrum of recreational needs and demands that are not dependent on a national park setting.

The NPS may allow other visitor uses that do not meet all the above criteria if they are appropriate to the purpose for which the park was established and if those uses can be sustained without causing unacceptable impacts on park resources or values.

Part of the purpose of a park is to offer opportunities for recreation, education, inspiration, and enjoyment. A park's significance lies in the resources that visitors enjoy. One of the NPS mission goals for visitor satisfaction and understanding at all park units is to ensure that "visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and appropriate recreational opportunities" (NPS 2000). This goal focuses on maintaining high visitor satisfaction by means of appropriate and safe recreational opportunities and experiences.

The 2002 *Presidio Trust Management Plan* describes the Presidio's cultural, natural, scenic, and recreational resources and provides planning principles that will ensure that the Presidio is preserved, protected, and enhanced for the public's benefit. The following principles pertain to visitor use and experience (Presidio Trust 2002):

> **Recreational Use.** The Trust is committed to providing diverse opportunities for both passive and active recreation, and to maintaining an atmosphere that is open, inviting, and accessible to visitors. In providing these opportunities, the Trust will consider what activities are best suited to the Presidio, and will balance recreational opportunities with resource protection. To achieve this balance, the Trust will consider the type and level of visitor use that can be accommodated while sustaining the desired resources and visitor experience conditions…
>
> **Special Events and Festivals.** The Presidio's open space and recreational amenities will be managed to provide settings for public programs, activities, and events. The Trust is committed to making the park increasingly accessible to the public and will facilitate public use of the park for festivals and special events, such as marathons or bike rides. The Trust will identify ways to monitor these events and to anticipate and address potential impacts on park resources, neighbors, and the visitor experience.

See Section 4.11, Maritime Navigation and Safety, for discussion regarding United States Coast Guard guiding regulations and policies regarding potential conflicts between marine activities and swimmers, sail boarding, surfing and other marine recreational activities.

4.7.4 Assessment Methods/Thresholds

Visitor use and experience impacts were determined by examining the potential effects of AC34 activities on the visitor's experience within a park site or the Bay. The intensity of each adverse impact is judged as minor, moderate, or major. A beneficial impact would be a positive change to visitor experience. Negligible impacts are neither adverse nor beneficial, nor long-term or short-term. No impacts on visitor use and experience may also be applicable for some alternatives and sites if AC34 activities are prohibited. The following impact thresholds were established to describe the relative changes in visitor use and visitor experience under the various alternatives being considered:

Beneficial Impact: A beneficial impact would be a positive change to a visitor use or experience at a park site or the Bay. Individuals participating in that use or experience in other local or regional areas could return to or begin using the park or Bay due to introduction to the site or area, or the markedly improved visitor experience as a result of AC34. A beneficial impact is a beneficial change from the current condition and is a relative indicator of progress compared to the no action alternative. Beneficial impacts include the following:

- *Visitor Safety* – A positive change to visitor safety, would include enhanced availability of emergency personnel and equipment, improved response times for emergency needs, improved site conditions, and highest level of adherence to outdoor and indoor fire codes at all times.
- *Visitor Uses* – A change that would enhance recreational and visitor use opportunities, without negatively affecting existing and particularly unique visitor uses.
- *Visitor Satisfaction* – An increased change to the visitor satisfaction and enjoyment at a site due to improved conditions, services, and experiences would occur.
- *Visitor Understanding* – An increase in visitor understanding of the site significance of the park due to improved programs, exhibits, information, media, and other educational experiences.

Negligible Impact: Visitors would be unaware of impacts associated with proposed changes. There would be no noticeable change in visitor use and experience or in any defined indicators of visitor satisfaction or behavior. Defined indicators that may impact visitor satisfaction include greater safety concerns or additional user conflicts. Negligible impacts include the following:

- *Visitor Safety* – Visitors would not experience any unsafe or unhealthy conditions, including inadequate availability of emergency personnel and equipment, inadequate response times to emergency needs, unsafe site conditions (trail/path conditions, and restroom/wastewater capacity and wait times),or inadequate adherence to outdoor and indoor fire codes.

- *Visitor Uses* – No noticeable change to recreational and visitor use opportunities or degradation of recreational facilities, no noticeable off-trail use, or out-of-area displacement [1]would occur.
- *Visitor Satisfaction* – No noticeable change to the visitor satisfaction and enjoyment related to site conditions, services, and experiences would occur.
- *Visitor Understanding* – No noticeable change to visitor understanding of the park site's significance would occur.

Minor Impact: Changes in visitor use and experience would be slight and detectable, but would not appreciably limit or enhance any critical characteristics of the visitor experience. Critical characteristics of the visitor experience include overall visitor satisfaction or visitor safety. Other park or Bay areas would remain available for similar visitor uses and experiences. Visitor satisfaction would remain stable. Minor impacts include the following:

- *Visitor Safety* – Visitors would experience slight and detectable changes in site conditions, but other safety and health conditions – including availability of emergency personnel and equipment, response times to emergency needs, and adherence to outdoor and indoor fire codes – would not be appreciably affected.
- *Visitor Uses* – Slight and detectable changes to recreational and visitor use opportunities or degradation of recreational facilities, some off-trail use, or out-of-area displacement would occur.
- *Visitor Satisfaction* – Slight and detectable changes to the visitor satisfaction and enjoyment related to site conditions, services, and experiences would occur.
- *Visitor Understanding* – Slight and detectable changes to the visitor understanding of site significance through available programs, waysides, information, media, and other educational experiences would occur.

Moderate Impact: A few critical characteristics of the existing visitor experience would deteriorate. The number of visitors engaging in a specific use would be altered, resulting in a noticeable change in visitor satisfaction. Other park or Bay areas would remain available for similar visitor uses and experiences; however, some visitors participating in that use or experience might be required to pursue their choice in other available local or regional areas. Moderate impacts include the following:

- *Visitor Safety* – Visitors would experience evident changes in visitor site conditions, and temporary detectable changes in some health conditions (restroom/wastewater capacity and wait times, and adherence to outdoor and indoor fire codes), and temporary, short-term, non-life threatening delays in availability of emergency personnel and equipment for non-Advanced Life Support emergencies.
- *Visitor Uses* – Moderate changes to recreational and visitor use opportunities or degradation of recreational facilities would occur, off-trail use or out-of-area displacement would be evident.

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[1] "Displacement" means that visitors who currently come to a park location that is being used for AC34 viewing would decide to go to other recreational destinations and thus would be displaced from these park locations. A portion of the normal visitation would be converted to AC34 spectators (i.e., visitors who would normally come to the NPS sites for recreational activities would become spectators).

- *Visitor Satisfaction* – Moderate changes to the visitor satisfaction and enjoyment related to site conditions, services, and experiences would occur.
- *Visitor Understanding* – Moderate changes to the visitor understanding of park site significance through programs, waysides, information, media, and other educational experiences would occur.

Major Impact: Multiple critical characteristics of the existing visitor experience would deteriorate, or become unavailable, and/or the number of visitors engaging in an appropriate visitor use for that national parkland or water area would be greatly altered, resulting in a noticeable change in visitor satisfaction. A limited number of park or Bay areas would be available for similar visitor uses and experiences; thus, large numbers of visitors participating in that use or visitor experience would be required to pursue their choice in other available local or regional areas. Major impacts include the following:

- *Visitor Safety* – Visitors would experience clearly observable changes in visitor safety conditions, such that public health or safety would be affected and/or last for longer durations, including unsafe site conditions (trail/path conditions, restroom/wastewater capacity, and inadequate adherence to outdoor and indoor fire codes), and average daily delays over County standards in availability of emergency or fire personnel and/or equipment to emergency needs.
- *Visitor Uses* – Substantial changes to recreational and visitor use opportunities or degradation of recreational facilities, and associated off-trail use and out-of-area displacement for extended periods, would occur.
- *Visitor Satisfaction* – Substantial changes to the visitor satisfaction and enjoyment related to site conditions, services, and experiences would occur.
- *Visitor Understanding* – Substantial changes to the visitor understanding of park site significance through programs, waysides, information, media, and other educational experiences would occur.

The potential for visitor use and experience effects to occur is based on the capacity of an area to serve existing uses and proposed uses during AC34 activities as well as provide for the opportunities for forms of enjoyment that are uniquely suited and appropriate to the natural and cultural resources found in a particular area.

For evaluation of visitor density, the estimated level of service (LOS) determinations were developed, consistent with the recommended density standards described in Chapter 3, based on the public space type and size. The LOS range is as follows:

- LOS “A” corresponds to spacious and comfortable conditions (all visitors have unimpeded, scenic views and/or comfort);
- LOS “B” corresponds to busy, yet comfortable conditions (almost all visitors have good views and/or comfort within a defined space);
- LOS “C” corresponds to crowded, but manageable conditions (a substantial portion of the visitors have somewhat reduced views and/or comfort within a defined space);

- LOS "D" corresponds to very crowded conditions (the majority of the visitors have reduced views and/or comfort and experience uncomfortable crowding levels within a defined space),
- LOS "E" corresponds to extremely crowded with intermittent gridlock conditions; and discomfort within a defined space
- LOS "F" corresponds to severe crowding with ongoing and unsafe gridlock conditions.

A comprehensive assessment of AC34 visitation estimates and level of service for pedestrian/bicycle flows and open areas such as lawns, beaches, and bleachers at specific locations on NPS lands has been conducted and is incorporated into the following analysis.

4.7.5 Impacts of Alternative A—No Action

Under Alternative A–No Action, the AC34 races would not be held in San Francisco Bay during either 2012 or 2013. No increase in the number of visitors to federal lands would occur. Visitor use and experience impacts would not be affected by any of the actions described below for the action alternatives; however, impacts could result from daily visitor use. The conditions observed during the 2011 visitor use surveys would not be expected to change substantially over the course of 2012 and 2013, including effects associated with high levels of crowding that would continue to occur during Fleet Week events (see Tables VUE-5 through VUE-13). Access to Crissy Field would continue to be difficult on weekends when there is good weather and special events such as those listed in Tables VUE-2 and VUE-3 are taking place. None of the protection measures proposed for the various action alternatives would be implemented, meaning that crowd control and additional emergency services would not be provided.

Under Alternative A, none of the effects described for the action alternatives would occur. There would be no AC34 races or associated water-based or landside activities, and therefore there would be no impacts on visual use and experience resources under Alternative A. Unrelated issues, such as access problems during special events, may still arise, but there would be no contributions from Alternative A that would be considered cumulatively considerable. As such, there would be no cumulative effects that would affect the current visitor experience on NPS lands and waters.

4.7.6 Impacts Common to Action Alternatives

4.7.6.1 Visitor Density Effects

Under all of the proposed action alternatives, gatherings of spectators at primary and secondary viewing locations could result in crowded conditions that affect the ability of an area to support visitors to a lesser or greater extent. Crowded conditions could result in visitor safety impacts, affect the degree to which recreational and other visitor uses would be able to continue (including access to visitor uses), affect visitor enjoyment of a park area, and affect the knowledge that visitors gain from their visit to a park area. Further, crowded conditions could result in impacts on other resources, such as biological resources or cultural resources, if crowding results in visitors entering sensitive areas. Impacts on other resources are analyzed in the appropriate sections of Chapter 4. Impacts on visitor access are analyzed in Section 4.10, Transportation, but impacts that would constrain or affect uses directly due to change in an area use

during AC34 will be analyzed in this section. Management actions and protection measures that would be adopted by the project sponsors under their permits for the event are included in each of the alternatives and they would reduce major impacts on visitor use and experience such that no additional mitigation measures for visitor use impacts would be necessarily required.

The AC34 spectator projections for 2012 and 2013 presented in Chapter 2 - Alternatives, were used, along with more specific visitor counts from 2011 as a basis to estimate pedestrian and bicycle volumes and people-at-one-time counts at most of the spectator venues and secondary viewing areas (ORCA 2012). It is noted that the pedestrian and bicycle volumes and people-at-one-time counts, and resulting LOS conditions, are average estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher than discussed below during particularly "high interest" race event periods, such as in the afternoon of actual peak weekend races.

As indicated by the activity program described in Chapter 2, 2012 and 2013 activities are proposed to be scheduled over a 7-hour period (11:00 a.m. to 6:00 p.m.) at Crissy Field, and a 10-hour period (10:00 a.m. to 8:00 p.m.) at Aquatic Park/SAFR under Alternative B, in addition to the races themselves (1:00 p.m. to 5:00 p.m.). This programming strategy would encourage a favorable spread in the distribution of spectator arrivals and departures, and would also encourage visitors not to converge on the spectator sites all at the same time.

Arrival, departure, onsite spectator, and length-of-stay distributions in 2012 and 2013 would vary, based on the popularity, number, and timing of the various races from day to day. Since the races would always be scheduled between 1:00 p.m. and 5:00 p.m., visitor arrivals would tend to build up during the morning period, and taper off after about 1:00 p.m., while departures would be typically be highest at the end of the last major race (assumed to be between 4:00 and 5:00 p.m. for planning purposes). During the race periods, there would be fewer arrivals and departures than before and after the races.

Under protection measure VUE-20, the project sponsors would develop and fund strategies for deployment by all land management agencies to enhance access for persons with disabilities and seniors in full compliance with the Americans with Disabilities Act ("ADA"). Such strategies would include: accessible regional-to-local transit, shuttles, wayfinding, off-site ADA-compliant parking with accessible paths or shuttle connections to the San Francisco waterfront primary viewing sites, and access paths from parking and transit hubs to viewing sites with access paths or paratransit vans from key sites. The on-site length of stay for individual visitor groups would also vary in 2012 and 2013. Some visitors would take in all the races on a specific day, while others would just watch their favorite competitions; some visitors would attend the pre- and/or post-race events, while others would only come for the races themselves. Also, the individual race days would experience variable visitation characteristics that may change throughout the day from the estimates provided in Chapter 2. The expected distributions used in the LOS analysis represent estimates for the aggregate arrival and departure rates, length of stay, and onsite counts for all spectators combined that would be experienced on typical race days.

The anticipated arrival, departure, and onsite spectator distributions for 2012 and 2013 were used with the projections of daily spectator counts at each major site to establish estimates of pedestrian/bicycle

flow LOS and spectator density levels for these sites. Visitors, therefore, may experience slightly higher or lower LOS conditions during different periods of a day.

4.7.6.2 Vessel Traffic

As described in Section 4.11, Maritime Navigation and Safety, under all action alternatives for both 2012 and 2013, the USCG would establish a Special Local Regulation (SLR) to define a regulated area for management of safe vessel traffic in the Bay. The SLR would remain in effect on all race days from 12:00 p.m. to 5:00 p.m. unless the race ends early and the Captain of the Port opens the regulated area to other traffic. No vessels, except those approved by the Captain of the Port, would be allowed in the regulated area. The boats allowed would be the America's Cup race boats and flagged support boats and potentially other boats that receive permission to pass through the zone escorted. Under all action alternatives, vessel traffic may be temporarily displaced or rerouted during race activities. Additionally, under all alternatives the number of recreational vessels in the Bay is expected to increase above normal levels as a result of the race events, as detailed in Section 4.11, Maritime Navigation and Safety. This could result in congested vessel traffic conditions on the Bay. The area of congestion varies depending on the SLR location. The displaced or rerouted vessel traffic and the increased number of recreational vessels in the Bay could be in conflict with human-powered recreational uses along the project region shoreline. The effects on human-powered recreation uses are described by alternative in the following sections. In the case of regularly scheduled Alcatraz Island access to this NPS park site, the USCG would work with NPS and the Alcatraz Island ferry operator to ensure that the half-hourly operation would not be delayed more than 10 minutes on average during onset of actual races (see Protection Measure NAV-3).

4.7.7 Impacts of Alternative B—Sponsor Proposed Project

4.7.7.1 San Francisco Maritime National Historical Park

Projected Conditions

As shown in **Table VUE-14**, the onsite crowding conditions on 2012 peak race days could range between LOS B and D under Alternative B–Sponsor Proposed Project as of January 2012. On 2012 peak race weekdays, the onsite crowding conditions could reach LOS C at some San Francisco Maritime National Historical Park locations. On 2012 peak race weekends, the onsite crowding conditions could reach LOS C at most locations. Conditions are expected to be busy, yet comfortable to manageably crowded for most of the 2012 AC34 periods. Conditions would be slightly more crowded than typically experienced under current conditions, but well below the level of crowding that was observed on the Saturday of Fleet Week in 2011 (except for the second AC34 race series which would overlap with Fleet Week).

In 2012, without management actions and protection measures, Jefferson Street at the east end of the San Francisco Maritime National Historical Park could experience very crowded conditions (LOS D) on the two (2) peak weekend days in 2012. Without management actions and protection measures would help to decrease the effects of visitor density on race days with very crowded to extremely

TABLE VUE-14: SAN FRANCISCO MARITIME NATIONAL HISTORICAL PARK VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE B

	Jefferson Street (northeast entry to Aquatic Park)	Aquatic Park Promenade/ Bay Trail at Maritime Museum	Aquatic Park Promenade/ Bay Trail at West End of Aquatic Park	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	B	B	B	A
2011 Weekend	B	B	C	B
Fleet Week Saturday (10/8/2011)	D	E	C	F
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	B	C	C	B
2012 Peak Weekend Race (4 days)	D	C	C	C
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	B	C	C	B
2013 Peak Weekend Race (5 days)	D	D	C	E
2013 Medium High Weekend (6 days)	D	C	C	D
2013 Average Weekend (13 days)	C	C	C	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

crowded conditions reducing adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects, as discussed later below.

In 2013 onsite crowding could range between LOS B and LOS E during specific race conditions. On 2013 peak race weekdays and 2013 average race weekends, the on-site crowding conditions could reach LOS C at San Francisco Maritime National Historical Park locations. The portion of the Aquatic Park Promenade/Bay Trail at the west end of Aquatic Park is expected to reach LOS C for all 2013 race conditions. Conditions are expected to approach manageably crowded for these AC34 periods. Conditions would be slightly more crowded than is typically experienced under current conditions but about the same as Fleet Week at both the West End Promenade and Jefferson Street entrance locations. Conditions could also be very crowded (LOS D) to extremely crowded (LOS E) on the five peak weekend race days and very crowded on the six medium high weekend days at the pathways on the east end of the park, and on lawn areas throughout the park. Without protection measures that would reduce visitor density and crowding, adverse visitor safety, satisfaction and understanding effects would result.

Visitor Safety. Without management actions and protection measures described in Table ALT-2, very crowded to extremely crowded conditions on adoption of the 4 days in 2012 and 11 days in 2013 in particular could result in adverse visitor safety impacts, including increases in unsafe site conditions, delayed response times, and/or unsanitary public health conditions (e.g., lack of available restrooms such that waiting times are no greater than under existing busy days). The overall increase in use could create uneven surfaces on pathways and adjacent turf, which may pose safety hazards. Very crowded and extremely crowded conditions could result in pedestrian and bicycle conflicts; however, it is noted that during Fleet Week, bicycle use in this area declines substantially and it appears that bicyclists avoid this area during crowded conditions suggesting that direct bicycle separations onto alternative routes would be acceptable. Very crowded and extremely crowded conditions could also result in brief exceedance of fire codes regarding maintenance of fire lanes or clearance around fire hydrants (SFFD 2012). Within Aquatic Park, the presence of unregulated additional boats could be in conflict with human-powered recreational activities such as rowing and swimming.

Visitor Use. Without management actions and protection measures, on the days expected to be very crowded to extremely crowded (4 days in 2012 and 11 days in 2013) in particular, the number of visitors that would normally visit the San Francisco Maritime National Historical Park may not want to or be able to visit the area. Others may still visit the area and would take in the AC34 events in addition to other park uses. As noted above, bicyclists would likely avoid this area on very crowded and extremely crowded days. The actual amount of visitation displacement/conversion that would occur is not specifically known, and is likely to vary based on visitors' expectations of crowding levels (ORCA 2012). It is estimated that a range of approximately 30 to 400 visitors could be displaced or converted depending whether it is a 2012 weekday or 2013 peak weekend day. It is reasonably assumed that approximately half the displaced/converted visitors would be displaced to other recreational areas or other times of day, including some swimmers and rowers within Aquatic Park, a uniquely suited use for this national park area, and bikers and joggers who use the Aquatic Park Promenade/Bay Trail. Some would be displaced to other nearby NPS sites where similar recreational activities are available, while others would opt for other non-NPS leisure activities (ORCA 2012). In addition, special events that typically occur, such as swim races, may be in conflict with the proposed race schedule, requiring scheduling of events to non-race days or to different seasons in 2013 under this Alternative B. For the unique water recreational uses, such as swimming in the cove, adverse visitor use effects would occur if boating in and out of the cove were increased significantly under AC34 in 2013

Visitor Satisfaction. Without the adoption management actions and protection measures, on the days expected to be very crowded to extremely crowded (4 days in 2012 and 11 days in 2013) in particular, visitor satisfaction and experience could be reduced if the quality and availability of walkways, restrooms, lawn areas, programs offered, and visitor information in the San Francisco Maritime National Historical Park area is reduced.

Visitor Understanding. On the days expected to be very crowded to extremely crowded (4 days in 2012 and 11 days in 2013) in particular, visitor understanding could be reduced if San Francisco Maritime National Historical Park area visitors are not able to learn about the park's significant natural, cultural, and scenic resources and values through interpretive themes that are presented in programs and exhibits found within the park. This includes events and educational programming offered by the San Francisco Maritime National Park Association.

Protection Measures

Visitor Use. Chapter 2– Alternatives describes management and protection measures applicable to the San Francisco Maritime National Historical Park. An NPS Incident/Event Command Management System (Protection Measure VUE-1) would be implemented to manage crowds such that safe conditions are maintained and appropriate, unique visitor uses of the site, such as swimming in the cove and visiting the historic ships and museum exhibits, can be enjoyed by visitors. Implementation of the plan would include pre-visit communications through media to manage distribution of spectators away from this area on the on days that are expected to have high visitation. Crowd control strategies would be employed at the Aquatic Park Promenade/Bay Trail, pathways, lawn areas, and seating including monitors and restrictions from sensitive areas, redirection of crowds, and/or closures when capacity is reached at Hyde Street Piers. Counters would be used to track pedestrian and bicycle counts at the Hyde Street Pier entrance, and people-at-one-time counts would be performed at the Aquatic Park bleachers and beach. The counts would be used to determine when different crowd management strategies would be implemented. On the Aquatic Park Promenade/Bay Trail, bicycle and pedestrian traffic would be separated and dedicated bicycle lanes would be developed. At peak times, bicycles would be detoured around the park. A communication system set up by the project sponsors for all sites would call attention to key services and entry points, and provide visitors with wayfinding options. In addition, information stations would offer general information and recommend viewing times and locations with expected low crowding levels. Concession tents, information stations, temporary structures, portable restrooms, and hand washing stations would be placed in locations that do not contribute to crowded conditions.[2] Finally, crowd control would be employed to ensure that all San Francisco Fire Department emergency access lanes are maintained at a minimum of 14 feet wide at all times and that a minimum of 3 feet of clear space is maintained around fire hydrants (SFFD 2012). These measures would reduce the potential for visitor densities to exceed unsafe levels, and would reduce visitor safety, use, satisfaction, and understanding effects. In addition, other protection measures described below would be implemented.

Visitor Safety and Satisfaction. Portable restrooms and hand washing stations would be required by NPS and provided for by project sponsors during each race series scheduled for 2012, and throughout the race series in 2013, such that a portion of the restrooms provided would meet ADA standards, including existing onsite toilets. In addition, hand washing stations would be provided. Restrooms would be cleaned on a regimen to ensure hygenic conditions through a contract funded by project sponsors. In addition, firefighting, rescue, and emergency medical support would be stationed at the park such that response time averages 5 minutes or less from notification 90 % of the time for Advanced Life Support emergencies.

For Aquatic Park Cove, permit requirements would ensure that both visitor safety and enjoyment of the cove by swimmers within the cove is maintained. AC34 installations would be restricted to limited zones to preserve existing uses such as swimming and rowing. Motorized boating is not permitted within the cove. During the peak weekend and 2013 medium high weekend race days, the NPS would actively monitor the cove by boat and, in concert with USCG, restrict access by non-motorized boaters and determine when the cove is full.

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[2] Gridlock conditions were observed during Fleet Week 2011, partially due to the presence and placement of concessions tents and portable restrooms (ORCA 2012).

Visitor Understanding. This venue would offer NPS educational programs that emphasize maritime history, and provide for sailing exhibits and ocean stewardship educational displays, if funded and provided for by AC34 project sponsors. Large video screens would provide live feeds of the races within the park, though placed so as not to interfere with other recreational uses or park circulation.

Conclusion. With application of these protection measures, adverse effects on visitor safety, use, satisfaction, and understanding effects would be reduced by managing distribution of visitors and controlling crowding, implementing visitor safety measures, and emphasizing visitor education. While conditions could reach extremely crowded levels on the five 2013 peak weekend race days at lawn and beach areas without protection measures, application of the protection measures would reduce overall visitor use and understanding effects. It is likely that on some of the 2012 peak weekend days, especially during Fleet Week, and 2013 peak weekend days, and 2013 medium high weekend days, some existing park visitors, such as bicyclists and swimmers/boaters, would still avoid the park or experience a reduction in visitor satisfaction, even with the application of protection measures. In addition, the perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as in the afternoons during actual peak weekend races. However, these effects would be short-term and use and satisfaction of the area would be restored upon completion of the AC34 events, and particularly upon completion of the peak weekend and 2013 medium high event periods, though this would be dependent on the level of funding for grounds maintenance, restroom cleaning, and general visitor use management committed to by project sponsors under Alternative B. With provision of adequate funding levels to implement protection measure requirements for this alternative, overall AC34 visitor safety, use, satisfaction, and understanding impacts would be short-term and moderate, especially at lawn and beach areas on peak days.

4.7.7.2 Fort Mason

As shown in **Table VUE-15**, 2012 race conditions could result in LOS ranging from B to F. On 2012 peak race weekdays, the onsite crowding conditions could reach LOS B and LOS C at Fort Mason locations. On 2012 peak race weekends, the on-site crowding conditions could reach LOS C at the east end of Fort Mason. Conditions are expected to be busy, yet comfortable to manageably crowded for these 2012 AC34 periods. Conditions would be slightly more crowded than is typically experienced under current conditions on the walkway. However, at the Fort Mason/Laguna Street entrance pathway, the uphill segment of McDowell and the waterfront piers, Bay visitors could experience severely crowded conditions (LOS F) on the four peak weekend days in 2012, resulting in increased visitor use conflicts, diminished satisfaction and circulation, and adverse safety conditions without adoption of management actions and protection measures listed below.

As shown in Table VUE-15, 2013 race conditions could result in LOS ranging from C to F. On 2013 peak race weekdays and at the east end of Fort Mason for all 2013 race conditions, the on-site crowding conditions could reach LOS C. Conditions are expected to be busy, yet comfortable to manageably crowded for these AC34 periods. Conditions would be slightly more crowded than typically experienced under current conditions but well below the level of crowding that was observed on the Saturday of Fleet Week in 2011, though at the east end of McDowell it would likely be similar. Conditions could be very crowded (LOS D) to severely crowded (LOS F) on the five peak weekend race days, 6 medium high weekend race days, and 13 average weekend days at the Fort Mason/Laguna Street entrance pathway

TABLE VUE-15: FORT MASON VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE B

	Bay Trail at East End of Fort Mason	Fort Mason/ Laguna Street Entrance Point	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	B	C	B
2011 Weekend	B	D	C
Fleet Week Saturday (10/8/2011)	C	F	E
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	B	C	B
2012 Peak Weekend Race (4 days)	C	F	F
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	C	C	C
2013 Peak Weekend Race (5 days)	C	F	F
2013 Medium High Weekend (6 days)	C	F	E
2013 Average Weekend (13 days)	C	E	D

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

and waterfront piers, waterfront and Bay Trail. Without adoption of management actions and protection measures, race days with very crowded to severely crowded conditions would result in adverse impacts on visitor safety, use, and satisfaction, as discussed below.

Visitor Safety. Very crowded to severely crowded conditions (projected due to increased programming at adjacent sites and partial views of the races) on 4 days in 2012 and 24 days in 2013 in particular could result in adverse visitor safety impacts, including unsafe site conditions, delayed response times, and/or unsanitary public health conditions (e.g., lack of available restrooms such that waiting times are no greater than under existing busy days). The overall increase in use could create uneven surfaces on pathways and adjacent turf, which may pose safety hazards. Extremely crowded and severely crowded conditions could result in pedestrian and bicycle conflicts, particularly at the Fort Mason/Laguna Street entrance pathway, which is immediately adjacent to traffic along Laguna Street and where bicyclists existing Fort Mason often gain speed coming downhill along the pathway. Very to severely crowded conditions could also result in brief exceedance of fire codes regarding maintenance of fire lanes or clearance around fire hydrants (SFFD 2012). Some portions of the Bay Trail are constrained by walls on either side of the pathway, and without protection measures, under severely crowded conditions, people would be physically restricted to the pathway, which could result in brief periods where crowds could increase the potential for pedestrian trips and falls on uneven surfaces.

Visitor Use. Without adoption of the additional management actions and protection measures, on the days expected to be very crowded to severely crowded (4 days in 2012 and 24 days in 2013) in particular, the number of visitors that would normally visit Fort Mason may not want to or be able to visit the area, including bicyclists and joggers who frequent Fort Mason pathways and visitors to Lower Fort Mason weekend day programs and events during the race series. Some of these visitors would still visit the area and would take in the AC34 events in addition to other park uses by using the walkway on McDowell Road or lower Fort Mason piers for viewing the races. The actual amount of visitation displacement/conversion that would occur is not specifically known and is likely to vary based on visitors' expectations of crowding levels from weekdays to peak weekends (ORCA 2012). It is estimated that a range of approximately 10 to 150 daily visitors could be displaced or converted depending whether it is a 2012 weekday or 2013 peak weekend day. It is reasonably assumed that approximately half the displaced visitors would be displaced to other recreational areas, such as other NPS or City sites where similar recreational activities are available, while others would opt for other non-NPS leisure activities (ORCA 2012). Lower Fort Mason may also experience some unintentional increases in visitors as well due to higher visitor flows through the area. Uses of the American Youth hostel and Community Gardens are expected to increase. Regularly occurring informal activities and special events that make use of the Great Meadow and other Fort Mason areas, such as picnics, conferences and music festivals, could be in conflict with proposed race days or sponsor proposed pier uses and may need to be scheduled for non-race days or other time periods under Alternative B.

Visitor Satisfaction. Without adoption of the management actions and protection measures, days expected to be very crowded to severely crowded (4 days in 2012 and 24 days in 2013), visitor satisfaction and experience would decrease with increases in crowds and resulting decreases in restroom availability, open space lawn areas, Lower Fort Mason program access, programs and access to wayside visitor information in the Fort Mason area, including more restricted access to the Black Point Battery.

Visitor Understanding. On days expected to be very crowded to severely crowded (2 days in 2012 and 24 days in 2013) in particular, visitor understanding could be reduced if Fort Mason area visitors are not able to explore surrounding historic batteries, gardens, and discovery exhibits or if visitor waysides are difficult to see due to crowding.

Protection Measures

Chapter 2 – Alternatives describes protection measures applicable to Fort Mason. An NPS Incident/Event Command Management System (Protection Measure VUE-1) is implemented to manage crowds such that safe conditions are maintained and appropriate, unique visitor uses of the site, such as picnicking in the Great Meadow, visiting the Original San Francisco Port of Embarkation and, the SAFR library, partaking in regional theater, visiting Greens restaurant, or working in the community gardens, can be enjoyed by visitors. Implementation of the system would include pre-visit communications through media to manage crowds on days that are expected to have high visitation. Crowd control strategies would be employed, including monitors and restrictions from sensitive areas, redirection of crowds, and/or closures when capacity is reached. Pedestrian and bicycle traffic would be actively separated on weekends and bikes would need to be walked through the "pinchpoint" at the Fort Mason/Laguna Street entrance to avoid conflicts or take an alternate route described under the

Transportation Enhancement Measures. A communication system set up by the project sponsors for all sites would call attention to key services and entry points, and provide visitors with wayfinding options. In addition, bicycle/pedestrian separation, barricades at the Laguna Street entrance, Franklin Street gate restrictions, and lane restrictions during peak periods at the Marina Boulevard and Laguna Street intersection would be implemented as needed by the City. In addition, information stations would offer general information and recommend viewing times and locations with expected low crowding levels. Finally, crowd control would be employed to ensure that all San Francisco Fire Department emergency access lanes are maintained at a minimum of 14 feet wide at all times and that a minimum of 3 feet of clear space is maintained around fire hydrants (SFFD 2012). As described above, crowded conditions are expected to occur along Fort Mason pathways, resulting primarily in potential visitor safety and use conflicts and impacts. These adopted protection measures would support safe movement of bicycles and pedestrians on pathways. Access would be coordinated with the San Francisco Police Department (SFPD) and the Department of Parking and Traffic, which would be controlling the traffic access along Marina Boulevard. These measures would help reduce the potential for visitor densities to exceed safe levels and would therefore reduce visitor safety and use conflicts. In addition, the following measures would be implemented.

Visitor Safety and Satisfaction. Portable restrooms would be required by the NPS and provided for by project sponsors during each race series scheduled for 2012 and throughout the race series in 2013, such that a portion of the restrooms provided meet ADA standards, including existing onsite toilets. Restrooms would be cleaned to maintain hygenic conditions, along with hand washing stations through a contract funded by project sponsors. In addition, firefighting, rescue, and emergency medical support would be stationed at or near the park on all 2012 and 2013 race weekends such that response time averages 5 minutes or less from notification 90% of the time for Advanced Life Support emergencies. Access for program participants would be coordinated by the SFPD and the Department of Parking and Traffic, which would be controlling the traffic access along Marina Boulevard.

Visitor Understanding. Additional onsite programming would not be provided at Fort Mason; however, visitors would be directed to existing and nearby programming opportunities (Protection Measure VUE-5).

Conclusion. With application of these protection measures, visitor safety, use, satisfaction, and understanding effects would be reduced to a short-term, minor impact for most Fort Mason locations in 2012 and moderate in 2013. It is likely that on some of the 2012 and 2013 peak weekend days, and 2013 medium high and average weekend days, some existing park visitors, such as bicyclists, joggers or program participants, would still avoid the park or experience a reduction in visitor satisfaction, even with the application of these protection measures. In addition, the perceived LOS conditions could be somewhat higher on particularly high interest race days, such as the afternoon during actual peak weekend race days. However, these effects would be short-term and use and satisfaction of the area would be restored upon completion of the AC34 events.

4.7.7.3 Crissy Field East

Projected Conditions

As shown in **Table VUE-16**, LOS would range from B to D on 2012 race days. On 2012 peak race weekdays, the onsite crowding conditions could reach LOS B and LOS C at Crissy Field East locations. On 2012 peak race weekends, the onsite crowding conditions could reach LOS C along the Crissy Field Promenade/Bay Trail. Where conditions are expected to reach manageably crowded for these peak 2012 AC34 periods, more crowded than typically experienced under current conditions. However, without management actions and protection measures, the multiuse path adjacent to Mason Street and the Crissy East beach areas could experience very crowded conditions (LOS D) on the four peak weekend days in 2012.

TABLE VUE-16: EAST CRISSY FIELD VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE B

	Mason Street Multiuse Trail	Crissy Field Promenade/Bay Trail at Eastern End of Crissy Field East	Crissy Field Promenade/Bay Trail at Western End of Crissy Field East	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	A	A	A	A
2011 Weekend	B	B	B	A
Fleet Week Saturday (10/8/2011)	C	B	B	D
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	B	B	B	C
2012 Peak Weekend Race (4 days)	D	C	C	D
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	C	B	B	C
2013 Peak Weekend Race (5 days)	E	C	C	E
2013 Medium High Weekend (6 days)	D	B	C	C
2013 Average Weekend (13 days)	C	B	C	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

As shown in Table VUE-16, LOS could range from B to E on 2013 race days. On 2013 peak race weekdays and average weekend days, and at the eastern end of Crissy Field Promenade near the Crissy tidal marsh, the onsite crowding conditions could reach LOS C, manageably crowded for these AC34 periods. Without adoption of the management actions and protection measures below, however, conditions would likely be very crowded (LOS D) to extremely crowded (LOS E) on the five (5) peak weekend race days and six (6) medium high weekend race days in 2013 at the Mason Street multiuse

path. Conditions at the beach would likely also be very crowded to extremely crowded on the five peak weekend race days. During periods of the day and week in 2013, very crowded to extremely crowded conditions could result in adverse visitor safety, use, and satisfaction at beach areas used for sailboarding and launching, picnicking near the Warming Hut, fishing on Torpedo Wharf, participating in a Crissy Field Center program, and walking/biking to the Golden Gate Bridge along the shoreline. The management actions and protection measures below would reduce visitor density and maintain appropriate, unique visitor uses of these NPS lands and waters at this site.

Visitor Safety. Very crowded conditions on 4 days in 2012 and very to extremely crowded conditions on 11 days in 2013 in particular could result in visitor safety impacts, including increases in unsafe site conditions, delayed response times, and/or unsanitary public health conditions (e.g., lack of available restrooms such that waiting times are no greater than under existing busy days). The overall increase in use could create uneven surfaces on pathways and adjacent turf, which may pose safety hazards. Very crowded and extremely crowded conditions could result in pedestrian and bicycle conflicts, particularly along the pathway adjacent to Mason Street and the Crissy Field Promenade. Very crowded and extremely crowded conditions could also result in brief exceedance of fire codes regarding maintenance of fire lanes or clearance around fire hydrants (SFFD 2012).

Visitor Use. Under Alternative B on the 4 days in 2012 expected to result in crowded conditions and the 11 days in 2013 expected to result in very to extremely crowded conditions in particular, the number of visitors who would normally visit Crissy Field East may not want to or be able to visit the area. While Crissy Field East would be open on all race days, parking and vehicle access could be very restricted on the busy weekend days in 2013. Some existing visitors would still visit the area and would take in the AC34 events in addition to other park uses. The actual amount of visitation displacement/conversion that would occur is not specifically known and is likely to vary based on visitors' expectations of crowding levels (ORCA 2012). Depending whether it is a 2012 weekday or 2013 peak weekend day, it is estimated that a range of approximately 70 to 600 visitors could be displaced or converted, including sailboarders who frequently launch from the beach at east Crissy Field, dogwalkers, bicyclists, joggers, outrigger canoe club members launching from central beach, and Crissy Field Center visitors. As noted, parking and vehicle access would be restricted on the busy weekend days in 2013, which would make use of the east Crissy Field beach for boardsail launching difficult, after the afternoon races, because boarders would need to transport their equipment to the beach without the use of personal vehicles. It is reasonably assumed that approximately half the displaced/converted visitors would be displaced to other recreational areas, such as other nearby NPS sites where similar recreational activities are available, while others would opt for other non-NPS leisure activities (ORCA 2012). Displaced sailboarders may be able to use other informal launch sites, such as those located at San Quentin and Fort Baker under the sponsor proposed Alternative B during the races in 2013. In addition, regularly occurring special events, such as canoe and windsurfing competitions, could be in conflict with proposed race days and many may need to be scheduled for non-race days. Further, Golden Gate National Parks Conservancy and Crissy Field Center programming could be disrupted, given the large increases in visitation projected during peak periods under Alternative B.

Visitor Satisfaction. Without adoption of the management actions and protection measures, on the 4 days in 2012 expected to result in crowded conditions and the 11 days in 2013 expected to result in

very to extremely crowded conditions in particular, visitor satisfaction and experience would be reduced, overall if the availability, maintenance and/or quality of walkways, restrooms, lawn areas, programs offered, visitor information, and commercial services in the Crissy Field East area are reduced due to impacts of very high visitation. In addition, visitor behavior in seeking race views could erode berm features and increase damage to benches, picnic tables, and other park furnishings.

Visitor Understanding. Without management actions and protection measures, on the 4 days in 2012 expected to result in crowded conditions and the 11 days in 2013 expected to result in very to extremely crowded conditions in particular, visitor understanding could be reduced if Crissy Field East area visitors are not able to learn about the park's significant natural, cultural, and scenic resources and values through interpretive themes that are presented in programs and exhibits found within the park, including Crissy Field Center and services provided by the Golden Gate Parks National Parks Conservancy. Visitor understanding of the Crissy Field ecosystem, Bay Area ecology, and park's significance would be limited to existing programs and would not be sufficient to serve the increased visitation that would be expected on busy days, reducing visitor understanding of this site as part of the national parks unless the project sponsor provided added funding for such or additional related educational programming under this Alternative.

Protection Measures

Chapter 2 – Alternatives, describes protection measures applicable to Crissy Field East. An NPS Incident/Event Command Management System (Protection Measure VUE-1) would be implemented to manage crowds such that safe conditions are maintained and appropriate, unique visitor uses of the site, such as launching sailboards and kayaks, when marine areas are not restricted due to races, program participation at Crissy Field Center, and non-conflicting uses of the promenade can be enjoyed by visitors. Crowd control strategies would be employed, including resource monitors, signage and fencing, restrictions for sensitive areas, redirection of crowds, and/or closures when area saturation is being reached. Parking lot access and Mason Street access would be managed with vehicle access restricted on the five 2013 peak and six medium interest weekend days in 2013 and two peak weekend days in 2012. Management actions for bicycles and pedestrians would be employed on the pathway adjacent to Mason Street and along the Crissy Field Promenade/Bay Trail such as pedestrian/bike separations to avoid user conflicts during high visitor density times of the day. A communication system set up by the project sponsors for all sites would call attention to key services and entry points, and provide visitors with wayfinding options. General information, if provided for by project sponsors, could offer general orientation and information, as well as direction to less crowded areas. Access would be coordinated with the SFPD, and the Department of Parking and Traffic, who would be controlling the traffic access along Marina Boulevard, and into Presidio areas, along with U.S. Park Police. Finally, crowd control would be employed to ensure that all San Francisco Fire Department emergency access lanes are maintained at a minimum of 14 feet wide at all times and that a minimum of 3 feet of clear space is maintained around fire hydrants (SFFD 2012). These measures would help reduce the potential for visitor densities to exceed safe levels and would therefore reduce visitor safety, use, and satisfaction effects. In addition, the following measures would be implemented.

Visitor Safety and Satisfaction. Portable restrooms would be required by the NPS/Trust and provided for by project sponsors, during each race series scheduled for 2012, and throughout the race

series in 2013, such that a portion of the restrooms provided meet ADA standards, including existing onsite toilets. Restrooms would be cleaned to maintain hygenic conditions along with provision of hand washing stations. In addition, firefighting, rescue, and emergency medical support would be stationed at or near the park by the SFPD such that response time averages 5 minutes or less from notification 90 % of the time for Advance Life Support emergencies.

Visitor Understanding. This park site would continue to offer existing youth educational programs at Crissy Field Center. In addition, ocean stewardship educational displays and a simulated experience would be offered at the Crissy Airfield, if funded and provided for by AC34 project sponsors (Protection Measure VUE-5).

Conclusion. With application of these management actions and protection measures, overall visitor safety, use, satisfaction, and understanding effects would be reduced. Visitor understanding under this alternative is currently limited to unfunded, sponsored educational displays and a simulated wind/water experience, offered by the project sponsors. Therefore, visitor understanding would be limited on the 4 days in 2012 expected to result in crowded conditions and the 11 days in 2013 expected to result in very to extremely crowded conditions due to the inability of the NPS to meet this demand with existing staffing or programs. It is likely that on some of the 2012 and 2013 peak weekend and 2013 medium high weekend days, some existing park visitors, such as sailboarders, bicyclists, joggers, and dog walkers, would avoid the park or experience a reduction in visitor satisfaction, even with the application of these protection measures under Alternative B. In addition, the perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as in the afternoons of actual peak weekend race days.

On 2013 weekend race days, vehicle access would be restricted and boardsailors would find it difficult to reach the beach at Crissy Field East without the use of personal vehicles and would likely use other informal launch locations, such as Fort Baker, or opt not to boardsail on these days or boardsail later after the races are done, usually by 4 p.m. To the extent that boardsailors would be able to launch during the races in 2013, the AC34 races could preclude access to some of the Central Bay waters normally used during the afternoon period. However, several considerations would mitigate the severity of this impact. First, boardsailors and other watercraft could make use of a 600-foot-wide transit zone that would give them to access Central Bay waters near the Golden Gate Bridge on most race days, particularly in the event that the race course on a given race day does not extend as far west as the United States Coast Guard's proposed regulated area might permit. In addition, the racing on many days may end well before the 5:00 p.m. maximum and enable boardsailing access to the Central Bay in the mid to late afternoon, as well as during the entire 2012 AC45 first race series period when less of the Central Bay would be restricted during the race. This would be particularly true during the final races of the Challenger Series and during the Final Match, when there would be only one race occurring each afternoon.

These effects would be short-term and use and satisfaction of the area would be restored upon completion of the AC34 events, and particularly upon completion of the peak weekend and 2013 medium high event periods. Overall, nonetheless, the NPS believes that AC34 visitor safety, use, satisfaction, and understanding impacts would be short-term and moderate with full adoption of the management and protection measures by the project sponsors.

4.7.7.4 Crissy Field West

Projected Conditions

As shown in **Table VUE-17**, 2012 race days are expected to result in LOS between A and D. On 2012 peak weekday and peak weekend race days, the onsite crowding conditions is expected to be between LOS A and C at most Crissy Field West locations where conditions are expected to be comfortable to manageably crowded for these 2012 AC34 conditions, more than typically experienced under current conditions. However, the intersection of Mason Street and Crissy Field Avenue and shoreline beach and airfield lawn areas could be very crowded (LOS D) on the four peak weekend race days in 2012 due to programming under Alternative B. Without management actions and protection measures that would reduce the added effects of high visitor density, race days with very crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects, as discussed below.

TABLE VUE-17: CRISSY FIELD WEST VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE B

	Crissy Field Promenade/ Bay Trail at East End of Airfield	Crissy Field Promenade/ Bay Trail at West End of Airfield	Intersection of Mason Street and Crissy Field Avenue	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	A	A	C	A
2011 Weekend	B	B	C	A
Fleet Week Saturday (10/8/2011)	B	B	D	A
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	A	B	C	C
2012 Peak Weekend Race (4 days)	C	C	D	D
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	B	B	C	B
2013 Peak Weekend Race (5 days)	D	E	E	F
2013 Medium High Weekend (6 days)	C	C	D	D
2013 Average Weekend (13 days)	B	B	D	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA 2012

As shown in Table VUE-17, 2013 race days are expected to result in LOS between B and F. On 2013 peak weekday race days, medium high weekend days, and average weekend days, the onsite crowding conditions could reach from LOS B and LOS C at shoreline Crissy Field West locations Where conditions are expected to be busy, yet comfortable to manageably comfortable, slightly more crowded than typically experienced under current conditions and similar to the level of crowding

observed on the Saturday of Fleet Week in 2011. However, under the sponsor proposed alternative conditions would likely be very crowded (LOS D) to severely crowded (LOS F) at all Crissy Field West locations on the five 2013 peak weekend race days. In addition, the shoreline beach and airfield lawn areas would likely be very crowded on the six medium high weekend days and it would be very to extremely crowded at the intersection of Mason Street and Crissy Field Avenue on the 6 medium high weekend days and thirteen average weekend days.

Visitor Safety. Without adoption of the management actions and protection measures, very to severely crowded conditions on 2 race days in 2012 and 24 race days in 2013 could result in visitor safety impacts, in particular, including increases in unsafe site conditions, delayed response times, and/or unsanitary public health conditions (e.g., lack of available restrooms such that waiting times are no greater than under existing busy days). The overall large increases in visitation project under this alternative would create uneven surfaces on pathways and adjacent turf, which may pose safety hazards. Very to severely crowded conditions could result in pedestrian and bicycle conflicts along the Crissy Field Promenade/Bay Trail and at the intersection of Mason Street and Crissy Field Avenue. Very to severely crowded conditions could also result in brief exceedance of fire codes regarding maintenance of fire lanes or clearance around fire hydrants (SFFD 2012).

Visitor Use and Satisfaction. Without management actions on the four race days in 2012 and twenty-four (24) 2013 race days that would result in very to severely crowded conditions in particular, the number of visitors that would normally visit Crissy Field West, including dogwalkers, bicyclists, joggers and program participants, who may not want to or be able to visit the area, including commercial recreation businesses along Mason Street. Some of these visitors would still visit the area and would take in the AC34 events in addition to other park uses. The actual amount of visitation displacement/ conversion that would occur is not specifically known and is likely to vary based on visitors' expectations of crowding levels from weekdays to peak weekends (ORCA 2012). It is estimated that a range of approximately 550 to 8,000 visitors could be displaced or converted, depending whether it is a 2012 weekday or 2013 peak weekend day. It is reasonably assumed that approximately half the displaced/converted visitors would be displaced to other recreational areas, such as other nearby NPS or City sites where similar recreational activities are available, while others would opt for other non-NPS leisure activities (ORCA 2012). In addition, regularly occurring special events, such as races, large picnics, festivals, and Relay for Life, could be in conflict with proposed race days and many may need to be scheduled for non-race days. Further, Golden Gate National Parks Conservancy and Gulf of the Farallones National Marine Sanctuary headquarters operations and programming could be disrupted.

Visitor Understanding. Without management actions, on the 2 race days in 2012 and 24 race days in 2013 that could result in very to severely crowded conditions in particular, and without supplemental educational programs funded and supported by project sponsors, visitor understanding of the Crissy Field ecosystem, Bay Area ecology, and park's significance would be limited to existing park and partner programs and would not be sufficient to serve park visitors on high visitation days, reducing visitor understanding of this site as part of the national parks.

Protection Measures

Chapter 2 – Alternatives, describes protection measures applicable to Crissy Field West. An NPS Incident/Event Command Management System (Protection Measure VUE-1) would be implemented to manage crowds such that safe conditions are maintained and appropriate, unique visitor uses of this site, such as environmental education programs offered by NOAA, swimming programs offered by La Petite Baleen, and biking to the Golden Gate Bridge, are not restricted due to AC34 races. Implementation of the system would include pre-visit communications through media to manage crowds on days that are expected to have high visitation. Crowd control strategies would be employed, including monitors and restrictions from sensitive areas, redirection of crowds, and/or closures when capacity is reached, though crowding would still be experience throughout the afternoons on 2013 weekends. Parking lot and roadway access would be restricted, and often closed on peak weekends under this Alternative due to extremely high volume of visitors. Management actions for bicycles and pedestrians would be employed on the Crissy Field Promenade/Bay Trail. An ITS communication system set up by the project sponsors for all sites would call attention to key services and entry points and provide visitors with wayfinding options. General information, if provided for by project sponsors, could offer general orientation and information, as well as direction to less crowded areas. Finally, crowd control would be employed to ensure that all San Francisco Fire Department emergency access lanes are maintained at a minimum of 14 feet wide at all times and that a minimum of 3 feet of clear space is maintained around fire hydrants (SFFD 2012). Access would be managed through a Presidio parking and shuttle or pass system. These measures would help reduce the potential for visitor densities to exceed unsafe levels, however, visitors would still experience periods of discomfort and congestion. In addition, the following measures would be implemented.

Visitor Safety and Satisfaction. Portable restrooms and hand washing stations would be required by the NPS and provided for by the project sponsors during each race series scheduled for 2012 and throughout the race series in 2013, such that a portion of the restrooms provided meet ADA standards, including existing onsite toilets. Restrooms would be cleaned every hour on weekends and every two hours on weekdays through a contract funded by the project sponsors. In addition, firefighting, rescue, and emergency medical support would be stationed at or near the park such that response time averages 5 minutes or less from notification 90% of the time for Advanced Life Support emergencies.

Visitor Understanding. This park site would continue to offer existing youth educational programs at Crissy Field Center. In addition, ocean stewardship educational displays and a simulated experience would be offered at Crissy Airfield, if funded and provided for by the project sponsors (Protection Measure VUE-5).

Conclusion. With application of these management actions and protection measures, adverse visitor safety, use, satisfaction, and understanding effects would be reduced by managing distribution of visitors and controlling crowding, implementing visitor safety measures, and emphasizing visitor education. While conditions could reach extremely or severely crowded levels on the five 2013 peak weekend race days, application of the protection measures would reduce overall visitor use and understanding effects. It is likely that on some of the race days, some existing park visitors, such as bicyclists, joggers, dog walkers, and La Petite Baleen customers would avoid the park or experience a reduction in visitor satisfaction, even with the application of protection measures. In addition, the

perceived LOS conditions could be somewhat worse on particularly high interest race event periods, such as in the afternoons during actual peak weekend race days. These effects would be short-term, and use and satisfaction of the area would be restored upon completion of the AC34 events, though impacts on visitor satisfaction and use of facilities could extend until the site could be fully restored possibly months later. Overall, AC34 visitor safety, use, satisfaction, and understanding impacts would be short-term and moderate with application of protection measures.

4.7.7.5 Crissy West Picnic Area

Projected Conditions

As shown in **Table VUE-18**, LOS is expected to be between B and D on 2012 peak race days. On 2012 peak weekday and peak weekend race days, the onsite crowding conditions are expected to be between LOS B and C at most Crissy West Picnic Area locations. Conditions are expected to be busy, yet comfortable to manageably crowded for these 2012 AC34 conditions. Conditions would be more crowded than typically experienced under current conditions and more crowded on 2012 race weekends than observed on the Saturday of Fleet Week in 2011. However, the picnic area and shoreline could be very crowded (LOS D) on the four peak weekend race days. Without management actions and protection measures that would reduce effects of visitor density, race days with very crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects, as discussed below.

As shown in Table VUE-18, LOS is expected to be between B and E on 2013 race days under this sponsor proposed Alternative B. On 2013 peak weekday race days and average weekend days, the on-site crowding conditions could reach LOS B and LOS C at the Crissy West Picnic Area locations. In addition, on 2013 medium high weekend days, the on-site crowding conditions could reach LOS C at the Crissy Field Promenade/Bay Trail east of the picnic area and near the Warming Hut. Conditions are expected to be busy, yet comfortable to manageably crowded. Conditions would be slightly more crowded than typically experienced under current conditions and that observed on the Saturday of Fleet Week in 2011. However, without management actions and protection measures, conditions would likely range from very crowded (LOS D) on the six high medium weekend days in 2013 to extremely crowded (LOS E) on the five 2013 peak weekend race days at all Crissy West Picnic Area locations. In addition, the picnic area and beach could be very crowded on the six medium high weekend race days.

Visitor Safety. Without management actions and protection measures, very to extremely crowded conditions on 4 race days in 2012 and 11 race days in 2013 in particular could result in visitor safety impacts, including increases in unsafe site conditions, delayed response times, and/or unsanitary public health conditions (e.g., lack of available restrooms such that waiting times are no greater than under existing busy days). The overall increase in use could create uneven surfaces on pathways and adjacent turf, which may pose safety hazards. Very to extremely crowded conditions could result in pedestrian and bicycle conflicts along the Crissy Field Promenade/Bay Trail and at the picnic area and shoreline and damage to picnic tables. Very to extremely crowded conditions could also result in brief exceedance of fire codes regarding maintenance of fire lanes or clearance around fire hydrants (SFFD 2012).

TABLE VUE-18: CRISSY WEST PICNIC AREA VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE B

	Crissy Field Promenade/Bay Trail – East of Picnic Area	Crissy Field Promenade/Bay Trail Near Warming Hut	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	A	A	A
2011 Weekend	B	B	B
Fleet Week Saturday 10/8/2011	B	B	C
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	B	B	B
2012 Peak Weekend Race (4 days)	C	C	D
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	B	B	B
2013 Peak Weekend Race (5 days)	D	D	E
2013 Medium High Weekend (6 days)	C	C	D
2013 Average Weekend (13 days)	C	B	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

Visitor Use. On the four (4) race days in 2012 and 11 race days in 2013 that could result in very to extremely crowded conditions in particular, the number of visitors who would normally visit Crissy West Picnic Area, including picnickers, bicyclists, joggers, and people who fish from the pier, may not want to or be able to visit the area. Some of these visitors would still visit the area and would take in the AC34 events in addition to other park uses. The actual amount of visitation displacement/conversion that would occur is not specifically known, and is likely to vary based on visitors' expectations of crowding levels from weekdays to peak weekends (ORCA 2012). It is estimated that a range of approximately 50 to 800 visitors could be displaced or converted depending whether it is a 2012 weekday or 2013 peak weekend. It is reasonably assumed that approximately half the displaced visitors would likely be displaced to other recreational areas, such as other nearby NPS or City sites where similar recreational activities are available, while others would opt for other non-NPS leisure activities (ORCA 2012). In addition, regularly occurring special events, such as festivals at the west bluff amphitheater, could be in conflict with proposed race days and many may need to be scheduled for non-race days or other time periods. Further, Warming Hut and Golden Gate National Parks Conservancy operations and programming could be disrupted, and demand exceed visitor amenities offered.

Visitor Satisfaction. On the four (4) race days in 2012 and 11 race days in 2013 that could result in very to extremely crowded conditions in particular, visitor satisfaction and experience could be reduced if the quality and availability of walkways, restrooms, lawn areas, programs offered, picnic tables, amphitheater seating, visitor information, Golden Gate National Parks Conservancy retail, and

visitor services in Crissy West Picnic Area (including the Warming Hut) are reduced. In addition, increased visitation could result in erosion of berm features and increased damage to benches, picnic tables, and other park furnishings.

Visitor Understanding. Without management actions, on the 2 race days in 2012 and 11race days in 2013 that could result in very to extremely crowded conditions in particular, visitor understanding could be reduced if visitors are not able to learn about the park's significant natural, cultural, scenic resources and values through interpretive waysides found within the park programs offered by NPS and information provided by the Golden Gate National Parks Conservancy at the Warming Hut.

Protection Measures

Chapter 2 – Alternatives describes protection measures applicable to Crissy West Picnic Area. An NPS Incident/Event Command Management System (Protection Measure VUE-5) would be implemented to manage crowds such that safe conditions are maintained and appropriate, unique visitor uses of this site, such as enjoyment of the Warming Hut, fishing from Torpedo Wharf, spontaneous rock sculpturing, picnicking in view of Golden Gate Bridge, jogging/walking along the northern San Francisco waterfront to Fort Point, and biking to the Golden Gate Bridge, are not restricted due to AC34 races and can be enjoyed by visitors. Implementation of the system would include pre-visit communications through media to manage crowds on days that are expected to have high visitation. Crowd control strategies would be employed, including monitors and restrictions from sensitive areas, redirection of crowds, and/or closures when capacity is reached. Parking lot access, and visitor crowding would be managed. Management actions would be employed for bicycles and pedestrians on the Crissy Field Promenade/Bay Trail. An ITS communication system set up by the project sponsors for all sites would call attention to key services and entry points and provide visitors with wayfinding options. General information, if provided for by the project sponsors, could offer general orientation and information, as well as direction to less crowded areas. Finally, crowd control would be employed to ensure that all San Francisco Fire Department emergency access lanes are maintained at a minimum of 14 feet wide at all times and that a minimum of 3 feet of clear space is maintained around fire hydrants (SFFD 2012). Program or operational access would be enhanced through a Presidio parking and shuttle or pass system. These measures would reduce the potential for visitor densities to exceed unsafe levels, and would therefore reduce adverse visitor safety conditions and dissatisfaction. In addition, the following measures would be implemented.

Visitor Safety and Satisfaction. Portable restrooms and hand washing stations would be required by NPS/Trust and provided for by the project sponsors during each race series scheduled for 2012 and throughout the race series in 2013, such that a portion of the restrooms provided meet ADA standards, including existing onsite toilets. Restrooms would be cleaned to maintain hygienic conditions through a contract funded by project sponsors. In addition, firefighting, rescue, and emergency medical support would be stationed at or near the Park such that response time averages 5 minutes or less from notification 90% of the time for Advanced Life Support emergencies.

Visitor Understanding. Provisions for educational materials and information in the Warming Hut, wayfinding, and added programming would be the same as described for Crissy West this alternative. However, Public Information Officers (PIOs), funded by the project sponsors, could also be provided,

similar to the level during park and conservancy projects, as an added information source to increase understanding of the site (Protection Measure VUE-1).

Conclusion. With application of these protection measures, visitor safety, use, satisfaction, and understanding effects would be reduced but not eliminated by managing distribution of visitors and controlling crowding, implementing visitor safety measures, and emphasizing visitor education. While conditions could reach extremely to severely crowded levels on the 5 2013 peak weekend race days without protection measures, application of the protection measures would reduce overall visitor use and understanding effects. It is likely that on some of the race days, some existing park visitors, such as joggers, bicyclists, large social picnic groups, and people who fish at the pier, would avoid the park or experience a reduction in visitor satisfaction, even with the application of protection measures. In addition, the perceived LOS conditions could be somewhat worse on particularly high interest race event periods, such as in the afternoons of actual peak weekend race days. However, these effects would be short-term and use and satisfaction of the area would be restored upon completion of the AC34 events. Overall, AC34 visitor safety, use, satisfaction, and understanding impacts would be short-term and minor with full adoption of the above mentioned protection measures by the project sponsors.

4.7.7.6 Fort Point

Projected Conditions

As shown in **Table VUE-19**, LOS could range between B and D in 2012. On 2012 peak weekday and peak weekend race days, the onsite crowding conditions are expected to be between LOS B and C at most Fort Point locations. Conditions are expected to be busy, yet comfortable to manageably crowded for these 2012 AC34 conditions. Conditions would be slightly more crowded than typically experienced under current conditions and similar to slightly more crowded on Long Avenue and Marine Drive than the level of crowding that was observed on the Saturday of Fleet Week in 2011. However, without protection measures, at the Long Avenue and Lincoln Boulevard intersection and areas where people would stop to watch AC34 events could be very crowded (LOS D) on the four peak weekend race days.

As shown in Table VUE-19, LOS could range between B and E in 2013. On 2013 peak weekday race days and average weekend days, the onsite crowding conditions could reach LOS B and LOS C at the Fort Point locations. In addition, on 2013 medium high weekend days, the on-site crowding conditions could reach LOS C along Marine Drive. Where conditions are expected to be busy, yet comfortable to manageably crowded, conditions slightly more crowded than is typically experienced under current conditions and observed on the Saturday of Fleet Week in 2011. However, without protection measures, conditions would likely be very crowded (LOS D) on six medium high weekend race days in 2013 and extremely crowded (LOS E) on the five 2013 peak weekend race days at Fort Point locations. Without management actions and protection measures that would reduce visitor density, race days with very to extremely crowded conditions would result in adverse visitor safety, use, satisfaction, and understanding effects, as discussed below.

TABLE VUE-19: FORT POINT VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE B

	Long Avenue and Lincoln Boulevard Intersection	Marine Drive to Fort Point	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	B	B	A
2011 Weekend	B	C	C
Fleet Week Saturday (10/8/2011)	C	D	C
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	B	B	C
2012 Peak Weekend Race (4 days)	D	C	D
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	B	B	C
2013 Peak Weekend Race (5 days)	E	D	E
2013 Medium High Weekend (6 days)	D	C	D
2013 Average Weekend (13 days)	C	C	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

Visitor Safety. Without management actions and protection measures, very to extremely crowded conditions on 4 race days in 2012 and 11 race days in 2013 in particular could result in adverse visitor safety impacts, including increases in unsafe site conditions, delayed response times, and/or unsanitary public health conditions (e.g., lack of available restrooms such that waiting times are no greater than under existing busy days). The overall increase in use could create uneven surfaces on pathways and adjacent turf, which may pose safety hazards. Very to extremely crowded conditions could result in pedestrian and bicycle conflicts along the Bay Trail and along Marine Drive, where pedestrians frequently walk within driving lanes and at Long and Lincoln Boulevard where additional conflicts can occur between bikes and cars. Very to extremely crowded conditions could also result in brief exceedance of fire codes regarding maintenance of fire lanes or clearance around fire hydrants (SFFD 2012).

Visitor Use. Without additional management actions, on the four (4) race days in 2012 and 11 race days in 2013 that could result in very to extremely crowded conditions in particular, the number of visitors who would normally visit Fort Point, including joggers, surfers, people who fish from Bay Trail, and Fort Point exhibit visitors, may not want to or be able to visit the area. Some of these visitors would still visit the area and would take in the AC34 events in addition to other park uses. The actual amount of visitation displacement/conversion that would occur is not specifically known and is likely to vary based on visitors' expectations of crowding levels from weekdays to peak weekends (ORCA 2012). It is reasonably assumed that approximately half the displaced/converted visitors, depending whether it is a 2012 weekday or 2013 peak weekend, would be displaced to other recreational areas,

such as other nearby NPS sites where similar recreational activities are available, while others would opt for other non-NPS activities (ORCA 2012).

Visitor Satisfaction. Without management actions, on the four (4) race days in 2012 and 11 race days in 2013 that that could result in very to extremely crowded conditions in particular, visitor satisfaction and experience could be reduced if the quality and availability of walkways, restrooms, programs offered, and visitor information at Fort Point (including the Fort Point exhibits and bookstore/gift shop) are reduced.

Visitor Understanding. Without management actions, on the four (4) race days in 2012 and 11 race days that that could result in very to extremely crowded conditions in particular, visitor understanding could be reduced if visitors are not able to learn about the park's significant natural, cultural, and scenic resources and values through interpretive themes that are presented in programs and exhibits found within the park, including those within Fort Point.

Protection Measures

Chapter 2 – Alternatives describes management actions and protection measures applicable to Fort Point. An NPS Incident/Event Command Management System (Protection Measure VUE-1) is implemented to manage crowds such that safe conditions are maintained and appropriate, unique visitor uses of this site, such as nearby surfing, jogging/walking along the northern San Francisco waterfront, and biking to the Golden Gate Bridge, are only temporarily affected due to AC34 races and can be enjoyed by visitors. Crowd control strategies would be employed, including redirection of crowds, and/or closures when capacity is reached. Pedestrian and bicycle traffic controls would be provided at the Long Avenue and Lincoln Boulevard intersection. Vehicle access to Fort Point may be closed on the 2013 peak race weekend days. An ITS communication system set up by the project sponsor would call attention to key services and entry points, and provide visitors with wayfinding options. General information, if provided for by the project sponsors, could offer general orientation and information, as well as direction to less crowded areas. Finally, crowd control would be employed to ensure that all San Francisco Fire Department emergency access lanes are maintained at a minimum of 14 feet wide at all times and that a minimum of 3 feet of clear space is maintained around fire hydrants (SFFD 2012). These measures would reduce the potential for visitor densities to reach unacceptable conditions, and would therefore reduce adverse visitor safety and satisfaction. In addition, the following measures would be implemented.

Visitor Safety and Satisfaction. Firefighting, rescue, and emergency medical support would be stationed at or near the park such that response time averages 5 minutes or less from notification 90% of the time for Advanced Life Support emergencies.

Visitor Understanding. Additional onsite programming would not be provided at Fort Point; however, visitors would be directed to existing and nearby programming opportunities (Protection Measure VUE-5).

Conclusion. With application of these protection measures, adverse visitor safety, use, and satisfaction effects would be reduced. It is likely that on some of the 2012 and 2013 peak weekend race days and on

the 2013 medium high weekend race days, some existing park users, such as bicyclists, surfers, and visitors to Fort Point exhibits, would avoid the park or experience a reduction in visitor satisfaction, even with the application of protection measures. In addition, the perceived LOS conditions could be somewhat worse during particularly attractive race event periods, such as periods of afternoons of peak weekend race days when races are actually running. However, these effects would be short-term and use and satisfaction of the area would be restored upon completion of the AC34 events, particularly upon completion of peak weekend and 2013 medium high event periods. Overall, AC34 visitor safety, use, satisfaction, and understanding impacts would be short-term and minor with the full adoption of protection measures by the project sponsor.

4.7.7.7 Golden Gate Bridge Overlook

Projected Conditions

As shown in **Table VUE-20**, LOS could range between B and D on 2012 race days. On most 2012 peak weekday and peak weekend race days, the onsite crowding conditions are expected to be between LOS B and C at most Golden Gate Bridge overlook locations. Conditions are expected to be busy, yet comfortable to manageably crowded for these 2012 AC34 conditions, slightly more crowded than typically experienced under current conditions and similar to that observed on the Saturday of Fleet Week in 2011. The Coastal Trail on the east side of the overlook and areas where people would stop to watch AC34 events could be very crowded (LOS D) on the four peak weekend race days.

As shown in Table VUE-20, LOS could range between B and E on 2013 race days. On 2013 peak weekday race days, the on-site crowding conditions could reach LOS B and LOS C at the Golden Gate Bridge overlook locations. In addition, the Coastal Trail at the west side of the overlook could reach LOS C on peak and medium high weekend days and the Coastal Trail on the east side of the overlook could reach LOS C on medium high weekend days. Conditions are expected to be busy, yet comfortable to manageably comfortable for these AC34 periods, slightly more crowded than is typically experienced under current conditions and similar to that observed on the Saturday of Fleet Week in 2011. However, without management actions and protection measures, conditions could be very crowded (LOS D) at the Coastal Trail on the east side of the overlook on the five peak weekend and six medium high weekend race days. In addition, conditions could be very crowded (LOS D) to extremely crowded (LOS E) on the five peak weekend race days, 6 medium high weekend days, and 13average weekend race days in 2013 at areas where people would stop to watch AC34 events. Protection measures would help reduce visitor density, such that the effects on race days with very to extremely crowded conditions would be lessened to some extent but not eliminated.

Visitor Safety. Very crowded conditions that could occur on four (4) race days in 2012 and very to extremely crowded conditions that could occur on 24 race days in 2013 in particular could result in visitor safety impacts, including unsafe site conditions, delayed response times, and/or unsanitary public health conditions (e.g., lack of available restrooms such that waiting times are no greater than under existing busy days). The overall increase in use could create uneven surfaces on pathways and adjacent turf which may pose safety hazards. Very crowded conditions could result in pedestrian and bicycle conflicts. Very crowded conditions could also result in brief exceedance of fire codes regarding maintenance of fire lanes or clearance around fire hydrants (SFFD 2012).

TABLE VUE-20: GOLDEN GATE BRIDGE OVERLOOK VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE B

	Coastal Trail at West Side of Golden Gate Bridge Overlook	Coastal Trail at East Side of Golden Gate Bridge Overlook	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	B	B	B
2011 Weekend	B	C	C
Fleet Week Saturday (10/8/2011)	C	C	D
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	B	C	C
2012 Peak Weekend Race (4 days)	B	D	D
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	B	C	C
2013 Peak Weekend Race (5 days)	C	D	E
2013 Medium High Weekend (6 days)	C	D	D
2013 Average Weekend (13 days)	B	C	D

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

Visitor Use. On the four days in 2012 expected to result in crowded conditions and 24 days in 2013 expected to result in very to extremely crowded conditions in particular, the number of visitors who would normally visit the Golden Gate Bridge overlook areas, including sightseers and bridge walkers/bicyclists, may not want to or be able to visit the area. Some visitors would still visit the area and would take in the AC34 events in addition to other sights at the Golden Gate Bridge. The actual amount of visitation displacement/conversion that would occur is not specifically known and is likely to vary based on visitors' expectations of crowding levels (ORCA 2012). It is reasonably assumed that approximately half the displaced/converted visitors would be displaced to other recreational areas, such as other nearby NPS sites where similar scenic views are available, while others would opt for other non-NPS leisure activities (ORCA 2012).

Visitor Satisfaction. Without management actions, on the four (4) days in 2012 expected to result in crowded conditions and 24 days in 2013 expected to result in very to extremely crowded conditions in particular, visitor satisfaction and experience could be reduced if the quality and availability of walkways, restrooms, programs offered, and visitor information at Golden Gate Bridge overlook areas, including the Golden Gate Bridge pavilion and café, is reduced.

Visitor Understanding. Without management actions, visitor understanding could be reduced if visitors are not able to learn about the park's significant natural, cultural, and scenic resources and values through waysides and exhibits found on the site.

Management and Protection Measures

Chapter 2 – Alternatives describes management actions and protection measures applicable to the Golden Gate Bridge overlook areas to be adopted by project sponsors in concert with the appropriate agencies under Alternative B. An NPS Incident/Event Command Management System (Protection Measure VUE-1) would be implemented to manage crowds such that safe conditions are maintained and appropriate, unique visitor uses of this site, such as viewing the Bay, the Golden Gate Bridge, and biking to the Bridge, are not restricted due to AC34 races and can be enjoyed by visitors. Implementation of the system would include pre-visit communications through media to manage crowds on days expected to have high visitation. Crowd control strategies would be employed, including monitors and restrictions from sensitive areas, and redirection of crowds. An ITS communication system set up by the project sponsors for all sites would call attention to key services and entry points, and provide visitors with wayfinding options. General information, provided for by the project sponsors, could offer general orientation and information, as well as direction to less crowded areas. Finally, crowd control would be employed to ensure that all San Francisco Fire Department emergency access lanes are maintained at a minimum of 14 feet wide at all times and that a minimum of 3-feet of clear space is maintained around fire hydrants (SFFD 2012). These measures would help reduce the potential for visitor densities to exceed unsafe levels, and would therefore reduce visitor safety and satisfaction. In addition, the following measures would be implemented.

Visitor Safety and Satisfaction. Firefighting, rescue, and emergency medical support would be stationed at or near the park such that response time averages 5 minutes or less from notification 90% of the time for Advanced Life Support emergencies.

Visitor Understanding. Additional onsite programming would not be provided at the Golden Gate Bridge overlook areas; however, visitors would be directed to existing and nearby programming opportunities (Protection Measure VUE-5).

Conclusion. With application of these protection measures, adverse visitor safety, use, satisfaction, and understanding effects would be reduced by managing distribution of visitors and controlling crowding, implementing visitor safety measures, and emphasizing visitor education. While conditions could reach extremely crowded levels on the five 2013 peak weekend race days without protection measures, application of the protection measures would reduce overall visitor use and understanding effects. It is likely that on some of the 2012 peak weekend race days and the 2013 peak weekend, medium high weekend, and average weekend race days, some existing park visitors, such as bridge walkers/bicyclists, would avoid the area or experience a reduction in visitor satisfaction, even with the application of protection measures. In addition, the perceived LOS conditions could be somewhat higher on particularly attractive race event periods, such as periods of afternoons of peak weekend race days when races are actually running. However, these effects would be short-term and use and satisfaction of the area would be restored upon completion of the AC34 events. Overall, AC34 visitor

safety, use, satisfaction, and understanding impacts would be short-term and minor in 2012 to moderate in 2013 with application of protection measures.

4.7.7.8 Battery Spencer

Projected Conditions

As shown in Table VUE-21, LOS could range between A and C on 2012 race days. Conditions are expected to be busy yet comfortable to manageably crowded, slightly more crowded than typically experienced under current conditions and slightly less crowded than the level of crowding that was observed on the Saturday of Fleet Week in 2011.

TABLE VUE-21: BATTERY SPENCER VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE B

	Battery Spencer Main Walkways	People at One Time
2011 Existing Conditions and Fleet Week Saturday		
2011 Weekday	A	A
2011 Weekend	A	B
Fleet Week Saturday (10/8/2011)	B	D
2012 Race Conditions		
2012 Peak Race Weekday (2 days)	A	A
2012 Peak Weekend Race (4 days)	B	C
2013 Race Conditions		
2013 Peak Race Weekday (10 days)	A	C
2013 Peak Weekend Race (5 days)	B	D
2013 Medium High Weekend (6 days)	B	D
2013 Average Weekend (13 days)	A	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

As shown in Table VUE-21, LOS could range between A and D on 2013 race days. Onsite crowding conditions at the Battery Spencer main walkways is expected to be between LOS A and LOS B during 2013 race conditions. At the Battery Spencer lookout area, onsite crowding conditions are expected to be LOS C during 2013 peak weekday and average weekend race days, manageably comfortable. Conditions would be slightly more crowded than typically experienced under current conditions and slightly less crowded than observed on the Saturday of Fleet Week in 2011. However, conditions could be very crowded (LOS D) at the lookout area on the five peak weekend and six medium high weekend race days. Without management actions and protection measures that would reduce effects of visitor

density, race days with very crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects, as discussed below.

Visitor Safety. Without protection measures, very crowded conditions that could occur on the 11 medium high and peak weekend days in 2013 in particular could result in adverse visitor safety impacts, including increases in unsafe site conditions, delayed response times, and/or unsanitary public health conditions (e.g., lack of available restrooms such that waiting times are no greater than under existing busy days).

Visitor Use. Without management and protective measures, on the 11 AC34 race days that could result in very crowded conditions in particular, the number of visitors that would normally visit Battery Spencer may not want to or be able to visit the area. Some of these visitors would still visit the area and would take in the views of AC34 races. The actual amount of visitation displacement that would occur is not specifically known and is likely to vary based on visitors' expectations of crowding levels (ORCA 2012). It is reasonably assumed that approximately half the displaced/converted visitors would be displaced to other viewing sites, such as other nearby NPS sites where similar scenic views of the San Francisco Bay and the Pacific Ocean are available, while others would opt for other non-NPS activities (ORCA 2012).

Visitor Satisfaction. Without management and protective measures, on the 11 AC34 race days that could result in very crowded conditions in particular, visitor satisfaction and experience would be reduced if the quality and availability of walkways, restrooms, scenic views of the San Francisco Bay and the Pacific Ocean and visitor information at Battery Spencer are reduced.

Visitor Understanding. Without management and protective measures, on the 11 AC34 race days that could result in very crowded conditions in particular, visitor understanding could be reduced if visitors are not able to learn about the park's significant natural, cultural, and scenic resources and values through interpretive waysides found within the park.

Protection Measures

Chapter 2 – Alternatives describes protection measures applicable to the Battery Spencer areas. An NPS Incident/Event Command Management System (Protection Measure VUE-1) is implemented to manage crowds such that safe conditions are maintained and appropriate, unique visitor uses of this site, such as scenic viewing experience of driving or biking Conzelman Road that would be affected on 2012 and 2013 peak and medium high weekend days where the road may need to be closed for safety purposes, can still be enjoyed by visitors, however, scenic drives may still be affected on those peak weekend days if the road is closed. Implementation of the system would include pre-visit, public communications through media to manage crowds on the days that are expected to have high visitation. Crowd control strategies would be employed, including monitors and restrictions for sensitive areas, redirection of crowds, and/or closures when capacity is reached. General information, if provided for by project sponsors, could offer general orientation and information, as well as direction to less crowded areas via digital media. These measures would help reduce the potential for visitor densities to reach unacceptable levels, and would therefore reduce visitor safety, use, satisfaction, and understanding effects. In addition, the following measures would be implemented.

Visitor Safety and Satisfaction. To ensure public safety and access to emergency services, CCSF-funded emergency medical support would be stationed within GGNRA on all 2012 and 2013 race weekends; and a dedicated, paramedic unit from SMFPD would be available for Conzelman Road and Marin Headlands Advanced Life Support emergency responses during peak weekend periods such that response time averages 5 minutes or less from notification 90%.

Visitor Understanding. Additional onsite programming would not be provided at Battery Spencer or on Conzelman Road.

Conclusion. Even with management and protection measures, the perceived LOS conditions could be somewhat worse during particularly attractive race event periods, such as periods of afternoons of peak weekend race days when races are actually running. However, with application of these protection measures, visitor safety, use, satisfaction, and understanding effects would be short-term and minor to moderate.

4.7.7.9 Fort Baker

As shown in **Table VUE-22**, LOS could range between A and C on 2012 race days, the latter during the overlap of the second World Series races during Fleet Week. On 2012 peak weekday and peak weekend race days, the onsite crowding conditions are expected to be between LOS A and C at all Fort Baker Spencer locations where conditions are expected to be comfortable to manageably crowded and slightly more crowded than typically experienced under current conditions and similarly crowded compared to the level of crowding that was observed on the Saturday of Fleet Week in 2011. However, without management actions and protection measures, conditions could be very crowded (LOS D) at viewing areas during the four peak weekend race days in 2012.

As shown in Table VUE-22, LOS could range between A and C on 2013 race days, though LOS B would be most common, busy but comfortable, with LOS C on peak weekend days. On peak weekends in 2012 and 2013, conditions would be slightly more crowded than typically experienced under current conditions and similarly crowded compared to that observed on the Saturday of Fleet Week in 2011. However, without management actions and protection measures, conditions could be very crowded (LOS D) at the viewing areas on the five peak weekend race days. Without management actions and protection measures that would reduce visitor density, race days with very to extremely crowded conditions would result in adverse visitor safety, use conflicts, and diminished visitor satisfaction, as discussed below.

Visitor Safety. Without management actions and protection measures, Alternative B could result in some visitor safety impacts, including unsafe site conditions, delayed response times, and/or unsanitary public health conditions (e.g., lack of available restrooms such that waiting times are no greater than under existing busy days). The overall increase in use could create uneven surfaces on pathways and adjacent turf, which may pose safety hazards. Pedestrian and bicycle conflicts could occur.

TABLE VUE-22: FORT BAKER VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE B

	Center Road	Moore Road	Sommerville Road	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	B	B	A	A
2011 Weekend	B	B	B	C
Fleet Week Saturday (10/8/2011)	C	C	B	C
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	B	B	A	B
2012 Peak Weekend Race (4 days)	C	C	B	C
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	B	B	A	B
2013 Peak Weekend Race (5 days)	C	C	C	C
2013 Medium High Weekend (6 days)	B	B	B	C
2013 Average Weekend (13 days)	B	B	B	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

Visitor Use. Without management actions, the number of visitors that would normally visit Fort Baker areas may not want to or be able to visit the area, including the visitors to the Discovery Museum, fishing pier, and wharf. Some of these visitors would still visit the area, and would take in the AC34 events in addition to other park uses. The actual amount of visitation displacement/conversion that would occur is not specifically known, and is likely to vary based on visitors' expectations of crowding levels (ORCA 2012). It is estimated that a range of approximately 30 to 400 visitors from 2012 weekdays to 2013 weekends, could be displaced or converted on race days. It is reasonably assumed that approximately half the displaced visitors would be displaced to other recreational areas, such as other nearby sites where similar recreational activities are available, while others would opt for other non-NPS leisure activities (ORCA 2012).

Visitor Satisfaction. Without management actions, visitor satisfaction and experience could be reduced if the quality and availability of walkways, restrooms, programs offered (including Bay Discovery Museum programming), access to Cavallo Point Lodge or the Marina, and visitor information at Fort Baker are reduced.

Visitor Understanding. Without management and protective measures, visitor understanding could be reduced if visitors are not able to learn about the park's significant natural, cultural, and scenic resources and values through interpretive waysides and partner programs found within the park.

Protection Measures

Chapter 2 – Alternatives describes management actions and protection measures applicable to Fort Baker. An NPS Incident/Event Command Management System (Protection Measure VUE-1) would be implemented to manage crowds such that safe conditions are maintained and appropriate. Traffic and parking management actions are most important here to preserve access to unique visitor uses and programs of this site, such as the Bay Area Discovery Museum, fishing pier, kayaking, boat and sailboard launch, marina boats, scenic views, and renowned lodge, restaurant, and spa. Trail use on Drown Fire Road may be restricted during peak weekend race days to protect Mission blue butterfly habitat. Implementation of the system would include pre-visit, public communications by the project sponsors through media to inform the public about anticipated crowded conditions. Crowd control strategies would be employed, including monitors and restrictions from sensitive areas, redirection of crowds, and/or closures when capacity is reached. Pedestrian and bicycle monitoring would be performed on Center Road, Moore Road, and Sommerville Road. Finally, crowd control would be employed to ensure that all emergency access lanes are maintained at a minimum of 14 feet wide at all times and that a minimum of 3-feet of clear space is maintained around fire hydrants.[3] These measures would reduce the potential for visitor densities to exceed unsafe levels. In addition, the following measures would be implemented.

Visitor Safety and Satisfaction. Firefighting, rescue, and emergency medical support would be stationed at or near the park such that response time averages 5 minutes or less from notification 90% of the time for Advanced Life Support emergencies.

Visitor Understanding. Educational programs may be provided at the Bay Area Discovery Museum. Public access to fishing off Fort Baker Pier would be maintained during daytime hours.

Even with the implementation of management actions and protection measures, the perceived LOS conditions could be somewhat worse during particularly attractive race event periods, such as periods of afternoons of peak weekend race days when races are actually running. However, with application of these management actions and protection measures, visitor safety, use, satisfaction, and understanding effects would be short-term and minor.

4.7.7.10 Alcatraz Island, Marin Headlands, Baker Beach, China Beach, and Lands End

Alcatraz Island. Secondary viewing from Alcatraz Island would be limited by the availability and schedule of ferry services to the island and limited access to food and snacks on the island. And afternoon access may be affected during short term race periods in 2013 up to 10 minutes from scheduled departure times; however, with Management actions, these delays will be very limited to actual race periods in that area of departure and otherwise allowances thru the race box with ACRM escorts. Visitors may seek extended stays on Alcatraz to view the races; however, they may experience additional security screening at the point of embarkation, Pier 31½. Further, group access to Alcatraz Island for after hours special events would be managed so as to minimize effects on both park visitor

[3] The Southern Marin Fire Protection District does not have specific requirements regarding fire lane and hydrant clearance areas; therefore, San Francisco Fire Department requirements would be applied to all project locations.

embarkation at Pier 31½ (Protection Measure VUE-8),and staffing operations, already busy with the AC34 event management in other park locations.

Marin Headlands (proper). Though not a viewing area, uses and programs in the Ft.Barry – Cronkhite area of the Marin headlands could experience increase visitation from displacement from other park areas during the 2012 and 2013 AC34 races. This would result mostly in access issues on peak weekends that is addressed in the Transportation section. When it is congested on auxiliary access roads into the Headlands, Fire/EMS responses could also be effected. Protective Measures have been established to address that by insuring traffic controls on intersections and at the tunnel will be available on peak and high interest weekend days under the NPS Incident Command System implemented to maintain fire lanes; and, EMS personnel could also be pre-positioned, as needed, to address maintaining average response times consistent with SMFPD standards.

B aker Beach, Presidio Bluffs, China Beach, and Lands End

Baker Beach, China Beach, and Lands End areas would not include AC34 public programming. However, it is expected that spectators would be drawn to these park areas as areas of displaced visitation. LOS analysis has not been developed for these areas; however, based on the analysis performed for Battery Spencer, it is possible that crowding could occur during 2013 peak weekend days because of displacement of visitors seeking alternative park experiences. Without management actions and protection measures, such crowding could result in adverse visitor use and experience impacts similar to those described for Battery Spencer.

Protection measures, such as those described for Battery Spencer, would also apply to these areas, where applicable, though no specific parking and traffic controls would be set up for these SF areas which would be covered by normal park patrols. With application of relevant management actions and protection measures, visitor safety and diminished visitor satisfaction effects would be short-term and minor.

4.7.7.11 Presidio of San Francisco (Area B)

Effects on Presidio Trust managed commercial recreation adjacent to Crissy Field are described above under Crissy Field West. Other areas of the Presidio of San Francisco (Area B) are likely to experience increased visitation during the AC34 events. LOS analysis has not been developed for these areas; however, based on the analysis performed for Crissy Field areas and other secondary viewing areas, it is possible that excessive crowding could occur during 2013 peak weekend days. Without protection measures, such crowding could result in adverse visitor use and experience impacts similar to that described above. In particular, programming offered by the Golden Gate National Parks Conservancy (see Table VUE-3) and races and other events held in the Presidio of San Francisco (Area B) (see Table VUE-2) could be disrupted and many may need to be scheduled for non-race days.

Management actions and protection measures, such as those described above, would also apply to these areas. With application of these management actions and protection measures, visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects would be short-term and minor.

4.7.7.12 United States Coast Guard Managed Nearshore Areas

As described in Section 4.11, Maritime Navigation and Safety, under all action alternatives for both 2012 and 2013, the USCG would establish a regulated area to manage vessel traffic in the Bay safely. As a result, under all action alternatives, vessel traffic may be temporarily displaced or rerouted during race activities. Additionally, under all alternatives, the number of recreational vessels in the Bay is expected to increase above normal levels as a result of the race events, as detailed in Section 4.11, the Maritime Navigation and Safety. This would result in congested vessel traffic conditions on the Bay. The area of congestion varies depending on the SLR location. The displaced or rerouted vessel traffic and the increased number of recreational vessels in the Bay could be in conflict with human-powered recreational uses along the project region shoreline. Of particular concern are areas offshore from Crissy Field and Fort Point, which are popular surfing, wind surfing, and kite boarding locations. In addition, NPS visitors to Alcatraz Island and on regularly scheduled ferry service could be disrupted by increased recreational traffic and the race in 2013. Without management actions and protection measures, on-water congestion could result in adverse visitor safety, use conflicts, and experience impacts.

However, the SLR enables the establishment of closed race areas, specifying that the actual courses could be no closer to the Crissy Field waterfront than 600 feet. It would also provide for the creation of an exclusive non-motorized zone, and a small craft transit zone, along the city's waterfront in 2013. The non-motorized zone would extend 450 to 1,000 feet out from the shore, while the transit zone would extend 600 feet beyond the non-motorized zone at Crissy Field (and City shoreline east of Crissy Field). While the SLR would reduce the available open water area available for human-powered recreation area on race days, the motorized boats would not be in conflict with human-powered uses and safety impacts would be reduced. See also the discussion for Crissy Field East regarding access to launch areas and to Central Bay waters. The USCG would work with NPS and the NPS contracted ferry service operator, along with America's Cup Race Management (ACRM), to ensure that delays do not exceed 10 minutes on average during afternoon race periods. This may be accomplished through an ACRM escort boat through the race course. With application of these protection measures, visitor safety, use, satisfaction, and understanding effects would be short-term and minor.

4.7.7.13 Cumulative Impacts

The analysis of cumulative effects on visitor use and experience should consider the past, present, and reasonably foreseeable actions vicinity of venue and secondary viewing areas, in addition to the potential effects of Alternative B. The projects identified include those which could affect visitor use and experience by affecting visitor safety, uses, satisfaction, or understanding.

There are a number of projects recently completed, ongoing, or planned within or in the vicinity of the venues and secondary viewing areas such as the Doyle Drive reconstruction and the Golden Gate Plaza and Overlook. Projects that are not specifically associated with one particular venue or spectator viewing area include the San Francisco Marina Renovation Project, the Bay Trail Plan and related projects along the shoreline in San Francisco and Marin County, the California Coastal Trail project, various rehabilitation and development projects in the Port of San Francisco, and the Fisherman's

Wharf Public Realm Plan. Additional relevant projects, listed by the venue or secondary viewing area they most closely relate to, are as follows:

Presidio

- Doyle Drive Improvement Project – including closure of Halleck Street and Marshall Street, which currently provides access to Crissy Field areas
- Fort Point Accessibility Retrofits
- Presidio Coastal Trail Project
- Golden Gate Plaza and Overlook Project

San Francisco Maritime National Historical Park

- Aquatic Park Bathhouse and Amphitheater rehabilitation
- Municipal Pier Rehabilitation Project
- Extension of the Historic F-Line Streetcar
- Rehabilitation of the Belt Line Railway Tracks
- Maritime Heritage Learning Center
- Rehabilitation of the Sea Scout Base and Moorings
- Aquatic Park Bathhouse Exhibit Plan and Installation
- Annual Fleet Week and Forth of July events

Fort Mason

- Seismic Upgrades to Building E

Fort Baker

- Fort Baker Plan
- Golden Gate Bridge Seismic Retrofit Project
- Battery Cavallo Preservation and Interpretation Plan
- Saterlee Road Improvement Project

Marin Headlands

- Marin Headlands and Fort Baker Transportation Infrastructure and Management Plan
- Conzelman Road Construction
- Marin Headlands Water Line Construction

Additional NPS and park partner projects or plans that affect multiple areas include fire management, habitat restoration, long-range transportation, dog management, and general management plans that span the entire GGNRA. Fleet Week is typically held the first week in October and would include the second AC45 race series in 2012, and would occur just after the 2013 America's Cup final in 2012 and

2013. Construction and operation of AC34 events within City and County of San Francisco-owned lands, such as Marina Green, would coincide with AC34 construction and operation within federally owned lands. In addition, periodic, on-going Golden Gate Bridge maintenance could occur during AC34 event periods.

The impacts on visitor use and experience from Alternative B would combine with other effects from past, present, and reasonably foreseeable future projects on all lands managed by SAFR, the GGNRA, and the Presidio Trust, and offshore areas managed by the USCG. In particular, projects that would affect access routes in the vicinity of venues and secondary viewing areas, such as Halleck Street closure, or that would introduce short- or long-term increases in visitor use, such as the Golden Gate Bridge's 75th Anniversary Celebration recently and the recurring Fourth of July events, would contribute to visitor use and opportunity access effects.

Implementation of protection measures and standard mitigation measures to reduce or avoid visitor use and experience impacts due to projects are included in the various environmental documents that have evaluated, or will evaluate, the environmental effects of each of these projects. All reasonably foreseeable projects would also have to undergo additional environmental review, thus ensuring further consideration and minimization of effects. Finally, all impacts associated with Alternative B would range from minor to moderate, with the latter for primary viewing sites, with implementation of protection measures. Therefore, based on available information, these projects in and of themselves are unlikely to have unmitigated adverse effects on visitor use and experience, however, when combined with the effects of Alternative B, the cumulative effect to visitor use and experience would be considered moderate.

4.7.7.14 Conclusion

Under Alternative B, with visitor uses and satisfaction reduced for unique visitor uses at primary sites on high visitor days, such as Crissy Field East access for water recreationists such as boardsailing, even with implementation of protection measures, the NPS believes that this Alternative would result in an overall short-term, moderate effect on visitor use and experience within primary viewing sites on federal lands and minor at secondary viewing sites. Potential effects from very to severe crowding that could reduce visitor safety, use, experience, and understanding of the parks would be reduced through the use of crowd management; provision of additional portable restrooms and hand washing stations, pre-positioned and mobile emergency services; and expanded visitor educational programming measures adopted by the project sponsors along with requirements to address one-time impacts costs of restoration expected at each park site to affect visitor satisfaction. Frequent visitors to primary viewing areas like Crissy Field and SAFR may be displaced in afternoon periods during peak and medium-high race weekends, when it is especially congested along the San Francisco waterfront and at these park sites. Due to the extensive programming attracting new visitors, visitation on several peak days would also exceed levels for which Crissy Field was planned to accommodate, resulting in facility asset impacts on visitor satisfaction further addressed in the Park Operations and Assets section. New park visitors, attracted to these sites as a result of AC34 races, would enjoy watching the races while also experiencing some of the natural, cultural, scenic and recreational resources that make parklands unique, though at higher impact costs. The overall short-term effects on Visitor Use and Experience

that may occur as a result of Alternative B, in combination with other effects from past, present, and reasonably foreseeable projects on federal lands and waters, would be considered moderate.

4.7.8 Impacts of Alternative C—No Organized Events on NPS Lands

As described in Chapter 2 – Alternatives, the absence of programmed events on NPS lands under Alternative C – No Organized Events on NPS Lands would result in overall decreased numbers of spectators on those lands relative to Alternative B, but visitation would still be higher than would be expected without AC34 races. As described under Impacts of Alternative B, effects on visitor use and experience would result from very to severely crowded conditions. Although the intensity of effects or number of days affected would generally be less under Alternative C, the types of effects would remain essentially unchanged from those identified under Alternative B, above. However, direct impacts on visitor use and experience facilities, such as lawns and pathways, would be reduced in areas where services and stages are proposed under Alternative B (such as at Crissy Airfield) but are not proposed under Alternative C.

4.7.8.1 San Francisco Maritime Historical National Park

As shown in **Table VUE-23**, the on-site crowding conditions could range between LOS B and LOS C on 2012 peak weekday and peak weekend race days at the San Francisco Maritime Historical National Park. Conditions are expected to be busy, yet comfortable to manageably crowded. Conditions could be slightly more crowded than typically experienced under current conditions, but substantially less crowded than was observed on the Saturday of Fleet Week in 2011.

LOS in 2013 could range between B and D. On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the onsite crowding conditions could also reach LOS B and LOS C for most locations. Conditions are expected to be busy, yet comfortable to manageably crowded. Conditions could be slightly more crowded than typically experienced under current conditions, but substantially less crowded than what was observed on the Saturday of Fleet Week in 2011. However, without protection measures, pedestrian and bicycle flow conditions at the Jefferson Street area of the park could be very crowded (LOS D) on the five 2013 peak weekend race days. Without management actions and protection measures that would reduce effects of visitor density at this location, race days with very crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to minor levels.

4.7.8.2 Fort Mason

As shown in **Table VUE-24**, LOS on 2012 race days could range between B and F. On 2012 peak race weekdays and weekends, the onsite crowding conditions could reach LOS B and LOS C at the east end of Fort Mason and could reach LOS B on 2012 peak race weekdays at the piers, waterfront, and Bay Trail. Conditions could reach LOS C at the Fort Mason/Laguna Street entrance pathway on peak race weekdays. Conditions are expected to be busy, yet comfortable to manageable for the 2012 AC34 periods

TABLE VUE-23: SAN FRANCISCO MARITIME NATIONAL HISTORICAL PARK VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE C

	Jefferson Street (northeast entry to Aquatic Park)	Aquatic Park Promenade/ Bay Trail at Maritime Museum	Aquatic Park Promenade/ Bay Trail at West End of Aquatic Park	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	B	B	B	A
2011 Weekend	B	B	C	B
Fleet Week Saturday (10/8/2011)	D	E	C	F
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	B	C	C	B
2012 Peak Weekend Race (4 days)	C	C	C	B
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	B	C	C	B
2013 Peak Weekend Race (5 days)	D	C	C	C
2013 Medium High Weekend (6 days)	C	C	C	B
2013 Average Weekend (13 days)	C	C	C	B

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

TABLE VUE-24: FORT MASON VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE C

	Bay Trail at East End of Fort Mason	Fort Mason/ Laguna Street Entrance Point	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	B	C	B
2011 Weekend	B	D	C
Fleet Week Saturday (10/8/2011)	C	F	E
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	B	C	B
2012 Peak Weekend Race (4 days)	C	F	E
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	B	C	B
2013 Peak Weekend Race (5 days)	C	F	E
2013 Medium High Weekend (6 days)	C	F	D
2013 Average Weekend (13 days)	C	E	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

at these locations, similar to the level of crowding that is typically experienced under current conditions and below the level of crowding that was observed on the Saturday of Fleet Week in 2011. However, without management actions and protection measures, the Fort Mason/Laguna Street entrance pathway could become severely crowded (LOS F) on the two peak weekend race days. Conditions could also be very crowded (LOS D) at the piers, waterfront and Bay Trail on the two (2) 2012 peak race weekend days. Without management actions and protection measures that would reduce effects of visitor density, race days with very or severely crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects.

As shown on Table VUE-24, LOS on 2013 race days could range between B and F. On 2013 peak race weekdays, peak weekend race days, medium high weekend days, and average weekend days, the on-site crowding conditions could reach LOS B and LOS C at east end of Fort Mason. Conditions could reach LOS B on 2013 peak race weekdays and LOS C on average weekend race days at the piers, waterfront and Bay Trail. Conditions could reach LOS C at the Fort Mason/Laguna Street entrance pathway on peak race weekdays. Conditions are expected to be busy, yet comfortable to manageable for the 2013 AC34 periods at these locations, similar to the level of crowding that is typically experienced under current conditions and below the level of crowding that was observed on Fleet Week Saturday 2011. However, without protection measures, conditions would likely be extremely crowded (LOS E) to severely crowded (LOS F) on the five (5) peak weekend race days, six (6) medium high weekend race days, and thirteen (13) average weekend days at the Fort Mason/Laguna Street entrance pathway. Conditions could be very to extremely crowded on the five (5) peak weekend race days and the six (6) medium high weekend race days at the piers, waterfront and Bay Trail. Without management actions and protection measures that would reduce visitor density, race days with very crowded to severely crowded conditions could result in adverse visitor safety, use, satisfaction, and understanding effects.

With application of the management actions and protection measures described under Alternative B, visitor safety, use, satisfaction, and understanding effects would be reduced substantially through crowd control and other activities described above. It is likely that on some of the race days, some existing park visitors, such as bicyclists and joggers, would avoid this section of the park or experience a reduction in visitor satisfaction, even with the application of protection measures. However, these effects would be short-term, and use of and satisfaction with the area would be restored upon completion of the AC34 events. Overall, visitor safety, use, satisfaction, and understanding impacts would be minor to moderate with application of protection measures.

4.7.8.3 Crissy Field East

As shown in **Table VUE-25**, LOS in 2012 could range between A and D. Onsite crowding conditions could reach LOS A to LOS C on the 2012 peak weekday and peak weekend race days at Crissy Field East at most locations. Conditions are expected to be comfortable to manageably crowded. For 2012 peak weekend days, conditions could reach LOS D at beach and lawn areas, resulting in very crowded conditions. Conditions could be slightly more crowded on the peak race weekends than typically experienced under current conditions, but substantially less crowded than was observed on the Saturday of Fleet Week in 2011. Without management actions and protection measures that would reduce visitor density, race days with very crowded to severely crowded conditions could result in adverse visitor safety, use, satisfaction, and understanding effects.

TABLE VUE-25: CRISSY FIELD EAST VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE C

	Mason Street Side of Crissy Field East	Waterfront Entry for Crissy Field East	Wetlands at Crissy Field East	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	A	A	A	A
2011 Weekend	B	B	B	A
Fleet Week Saturday (10/8/2011)	C	BA	B	D
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	A	A	A	B
2012 Peak Weekend Race (4 days)	C	B	B	D
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	B	A	A	B
2013 Peak Weekend Race (5 days)	D	C	C	E
2013 Medium High Weekend (6 days)	C	B	B	C
2013 Average Weekend (13 days)	B	B	B	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

As shown in Table VUE-25, LOS in 2012 could range between A and E. On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the on-site crowding conditions could also reach LOS A to LOS C for most locations. Conditions are expected to be comfortable to manageably crowded. Conditions could be slightly more crowded than typically experienced under current conditions, but substantially less crowded than was observed on the Saturday of Fleet Week in 2011. However, without management actions and protection measures, pedestrian and bicycle flow conditions on the multiuse path adjacent to Mason Street could be very crowded (LOS D) and beach and lawn areas could be extremely crowded (LOS E) on the five 2013 peak weekend race days. Without management actions and protection measures that would reduce effects of visitor density at this location, race days with very crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects. However, management actions and protection measures described under Alternative B would be applied including crowd control and other activities described above, thereby substantially reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to minor levels.

4.7.8.4 Crissy Field West

As shown in **Table VUE-26**, LOS on 2012 race days could range between A and D. On 2012 peak race weekdays and weekends, the on-site crowding conditions could reach LOS A and LOS B along the Crissy Field Promenade/Bay Trail at Crissy Field West. Conditions could reach LOS A and LOS C at the beach and lawn areas on 2012 peak weekday and peak weekend race days and pedestrian/bicycle

TABLE VUE-26: CRISSY FIELD WEST VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE C

	Crissy Field Promenade/ Bay Trail at East End of Airfield	Crissy Field Promenade/ Bay Trail at West End of Airfield	Intersection of Mason Street and Crissy Field Avenue	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday (Existing)	A	A	C	A
2011 Weekend (Existing)	B	B	C	A
Fleet Week Saturday (10/8/2011)	B	B	D	A
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	A	A	C	A
2012 Peak Weekend Race (4 days)	B	B	D	C
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	A	A	C	A
2013 Peak Weekend Race (5 days)	C	C	D	C
2013 Medium High Weekend (6 days)	B	B	D	C
2013 Average Weekend (13 days)	B	B	C	B

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

flow at the intersection of Mason Street and Crissy Field Avenue could reach LOS C on 2012 peak weekday race days. Conditions are expected to be busy, yet comfortable for the 2012 AC34 periods at these locations and race conditions, similar to the level of crowding that is typically experienced under current conditions and the level of crowding that was observed on the Saturday Fleet Week in 2011. However, without management actions and protection measures, pedestrian/bicycle flow at the intersection of Mason Street and Crissy Field Avenue could be very crowded (LOS D) on the two 2012 peak weekend race days. Without management actions and protection measures that would reduce visitor density, race days with very crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects.

As shown in **Table VUE-26**, LOS on 2013 race days could range between A and D. On 2013 peak race weekdays, peak weekend race days, medium high weekend days, and average weekend days, the onsite crowding conditions could reach LOS A to LOS C at the Crissy Field Promenade/Bay Trail at the east end of the airfield. Conditions could reach LOS A through LOS C at the Crissy Field Promenade/Bay Trail at the west end of the airfield on peak weekday, medium high weekend, and average weekend race days. Pedestrian and bicyclist flow at the intersection of Mason Street and Crissy Field Avenue could reach LOS C on peak weekday and average weekend race days. Finally, the beach and lawn areas could reach LOS A through LOS C on peak weekday, peak weekend, medium high weekend, and average weekend race days. Conditions are expected to be busy, yet comfortable for these 2013 race periods and locations. However, without protection measures, pedestrian/ bicyclists conditions could

be very crowded (LOS D) on the five peak weekend and six medium high weekend race days at the Mason Street and Crissy Field Avenue intersection.

Without management actions and protection measures that would reduce visitor density, race days with very crowded conditions would result in adverse visitor safety, use, satisfaction, and understanding effects. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to minor levels.

4.7.8.5 Crissy West Picnic Area

As shown in **Table VUE-27**, LOS on 2012 race days could range between A and C. Onsite crowding conditions could range between LOS A to LOS C on the 2012 peak weekday and peak weekend race days at Crissy West Picnic Area. Conditions are expected to be comfortable to manageably crowded. Conditions could be slightly more crowded on the peak race weekends at the picnic area and pier than typically experienced under current conditions, but similar to the level of crowding that was observed on the Saturday Fleet Week in2011.

TABLE VUE-27: CRISSY WEST PICNIC AREA VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE C

	Crissy Field Promenade/Bay Trail – East of Picnic Area	Crissy Field Promenade/Bay Trail Near Warming Hut	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	A	A	A
2011 Weekend	B	B	B
Fleet Week Saturday (10/8/2011)	B	B	C
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	A	A	A
2012 Peak Weekend Race (4 days)	B	B	C
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	A	A	A
2013 Peak Weekend Race (5 days)	C	B	D
2013 Medium High Weekend (6 days)	B	B	C
2013 Average Weekend (13 days)	B	B	B

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

As shown in Table VUE-27, LOS on 2013 race days could range between A and D. On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the onsite crowding conditions could range between LOS A to LOS C at most Crissy West Picnic Area locations. Conditions are expected to be comfortable to manageably crowded. Conditions could be slightly more crowded than is typically experienced under current conditions on peak weekend race days, and similar to crowding that was observed on Fleet Week Saturday 2011. However, without protection measures, lawn and waterfront areas could be very crowded (LOS D) on the five peak weekend race days. Without management actions and protection measures that would reduce visitor density, race days with very crowded conditions would result in adverse visitor safety, use, satisfaction, and understanding effects. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to minor levels.

4.7.8.6 Fort Point

As shown in **Table VUE-28**, conditions could range from LOS A to LOS C on the 2012 peak weekday and peak weekend race days at Fort Point locations. Conditions are expected to be comfortable to manageably crowded. On peak race weekends, conditions where people would gather to watch AC34 events could be slightly more crowded than typically experienced under current conditions, and could be similar to crowding observed on the Saturday of Fleet Week in 2011. As shown in Table VUE-28, LOS on 2013 race days could range between A and D. On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the onsite crowding conditions could range between LOS A to LOS C at most Fort Point locations. Conditions are expected to be comfortable to manageably crowded. On peak race days, conditions could be slightly more crowded than typically experienced under current conditions and similar to crowding that was observed on the Saturday of Fleet Week in 2011. However, without protection measures, the Long Avenue and Lincoln Boulevard intersection and waterfront viewing locations could be very crowded (LOS D) on the five peak weekend race days. Without management actions and protection measures that would reduce visitor density, race days with very crowded conditions would result in adverse visitor safety, use, satisfaction, and understanding effects. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to minor levels.

4.7.8.7 Golden Gate Bridge Overlook and Bridge Access Routes

As shown in **Table VUE-29**, onsite crowding conditions could range from LOS B and LOS C on the 2012 peak weekday and peak weekend race days at Golden Gate Bridge overlook locations. Conditions are expected to be busy, yet comfortable to manageably crowded, similar to current conditions, and less crowded than conditions observed on the Saturday of Fleet Week in 2011.

As shown in Table VUE-29, LOS on 2013 race days could range between B and D. On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the onsite crowding conditions could reach LOS B to LOS C for most locations. Conditions are expected to be busy, yet comfortable to manageably crowded, similar to current conditions and less crowded than conditions observed on the Saturday of Fleet Week 2011. However, without management actions and protection

TABLE VUE-28: FORT POINT VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE C

	Long Avenue and Lincoln Boulevard Intersection	Marine Drive to Fort Point	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	B	B	A
2011 Weekend	B	C	C
Fleet Week Saturday (10/8/2011)	D	D	C
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	B	B	A
2012 Peak Weekend Race (4 days)	C	C	C
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	B	B	A
2013 Peak Weekend Race (5 days)	D	C	D
2013 Medium High Weekend (6 days)	C	C	C
2013 Average Weekend (13 days)	B	C	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

SOURCE: ORCA, 2012.

TABLE VUE-29: GOLDEN GATE BRIDGE OVERLOOK VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE C

	Coastal Trail at West Side of Golden Gate Bridge Overlook	Coastal Trail at East Side of Golden Gate Bridge Overlook	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	B	B	B
2011 Weekend	B	C	C
Fleet Week Saturday (10/8/2011)	C	C	D
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	B	B	B
2012 Peak Weekend Race (4 days)	B	C	C
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	B	B	B
2013 Peak Weekend Race (5 days)	B	C	D
2013 Medium High Weekend (6 days)	B	C	C
2013 Average Weekend (13 days)	B	C	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

measures, areas where people would gather to watch AC34 events could be very crowded (LOS D) on the five 2013 peak weekend race days. Without management actions and protection measures that would reduce effects of visitor density at this location, race days with very crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to minor levels.

4.7.8.8 Battery Spencer

As shown in **Table VUE-30**, onsite crowding conditions could range from LOS A to LOS C on the 2012 peak weekday and peak weekend race days at Battery Spencer. Conditions are expected to be comfortable to manageably crowded, similar to crowding that is typically experienced under current conditions, and substantially less than the level of crowding that was observed on the Saturday of Fleet Week in 2011.

TABLE VUE-30: BATTERY SPENCER VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE C

	Battery Spencer Main Walkways	People at One Time
2011 Existing Conditions and Fleet Week Saturday		
2011 Weekday	A-	A
2011 Weekend	A	B
Fleet Week Saturday (10/8/2011)	B	D
2012 Race Conditions		
2012 Peak Race Weekday (2 days)	A	A
2012 Peak Weekend Race (4 days)	B	C
2013 Race Conditions		
2013 Peak Race Weekday (10 days)	A	C
2013 Peak Weekend Race (5 days)	B	D
2013 Medium High Weekend (6 days)	B	D
2013 Average Weekend (13 days)	A	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

As shown in Table VUE-30, LOS on 2013 race days could range between A and D. On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the onsite crowding conditions could reach LOS A through LOS C for most locations. Conditions are expected to be comfortable to manageably crowded, similar to current conditions and less crowded than the conditions observed on the Saturday of Fleet Week in 2011. However, without management actions and protection measures, areas where people would gather to watch AC34 events could be very

crowded (LOS D) on the five 2013 peak weekend and six medium high weekend race days. Without management actions and protection measures that would reduce effects of visitor density at this location, race days with very crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to minor levels.

4.7.8.9 Fort Baker

As shown in **Table VUE-31**, onsite crowding conditions could range between LOS A to LOS C on the 2012 peak weekday and peak weekend race days at Fort Baker. Conditions are expected to be comfortable to manageably crowded, similar to crowding that is typically experienced under current conditions, but could be slightly more crowded on 2012 peak weekend race days where people would gather to watch AC34 races. The level of crowding would likely be less than the level of crowding that was observed on the Saturday of Fleet Week in2011.

TABLE VUE-31: FORT BAKER VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE C

	Center Road	Moore Road	Sommerville Road	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	B	B	A	A
2011 Weekend	B	B	B	C
Fleet Week Saturday 10/8/2011	C	C	B	C
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	B	B	A	B
2012 Peak Weekend Race (4 days)	C	C	B	C
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	B	B	A	B
2013 Peak Weekend Race (5 days)	C	C	C	C
2013 Medium High Weekend (6 days)	B	B	B	C
2013 Average Weekend (13 days)	B	B	B	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the on-site crowding conditions could also reach LOS A to LOS C on the 2013 peak weekday and peak weekend race days at Fort Baker. Conditions are expected to be comfortable to manageably crowded, similar to crowding that is typically experienced under current conditions, but could be slightly more crowed on 2013 peak weekend race days where people would gather to watch AC34 races. The level of crowding would likely be less than the level of crowding that was observed on the Saturday of Fleet

Week in 2011. While excessive overall crowding is not expected, some protection measures could be implemented on peak 2012 and 2013 weekend race days to ensure visitor safety and access to viewing and use of trails to batteries, and park partner programs and services, such as the Bay Area Discovery Museum and Cavallo Point Lodge, restaurant, and spa, as well as operational USCG facilities, Travis marina, boat shop, and moorings. The overall short-term visitor safety, use, satisfaction, and understanding impact would be short-term and minor.

4.7.8.10 Alcatraz Island, Marin Headlands, Baker Beach, China Beach, and Lands End

Under Alternative C, it is expected that spectators would be drawn to the park as areas of displaced visitation, similar to Alternative B, and it is possible that excessive crowding could occur during 2013 peak weekend days. Without protection measures, such crowding could result in adverse visitor use and experience impacts, similar to those described under Alternative B. However, management actions and protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use conflicts, diminished visitor satisfaction, and understanding effect to minor levels.

4.7.8.11 Presidio of San Francisco (Area B)

Areas of the Presidio of San Francisco (Area B) are likely to experience increased visitation during the AC34 events, similar to Alternative B, and it is possible that excessive crowding could occur during 2013 peak weekend days. Without protection measures, such crowding could result in adverse visitor use and experience impacts, similar to those described under Alternative B. However, management actions and protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use conflicts, diminished visitor satisfaction, and understanding effect to minor.

4.7.8.12 United States Coast Guard Managed Nearshore Areas

Displaced or rerouted vessel traffic and the increased number of recreational vessels in the Bay could be in conflict with human-powered recreational uses along the project region shoreline, similar to Alternative B. In addition, NPS visitors to Alcatraz Island on regularly scheduled ferry service could be disrupted by increased recreational traffic and the race in 2013. On-water congestion could result in adverse visitor safety, use, and experience impacts, similar to those described under Alternative B. The USCG would work with NPS and the NPS contracted ferry service operator, along with ACRM, to ensure that delays do not exceed 10 minutes on average during afternoon race periods. This may be accomplished through an ACRM escort boat through the race course. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use conflict, diminished visitor satisfaction, and understanding effect to minor.

4.7.8.13 Cumulative Impacts

The impacts on visitor use and experience from Alternative C would combine with other effects from past, present, and reasonably foreseeable future projects on all lands managed by SAFR, the GGNRA, and the Presidio Trust, and offshore areas managed by the USCG. However, because most impacts

associated with Alternative C would be minor with implementation of protection measures, and because all other projects on federal lands have been or would be subject to project conditions or protection measures to reduce effects to visitor use and experience as much as feasible, the combined effect on visitor use and experience would be considered minor.

4.7.8.14 Conclusion

Implementation of Alternative C, including application of all protection measures, would result in an overall short-term minor effect. New park visitors, attracted to these sites as a result of AC34 races, would enjoy the experience of watching the races while also experiencing some of the natural, cultural, scenic, and recreational resources that make parklands unique, despite the lack of programming. Potential effects from very to severe crowding that could reduce visitor safety, use, and experience would be reduced through the use of crowd management; provision of additional portable restrooms, hand washing stations and emergency services; and expanded visitor education programming. The minor effects that may occur as a result of Alternative C, in combination with other effects from past, present, and reasonably foreseeable projects on federal lands and waters, would be considered minor.

4.7.9 Impacts of Alternative D—Modified Program Alternative

As described in Chapter 2 – Alternatives, the absence of programmed events on NPS lands under Alternative D – Modified Program Alternative would result in overall decreased numbers of spectators on those lands relative to Alternative B, but still substantially higher visitation than would be expected without AC34 races, particularly in the eastern part of San Francisco Bay. Correspondingly, spectator viewing from westerly locations would be reduced compared to Alternative B. As the analysis of impacts under Alternative B demonstrates, effects on visitor use and experience would result from very to severely crowded conditions. Therefore, although the intensity of effects or number of days affected would generally be lessened, the types of effects would remain essentially unchanged from those identified under Alternative B, above.

4.7.9.1 San Francisco Maritime Historical National Park

As shown in **Table VUE-32**, LOS on 2012 race days could range between B and D. Onsite crowding conditions could reach LOS B and LOS C on the 2012 peak weekday race days at the San Francisco Maritime Historical National Park. Conditions are expected to be busy, yet comfortable to manageably crowded. Conditions could be slightly more crowded than typically experienced under current conditions, but substantially less crowded than conditions observed on the Saturday of Fleet Week in 2011. However, without management actions and protection measures, pedestrian and bicycle flow conditions at the Jefferson Street area of the park, the Aquatic Park Promenade/Bay Trail at the Maritime Museum, and beach and lawn areas could be very crowded (LOS D)on the two 2012 peak weekend race days. Conditions would likely be more crowded than typically experienced under current conditions and slightly less crowded than conditions observed on the Saturday of Fleet Week in 2011. Without management actions and protection measures that would reduce effects of visitor density at this location, race days with very crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects.

TABLE VUE-32: SAN FRANCISCO MARITIME NATIONAL HISTORICAL PARK VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE D

	Jefferson Street (northeast entry to Aquatic Park)	Aquatic Park Promenade/ Bay Trail at Maritime Museum	Aquatic Park Promenade/ Bay Trail at West End of Aquatic Park	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	B	B	B	A
2011 Weekend	B	B	C	B
Fleet Week Saturday (10/8/2011)	D	E	C	F
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	B	C	C	B
2012 Peak Weekend Race (4 days)	D	D	C	D
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	B	C	C	B
2013 Peak Weekend Race (5 days)	D	D	C	D
2013 Medium High Weekend (6 days)	D	C	C	C
2013 Average Weekend (13 days)	C	C	C	B

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

As shown in Table VUE-32, LOS on 2013 race days could range between B and D. On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the onsite crowding conditions could also reach LOS C at the west end of Aquatic Park. Conditions could reach between LOS A and LOC C on the 2013 peak weekday and average weekend race days. Finally, conditions could also reach LOS C at the Aquatic Park Promenade/Bay Trail and the Maritime Museum on medium high weekend race days. Conditions are expected to be comfortable to manageably crowded. Conditions could be slightly more crowded than typically experienced under current conditions, but substantially less crowded than conditions observed on the Saturday of Fleet Week in 2011. However, without protection measures, pedestrian and bicycle flow conditions at the Jefferson Street area of the park, the promenade at the Maritime Museum, and the beach and lawn areas could be very crowded (LOS D) on the five 2013 peak weekend race days. In addition, pedestrian and bicycle flow conditions at the Jefferson Street area of the park could be very crowded on the six medium high weekend race days.

However, management actions and protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to minor levels.

4.7.9.2 Fort Mason

As shown in **Table VUE-33**, LOS on 2012 race days could range between B and F. On 2012 peak race weekdays, the onsite crowding conditions could reach LOS B and LOS C at east end of Fort Mason and could reach LOS C on 2012 peak race weekends along the Bay Trail. Conditions are expected to be busy, yet comfortable to manageably crowded for these 2012 AC34 periods at these locations, similar to the level of crowding that is typically experienced under current conditions and below the level of crowding that was observed on the Saturday of Fleet Week in 2011. However, without protection measures, the Fort Mason/Laguna Street entrance pathway and the piers, waterfront, and Bay Trail could become severely crowded (LOS F) on the two peak weekend race days. Without management actions and protection measures that would reduce effects of visitor density, race days with very or severely crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects.

TABLE VUE-33: FORT MASON VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE D

	Bay Trail at East End of Fort Mason	Fort Mason/ Laguna Street Entrance Point	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	B	C	B
2011 Weekend	B	D	C
Fleet Week Saturday (10/8/2011)	C	F	E
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	C	C	B
2012 Peak Weekend Race (4 days)	C	F	F
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	B	C	C
2013 Peak Weekend Race (5 days)	C	F	F
2013 Medium High Weekend (6 days)	C	F	E
2013 Average Weekend (13 days)	C	E	D

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

As shown in Table VUE-33, LOS on 2013 race days could range between B and F. On 2013 peak race weekdays, peak weekend race days, medium high weekend days, and average weekend days, the on-site crowding conditions could range between LOS B and LOS C at east end of Fort Mason. Conditions could reach LOS C on 2013 peak race weekdays at the Fort Mason/Laguna Street entrance pathway and the piers, waterfront, and Bay Trail. Conditions are expected to be busy, yet comfortable

for the 2012 AC34 periods at these locations, slightly higher than the level of crowding that is typically experienced under current conditions and slightly below the level of crowding that was observed on the Saturday of Fleet Week in 2011.Without protection measures, conditions could be very crowded (LOS D) to severely crowded (LOS F) on the five peak weekend race days, 6 medium high weekend race days, and 13 average weekend days at the Fort Mason/Laguna Street entrance pathway and the piers, waterfront, and Bay Trail. Without management actions and protection measures that would reduce visitor density, race days with very crowded to severely crowded conditions could result in adverse visitor safety, use, satisfaction, and understanding effects.

With application of the management actions and protection measures described under Alternative B, visitor safety, use, satisfaction, and understanding effects would be reduced through crowd control and other activities described above. It is likely that on some race days, some existing park visitors, such as bicyclists and joggers, would avoid this section of the park or experience a reduction in visitor satisfaction, even with the application of protection measures. However, these effects would be short-term, and use of and satisfaction with the area would be restored upon completion of the AC34 events. Overall, visitor safety, use, satisfaction, and understanding impacts would be minor to moderate with application of protection measures.

4.7.9.3 Crissy Field East

As shown in **Table VUE-34**, on-site crowding conditions could reach LOS A to LOS C on the 2012 peak weekday and peak weekend race days at Crissy Field East. Conditions are expected to be comfortable to manageably crowded. Conditions could be slightly more crowded on the peak race weekends than typically experienced under current conditions, but less crowded than conditions observed on the Saturday of Fleet Week in 2011.

As shown in Table VUE-34, LOS on 2013 race days could range between A and E. On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the onsite crowding conditions could reach LOS A to LOS C for most locations. Conditions are expected to be comfortable to manageably crowded, slightly more crowded than typically experienced under current conditions, but less crowded than conditions observed on the Saturday of Fleet Week in 2011. However, without management actions and protection measures, pedestrian and bicycle flow conditions on the multiuse path adjacent to Mason Street and conditions on the waterfront entry for east Crissy Field and the lawn and beach areas could be extremely crowded (LOS E) on the five 2013 peak weekend race days. In addition, the lawn and beach areas could be very crowded on the six medium high weekend days.

Without protection measures that would reduce visitor density at this location, race days with very crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects. However, management actions and protection measures described under Alternative B would be applied and include crowd control and other activities described above, thereby reducing the overall short-term visitor safety, use conflicts, diminished visitor satisfaction, and understanding impact to minor levels.

TABLE VUE-34: CRISSY FIELD EAST VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE D

	Mason Street side of Crissy Field East	Waterfront Entry for Crissy Field East	Wetlands at Crissy Field East	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	A	A	A	A
2011 Weekend	B	B	B	A
Fleet Week Saturday (10/8/2011)	C	B	B	D
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	A	A	A	A
2012 Peak Weekend Race (4 days)	B	B	B	C
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	B	C	A	C
2013 Peak Weekend Race (5 days)	E	C	C	E
2013 Medium High Weekend (6 days)	C	C	C	D
2013 Average Weekend (13 days)	C	B	B	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

4.7.9.4 Crissy Field West

As shown in **Table VUE-35**, on 2012 peak race weekdays and weekends, the onsite crowding conditions could reach LOS A to LOS C at Crissy Field West locations. Conditions are expected to be comfortable to manageably crowded for the 2012 AC34 periods at these locations. Conditions would be similar to the level of crowding typically experienced under current conditions and the level of crowding that was observed on the Saturday of Fleet Week in 2011, with the exception of slightly worse crowding that could occur on 2012 peak weekend race days at the intersection of Mason Street and Crissy Field Avenue.

As shown in **Table VUE-35**, LOS on 2013 race days could range between A and E. On 2013 peak weekday race days, the onsite crowding conditions could reach LOS A to LOS C at all Crissy Field West locations. Conditions could reach LOS B and LOS C on 2013 peak weekend, medium high weekend, and average weekend race days at most locations. Conditions are expected to be busy, yet comfortable for these 2013 race periods and locations. Conditions could be slightly more crowded than the level of crowding that is typically experienced under current conditions and that was observed on the Saturday of Fleet Week in 2011. However, without protection measures, pedestrian/bicyclists conditions could be very crowded to extremely crowded (LOS D and LOS E) on the five peak weekend and six medium high weekend race days and 13 average weekend race days at the Mason Street and Crissy Field Avenue intersection. Conditions could be very crowded on the five peak weekend race days at the beach and

TABLE VUE-35: CRISSY FIELD WEST VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE D

	Crissy Field Promenade/ Bay Trail at East End of Airfield	Crissy Field Promenade/ Bay Trail at West End of Airfield	Intersection of Mason Street and Crissy Field Avenue	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	A	A	C	A
2011 Weekend	B	B	C	A
Fleet Week Saturday (10/8/2011)	B	B	D	A
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	A	A	C	A
2012 Peak Weekend Race (4 days)	B	B	C	A
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	A	B	C	B
2013 Peak Weekend Race (5 days)	C	C	E	D
2013 Medium High Weekend (6 days)	B	B	D	C
2013 Average Weekend (13 days)	B	B	D	B

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

lawn areas. Without management actions and protection measures that would reduce effects of visitor density, race days with very crowded to severely crowded conditions could result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects. However, protection measures described under Alternative B would be applied including crowd control and other activities described above, thereby substantially reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to minor levels.

4.7.9.5 Crissy West Picnic Area

As shown in **Table VUE-36**, on-site crowding conditions could reach LOS A to LOS C on the 2012 peak weekday and peak weekend race days at Crissy West Picnic Area. Conditions are expected to be busy, yet comfortable, similar to crowding levels that are typically experienced under current conditions, and slightly less than the level of crowding that was observed on the Saturday of Fleet Week in2011.

As shown in Table VUE-36, LOS on 2013 race days could range between A and D. On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the onsite crowding conditions could reach LOS A to LOS C at most areas. Conditions are expected to be comfortable to manageably crowded. Conditions could be slightly more crowded than typically experienced under current conditions on peak weekend race days, and similar to conditions that were observed on the

TABLE VUE-36: CRISSY WEST PICNIC AREA VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE D

	Crissy Field Promenade/Bay Trail – East of Picnic Area	Crissy Field Promenade/Bay Trail Near Warming Hut	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	A	A	A
2011 Weekend	B	B	B
Fleet Week Saturday (10/8/2011)	B	B	C
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	A	A	A
2012 Peak Weekend Race (4 days)	B	B	C
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	A	A	A
2013 Peak Weekend Race (5 days)	C	C	D
2013 Medium High Weekend (6 days)	C	B	C
2013 Average Weekend (13 days)	B	B	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

Saturday Fleet Week in 2011. However, without protection measures, pedestrian/bicyclists conditions could be very crowded (LOS D) on the five peak weekend race days at the picnic area and pier. Without management actions and protection measures that would reduce effects of visitor density, race days with very crowded to severely crowded conditions could result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to minor levels.

4.7.9.6 Fort Point

As shown in **Table VUE-37**, onsite crowding conditions could reach LOS A to LOS C on the 2012 peak weekday and peak weekend race days at Fort Point locations. Conditions are expected to be comfortable to manageably crowded. Conditions could be slightly more crowded on the peak race weekends where people would gather to watch AC34 events than typically experienced under current conditions, and could be similar to conditions observed on the Saturday of Fleet Week in 2011.

As shown in Table VUE-37, LOS on 2013 race days could range between B and D. On 2013 peak weekday, medium high weekend, and average weekend race days, the onsite crowding conditions could also reach LOS A to LOS C at Fort Point locations. Conditions are expected to be comfortable to manageably crowded. Conditions could be slightly more crowded than typically experienced under

TABLE VUE-37: FORT POINT VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE D

	Long Avenue and Lincoln Boulevard Intersection	Marine Drive to Fort Point	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	B	B	A
2011 Weekend	B	C	C
Fleet Week Saturday (10/8/2011)	C	D	C
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	B	B	A
2012 Peak Weekend Race (4 days)	B	C	C
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	B	B	B
2013 Peak Weekend Race (5 days)	D	D	D
2013 Medium High Weekend (6 days)	C	C	C
2013 Average Weekend (13 days)	C	C	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

SOURCE: ORCA, 2012.

current conditions, and similar to conditions observed on the Saturday of Fleet Week in 2011. However, without management actions and protection measures, conditions could be very crowded (LOS D) on the five 2013 peak weekend race days. Without management actions and protection measures that would reduce visitor density at this location, race days with very crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects. However, management actions and protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to minor levels.

4.7.9.7 Golden Gate Bridge Overlook

As shown in **Table VUE-38**, onsite crowding conditions could range from LOS B and LOS C on the 2012 peak weekday and peak weekend race days at Golden Gate Bridge overlook locations. Conditions are expected to be busy, yet comfortable to manageably crowded, similar to current conditions, and less crowded than conditions observed on the Saturday of Fleet Week in 2011.

As shown in Table VUE-38, LOS on 2013 race days could range between B and D. On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the onsite crowding conditions could reach LOS B to LOS C for most locations. Conditions are expected to be busy, yet comfortable to manageably crowded, similar to current conditions and less crowded than conditions observed on the Saturday of Fleet Week in 2011. However, without management actions and

TABLE VUE-38: GOLDEN GATE BRIDGE OVERLOOK VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE D

	Coastal Trail at West Side of Golden Gate Bridge Overlook	Coastal Trail at East Side of Golden Gate Bridge Overlook	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday (Existing)	B	B	B
2011 Weekend (Existing)	B	C	C
Fleet Week Saturday (10/8/2011)	C	C	D
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	B	B	B
2012 Peak Weekend Race (4 days)	B	C	C
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	B	B	B
2013 Peak Weekend Race (5 days)	B	C	D
2013 Medium High Weekend (6 days)	B	C	D
2013 Average Weekend (13 days)	B	C	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

protection measures, areas where people would gather to watch AC34 events could be very crowded (LOS D) on the five 2013 peak weekend race days and the six medium high weekend race days. Without management actions and protection measures that would reduce effects of visitor density at this location, race days with very crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to negligible to minor levels.

4.7.9.8 Battery Spencer

As shown in **Table VUE-39**, onsite crowding conditions could range between LOS A to LOS C on the 2012 peak weekday and peak weekend race days at Battery Spencer. Conditions are expected to be comfortable to manageably crowded, slightly more crowded than typically experienced under current conditions and less crowded than conditions observed on the Saturday of Fleet Week in 2011.

As shown in **Table VUE-39**, LOS on 2013 race days could range between A and D. On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the onsite crowding conditions could range between LOS A to LOS C for most locations. Conditions are expected to be comfortable to manageably crowded, and slightly more crowded than current conditions and less crowded than conditions observed on the Saturday of Fleet Week in 2011. However, without

TABLE VUE-39: BATTERY SPENCER VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE D

	Battery Spencer Main Walkways	People at One Time
2011 Existing Conditions and Fleet Week Saturday		
2011 Weekday	A	A
2011 Weekend	A	B
Fleet Week Saturday (10/8/2011)	B	D
2012 Race Conditions		
2012 Peak Race Weekday (2 days)	A	A
2012 Peak Weekend Race (4 days)	B	C
2013 Race Conditions		
2013 Peak Race Weekday (10 days)	A	C
2013 Peak Weekend Race (5 days)	B	D
2013 Medium High Weekend (6 days)	B	D
2013 Average Weekend (13 days)	A	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

management actions and protection measures, areas where people would gather to watch AC34 events could be very crowded (LOS D) on the five 2013 peak weekend race days and the six medium high weekend race days.

Without management actions and protection measures that would reduce effects of visitor density at this location, race days with very crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to negligible to minor levels.

4.7.9.9 Fort Baker

As shown in **Table VUE-40**, on-site crowding conditions could reach LOS A to LOS C on the 2012 peak weekday and peak weekend race days at Fort Baker. Conditions are expected to be comfortable to manageably crowded, similar to crowding that is typically experienced under current conditions, but could be slightly more crowded on 2012 peak weekend race days where people gather to watch AC34 races. The level of crowding would likely be less than the level of crowding that was observed on the Saturday of Fleet Week in 2011.

On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the onsite crowding conditions could also reach LOS A to LOS C at Fort Baker. Conditions are expected to be comfortable to manageably crowded, slightly higher than crowding that is typically experienced

TABLE VUE-40: FORT BAKER VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE D

	Center Road	Moore Road	Sommerville Road	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	B	B	A	A
2011 Weekend	B	B	B	C
Fleet Week Saturday (10/8/2011)	C	C	B	C
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	B	B	A	B
2012 Peak Weekend Race (4 days)	C	C	B	C
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	B	B	A	B
2013 Peak Weekend Race (5 days)	C	C	C	C
2013 Medium High Weekend (6 days)	B	B	B	C
2013 Average Weekend (13 days)	B	B	B	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

under current conditions. The level of crowding would likely be similar to the level of crowding that was observed on the Saturday of Fleet Week in 2011. While excessive overall crowding is not expected, some protection measures could be implemented on peak 2012 and 2013 weekend race days to ensure visitor safety and access to viewing and use of trails to batteries, and park partner programs and services, such as the Bay Area Discovery Museum and Cavallo Point lodge, restaurant, and spa, as well as operational USCG facilities, Travis marina, boat shop and moorings. The overall short-term visitor safety, use, satisfaction, and understanding impact would be short-term and minor.

4.7.9.10 Alcatraz Island, Marin Headlands, Baker Beach, China Beach, and Lands End

Under Alternative D, it is expected that spectators would be drawn to the park as areas of displaced visitation, similar to Alternative B, and it is possible that excessive crowding could occur during 2013 peak weekend days. Without protection measures, such crowding could result in adverse visitor use and experience impacts, similar to those described under Alternative B. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use conflicts, diminished visitor satisfaction, and understanding effect to minor levels.

4.7.9.11 Presidio of San Francisco (Area B)

Under Alternative D, areas of the Presidio of San Francisco (Area B) are likely to experience increased visitation during the AC34 events, similar to Alternative B, and it is possible that excessive crowding could occur during 2013 peak weekend days. Without protection measures, such crowding could

result in adverse visitor use and experience impacts, similar to those described under Alternative B. However, management actions and protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use conflicts, diminished visitor satisfaction, and understanding effect to minor levels.

4.7.9.12 United States Coast Guard Managed Nearshore Areas

Under Alternative D, displaced or rerouted vessel traffic and the increased number of recreational vessels in the Bay could be in conflict with human-powered recreational uses along the project region shoreline, similar to Alternative B. In addition, NPS visitors to Alcatraz Island on regularly scheduled ferry service could be disrupted by increased recreational traffic and the race in 2013. On-water congestion could result in adverse visitor safety, use, and experience impacts, similar to those described under Alternative B. The USCG would work with NPS and the NPS contracted ferry service operator, along with ACRM, to ensure that delays do not exceed 10 minutes on average during afternoon race periods. This may be accomplished through an ACRM escort boat through the race course. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use conflicts, diminished visitor satisfaction, and understanding effect to minor levels.

4.7.9.13 Cumulative Impacts

The impacts on visitor use and experience from Alternative D would combine with other effects from past, present, and reasonably foreseeable future projects on all lands managed by SAFR, the GGNRA, and the Presidio Trust, and offshore areas managed by the USCG. However, because most impacts associated with Alternative D would be minor with implementation of protection measures, and because all other projects on federal lands have been or would be subject to project conditions or mitigation measures to reduce effects to visitor use and experience as much as feasible, the combined impacts on visitor use and experience would be considered minor.

4.7.9.14 Conclusion

Implementation of Alternative D, including application of all protection measures, would result in an overall short-term minor effect. New park visitors, attracted to these sites as a result of AC34 races, would enjoy watching the races while also experiencing some of the natural, cultural, scenic, and recreational resources that make parklands unique, despite the lack of programming. Potential adverse effects from very to severe crowding that could reduce visitor safety, use, and experience would be reduced through the use of crowd management; provision of additional restrooms, hand washing stations and emergency services; and expanded visitor education programming. The minor effects that may occur as a result of Alternative D, in combination with other effects from past, present, and reasonably foreseeable projects on federal lands and waters, would be considered minor.

4.7.10 Impacts of Alternative E—Preferred Alternative

As described in Chapter 2 – Alternatives, the absence of programmed events on NPS lands under Alternative E –Preferred Alternative would result in overall decreased numbers of spectators on those lands relative to Alternative B, but still substantially higher visitation than would be expected without AC34 races, particularly in the eastern part of San Francisco Bay. Correspondingly, spectator viewing from westerly locations would be reduced compared to Alternative B. As the analysis of impacts under Alternative B demonstrates, effects on visitor use and experience would result from very to severely crowded conditions. Therefore, although the intensity of effects or number of days affected would generally be lessened, the types of effects would remain essentially unchanged from those identified under Alternative B, above.

4.7.10.1 San Francisco Maritime Historical National Park

As shown in **Table VUE-41**, LOS on 2013 race days could range between B and D. Onsite crowding conditions could reach LOS B and LOS C on the 2012 peak weekday race days at the San Francisco Maritime Historical National Park. Conditions could also reach LOS C on AC72 and AC45 weekend days at the west end of Aquatic Park. Conditions are expected to be busy, yet comfortable to manageably crowded. Conditions could be slightly more crowded than typically experienced under current conditions, but substantially less crowded than conditions observed on the Saturday of Fleet Week in 2011. However, without management actions and protection measures, pedestrian and bicycle flow conditions at the Jefferson Street area of the park, the Aquatic Park Promenade/Bay Trail at the Maritime Museum, and beach and lawn areas could be very crowded (LOS D) on the four AC72 and AC45 weekend race days. Conditions would likely be more crowded than typically experienced under current conditions and slightly less crowded than conditions observed on the Saturday of Fleet Week in 2011. Without management actions and protection measures that would reduce effects of visitor density at this location, race days with very crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects.

As shown in Table VUE-41, LOS on 2013 race days could range between B and D. On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the onsite crowding conditions also reach LOS C at the west end of Aquatic Park. Conditions could reach between LOS B and LOC C on the 2013 peak weekday and average weekend race days. Finally, conditions could also reach LOS C at Aquatic Park Promenade/Bay Trail and the Maritime Museum, and at lawn/beach areas on medium high weekend race days. Conditions are expected to be busy, yet comfortable to manageably crowded. Conditions could be slightly more crowded than typically experienced under current conditions, but substantially less crowded than conditions observed on the Saturday of Fleet Week in 2011. However, without protection measures, pedestrian and bicycle flow conditions at the Jefferson Street area of the park, the promenade at the Maritime Museum, and the beach and lawn areas could be very crowded (LOS D) on the five 2013 peak weekend race days. In addition, pedestrian and bicycle flow conditions at the Jefferson Street area of the park could be very crowded on the six medium high weekend race days.

TABLE VUE-41: SAN FRANCISCO MARITIME NATIONAL HISTORICAL PARK VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE E

	Jefferson Street (northeast entry to Aquatic Park)	Aquatic Park Promenade/ Bay Trail at Maritime Museum	Aquatic Park Promenade/ Bay Trail at West End of Aquatic Park	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	B	B	B	A
2011 Weekend	B	B	C	B
Fleet Week Saturday (10/8/2011)	D	E	C	F
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	B	C	C	B
2012 Peak AC 72 Weekend Race (1 day)	D	D	C	D
2012 Peak AC45 Weekend Race (2 days)	D	D	C	D
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	B	C	C	B
2013 Peak Weekend Race (5 days)	D	D	C	D
2013 Medium High Weekend (6 days)	D	C	C	C
2013 Average Weekend (13 days)	C	C	C	B

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

However, management actions and protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to minor levels, given the reduced programming and adequate staffing levels augmented with SFPD deputized, commissioned officers in both 2012 and 2013.

4.7.10.2 Fort Mason

As shown in **Table VUE-42**, LOS on 2012 race days could range between B and F. On 2012 peak race weekdays, the on-site crowding conditions could reach LOS B and LOS Cat all Fort Mason areas. Conditions could also reach LOS C on AC72 and AC45 weekends at the Bay Trail at the east end of Fort Mason. Conditions are expected to be busy, yet comfortable to manageably crowded for these 2012 AC34 periods at these locations. However, without management actions and protection measures, the Fort Mason/Laguna Street entrance pathway could become severely crowded (LOS F) on the four AC72 and AC45 weekend race days. Conditions could also be extremely crowded (LOS E) at the piers, waterfront, and Bay Trail on the five 2012 AC72 and AC45 weekend race days.

TABLE VUE-42: FORT MASON VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE E

	Bay Trail at East End of Fort Mason	Fort Mason/ Laguna Street Entrance Point	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	B	C	B
2011 Weekend	B	D	C
Fleet Week Saturday (10/8/2011)	C	F	E
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	C	C	B
2012 AC 72 Weekend Race (2 days)	C	F	E
2012 AC45 Weekend Race (2 days)	C	F	E
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	C	C	B
2013 Peak Weekend Race (5 days)	C	F	E
2013 Medium High Weekend (6 days)	C	F	D
2013 Average Weekend (13 days)	C	E	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

As shown on Table VUE-42, LOS on 2012 race days could range between B and F. On 2013 peak race weekdays, peak weekend race days, medium high weekend days, and average weekend days, the on-site crowding conditions could reach LOS C at east end of Fort Mason. Conditions could reach LOS B on 2013 peak race weekdays at the waterfront piers, and Bay Trail. Conditions could reach LOS B and LOS C at the Fort Mason/Laguna Street entrance point on peak race weekdays, busy, yet comfortable to manageably crowded for these 2012 AC34 periods. However, without protection measures, conditions could be very crowded (LOS D) to severely crowded (LOS F) on the five (5) peak weekend race days, six medium high weekend race days, and thirteen average weekend days at the Fort Mason/Laguna Street entrance pathway. Conditions could be manageably crowded (LOS C) to extremely crowded (LOS E) on the five (5) peak weekend race days and six medium high weekend at the waterfront piers, and Bay Trail. Without management actions and protection measures that would reduce visitor density, race days with very crowded to severely crowded conditions could result in adverse visitor safety, use, satisfaction, and understanding effects.

With adoption of the management actions and protection measures by the project sponsors described above under Alternative B, visitor safety, use, satisfaction, and understanding effects would be reduced. It is likely that on some race days, some existing park visitors, such as bicyclists and joggers, would avoid this section of the park or experience a reduction in visitor satisfaction, even with the application of protection measures. However, these effects would be short-term, and use of and satisfaction with the area would be restored upon completion of the AC34 events. Overall, visitor safety, use, satisfaction, and

understanding impacts would be minor to moderate with application of protection measures along with associated staffing levels funded in concert with City staff provided as "safe street ambassadors." These ambassadors would manage maintaining safe dedicated bike lanes and enforce dismounting when necessary at the "pinchpoint" near Laguna Street and Marina Boulevard. They would also enforce road restrictions to provide additional bike capacity on peak and high interest weekends.

4.7.10.3 Crissy Field East

As shown in **Table VUE-43**, LOS on 2012 race days could range between A and D. Onsite crowding conditions could reach LOS A and B on the 2012 peak weekdays and on AC45 race days along the waterfront entry to Crissy East. Conditions are expected to be busy but comfortable for these race conditions and slightly more crowded than typically experienced under current conditions, and similar to conditions observed on the Saturday of Fleet Week in 2011. However, without protection measures, conditions could be manageably crowded (LOS D) on the four AC45 weekend race days at Mason Street entrance to Crissy East due to the adjacent programming on Marina Green. Conditions on Crissy East beach are projected to be very crowded (LOS D) on four peak weekends of 2012 as the race begins nearby off-shore. Without management actions and protection measures that would reduce visitor density, race days with very crowded conditions could result in adverse visitor safety, use, satisfaction, and understanding effects.

TABLE VUE-43: CRISSY FIELD EAST VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE E

	Mason Street side of Crissy Field East	Waterfront Entry for Crissy Field East	Wetlands at Crissy Field East	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	A	A	A	A
2011 Weekend	B	B	B	A
Fleet Week Saturday (10/8/2011)	C	B	B	D
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	A	A	A	B
2012 AC 72 Weekend Race (2 days)	C	B	B	D
2012 AC45 Weekend Race (2 days)	B	B	B	C
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	B	A	A	B
2013 Peak Weekend Race (5 days)	D	C	C	E
2013 Medium High Weekend (6 days)	C	B	B	C
2013 Average Weekend (13 days)	C	B	B	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

As shown in Table VUE-43, LOS on 2013 race days could range between B and E. On 2013 peak weekday and average weekend race days, the on-site crowding conditions could range between LOS B and LOS C, with conditions that are expected to be busy, but comfortable or manageably crowded. Conditions are also expected to range between LOS B and C on peak weekend race days at the waterfront entry for Crissy Field East and near the wetlands, and on medium high weekend race days at all locations except. However, without management actions and protection measures, pedestrian and bicycle flow conditions on the multiuse path and Class 1 bike lane entrance adjacent to Mason Street could be very crowded (LOS D) on the five 2013 peak weekend race days. Conditions could be extremely crowded (LOS E) at the beach and lawn areas on these days. Without protection measures that would reduce visitor density at this location, race days with very to extremely crowded conditions would result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects. While management actions and protection measures described under Alternative B would be applied, all impacts could not be reduced on peak weekend race days, though the overall short-term visitor safety, use conflicts, diminished visitor satisfaction, and understanding impact would be short-term and minor under Alternative E on most race days. On peak weekend afternoons in 2012 and 2013, moderate impacts may be experienced momentarily at the beach area and Mason Street/Marina Boulevard entrance to Crissy.

4.7.10.4 Crissy Field West

As shown in **Table VUE-44**, LOS on 2012 race days could range between A and D. On 2012 peak race weekdays and weekends, the onsite crowding conditions could reach LOS A to LOS C at Crissy Field West locations, with the exception of the intersection of Mason Street and Crissy Field Avenue. Conditions at most Crissy West locations are expected to be busy, but comfortable to manageably crowded for the 2012 AC34 periods similar to the level of crowding that is typically experienced under current conditions and the level of crowding that was observed on the Saturday of Fleet Week in 2011. However, pedestrian and bicycle flow conditions at the intersection of Mason Street and Crissy Field Avenue could be very crowded (LOS D) on the four AC45 weekend race days. Without protection measures that would reduce visitor density at this location, race days with very crowded conditions would result in adverse visitor safety, use conflicts, and diminished visitor satisfaction effects.

As shown in Table VUE-44, LOS on 2013 race days could range between A and D. On 2013 peak race weekdays, medium high weekend, and average weekend race days, conditions could range between LOS A and LOS C (with the exception of the intersection of Mason Street and Crissy Field Avenue). In addition, conditions could reach LOS B at the Bay Trail at the east end of the air field and could reach LOS C at the lawn and waterfront areas on peak weekend race days. Conditions are expected to be busy, yet comfortable to manageable crowded for these 2013 race periods and locations. Conditions could be slightly more crowded than the level of crowding that is typically experienced under current conditions and that was observed on the Saturday of Fleet Week in 2011 at these sites. However, pedestrian/bicyclists conditions could be very crowded (LOS D) on the five peak weekend race days in 2013 at the Crissy Field Promenade/Bay Trail and the intersection of Mason Street and Crissy Field Avenue. Conditions could be very crowded on the six medium high weekend race days at the intersection of Mason Street and Crissy Field Avenue. Without management actions and protection measures that would reduce effects of visitor density, race days with very crowded to severely crowded conditions could result in adverse visitor safety, use conflicts, and diminished visitor satisfaction effects.

TABLE VUE-44: CRISSY FIELD WEST VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE E

	Crissy Field Promenade/ Bay Trail at East End of Airfield	Crissy Field Promenade/ Bay Trail at West End of Airfield	Intersection of Mason Street and Crissy Field Avenue	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	A	A	C	A
2011 Weekend	B	B	C	A
Fleet Week Saturday (10/8/2011)	B	B	D	A
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	A	A	C	A
2012 AC 72 Weekend Race (2 days)	B	B	D	C
2012 AC45 Weekend Race (2 days)	B	B	D	A
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	A	A	C	A
2013 Peak Weekend Race (5 days)	C	C	D	C
2013 Medium High Weekend (6 days)	B	B	D	C
2013 Average Weekend (13 days)	B	B	C	B

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

Protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, and satisfaction, impacts to minor levels, with less displacement and cumulative effects than under the original sponsor proposed project, Alternative B.

4.7.10.5 Crissy West Picnic Area

As shown in **Table VUE-45**, on-site crowding conditions could range between LOS A and LOS C on the 2012 peak weekday and AC72/AC45 weekend race days at Crissy West Picnic Area. Conditions in 2012 are expected to range from busy, but comfortable in 2012 due to the eastward shift in the race course away from Crissy Field West. On peak weekend race days, conditions could be slightly more crowded than typically experienced under current conditions and similar to conditions observed on the Saturday of Fleet Week in 2011.

As shown in **Table VUE-45,** LOS on 2013 race days could range between A and D due to the central race course start offshore and larger AC72 race boats. Onsite crowding conditions could range between LOS A and LOS C for all race conditions at most locations along the Promenade, with the exception of the picnic area and pier. Conditions on the Promenade are expected to range from comfortable to manageably crowded, though on the pier and in picnic areas it could become very crowded (LOS D) on the five peak weekend race days, slightly more crowded than typically experienced under current conditions and similar to conditions observed on the Saturday of Fleet

TABLE VUE-45: CRISSY WEST PICNIC AREA VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE E

	Crissy Field Promenade/Bay Trail – East of Picnic Area	Crissy Field Promenade/Bay Trail Near Warming Hut	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	A	A	A
2011 Weekend	B	B	B
Fleet Week Saturday (10/8/2011)	B	B	C
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	A	A	A
2012 AC 72 Weekend Race (2 days)	B	B	C
2012 AC45 Weekend Race (2 days)	B	B	C
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	A	A	A
2013 Peak Weekend Race (5 days)	C	B	D
2013 Medium High Weekend (6 days)	B	B	C
2013 Average Weekend (13 days)	B	B	B

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

Week in 2011. However, without protection measures, conditions could be very crowded (LOS D) on the five peak weekend race days at the picnic area and pier. Without management actions and protection measures that would reduce effects of visitor density, race days with very crowded conditions could result in adverse visitor safety, use conflicts, and diminished visitor satisfaction effects. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, and satisfaction, impacts to minor levels.

4.7.10.6 Fort Point

As shown in **Table VUE-46**, onsite crowding conditions could range from LOS A to LOS C on the 2012 peak weekday and AC72/AC45 weekend race days at Fort Point locations. Conditions are expected to be comfortable to manageably crowded. Conditions could be slightly more crowded than typically experienced under current conditions, and similar to conditions observed on the Saturday of Fleet Week in 2011, as visitors seek to walk away from crowds in other areas.

As shown in Table VUE-46, LOS on 2013 race days could range between A and D. Onsite crowding conditions could range between LOS A and LOS C for all race conditions at all locations moving toward Fort Point, with the exception of the waterfront viewing areas where conditions are expected to range from comfortable to manageably crowded. Conditions could be slightly more crowded than typically experienced under current conditions, and similar to conditions observed on the Saturday of

TABLE VUE-46: FORT POINT VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE E

	Long Avenue and Lincoln Boulevard Intersection	Marine Drive to Fort Point	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	B	B	A
2011 Weekend	B	C	C
Fleet Week Saturday (10/8/2011)	C	D	C
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	B	B	A
2012 AC 72 Weekend Race (2 days)	C	C	C
2012 AC45 Weekend Race (2 days)	B	C	C
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	B	B	A
2013 Peak Weekend Race (5 days)	D	C	D
2013 Medium High Weekend (6 days)	C	C	C
2013 Average Weekend (13 days)	B	C	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

SOURCE: ORCA, 2012.

Fleet Week in2011.However, without protection measures, the waterfront viewing areas and the intersection of Long Avenue and Lincoln Boulevard could be very crowded (LOS D) on the five peak weekend race days. Without management actions and protection measures that would reduce effects of visitor density, peak weekend race days with very crowded conditions could result in adverse visitor safety, use conflicts, diminished visitor satisfaction, and understanding effects. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to minor levels.

4.7.10.7 Golden Gate Bridge Overlook

As shown in **Table VUE-47**, onsite crowding conditions could range from LOS A to LOS C on the 2012 peak weekday and AC45 peak weekend race days at Golden Gate Bridge overlook locations. Conditions are expected to be comfortable to manageably crowded, similar to those typically experienced under current conditions, and less crowded than conditions observed on the Saturday of Fleet Week in 2011.

As shown in Table VUE-47, LOS on 2013 race days could range between A and D. Onsite crowding conditions could range between LOS A and LOS C for all race conditions at most locations, with the exception of the San Francisco Bay viewing areas. Conditions are expected to range from comfortable to manageably crowded at these locations, similar to those typically experienced under current conditions, and less crowded than conditions observed on the Saturday of Fleet Week in 2011. The

TABLE VUE-47: GOLDEN GATE BRIDGE OVERLOOK VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE E

	Coastal Trail at West Side of Golden Gate Bridge Overlook	Coastal Trail at East Side of Golden Gate Bridge Overlook	People at One Time
2011 Existing Conditions and Fleet Week Saturday			
2011 Weekday	B	B	B
2011 Weekend	B	C	C
Fleet Week Saturday (10/8/2011)	C	C	D
2012 Race Conditions			
2012 Peak Race Weekday (2 days)	B	B	B
2012 AC 72 Weekend Race (2 days)	B	C	C
2012 AC45 Weekend Race (2 days)	B	C	C
2013 Race Conditions			
2013 Peak Race Weekday (10 days)	B	B	B
2013 Peak Weekend Race (5 days)	B	C	D
2013 Medium High Weekend (6 days)	B	C	C
2013 Average Weekend (13 days)	B	C	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

Bay viewing areas could be very crowded (LOS D) on the five (5) peak weekend race days as visitors try to catch a glimpse of the races. Without management actions and protection measures that would reduce effects of visitor density, race days with very crowded conditions could result in adverse visitor safety, use conflicts, and diminished visitor satisfaction effects. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact to minor levels.

4.7.10.8 Battery Spencer

As shown in **Table VUE-48**, on-site crowding conditions could range between LOS A to LOS C on the 2012 peak weekday and AC72/AC45 weekend race days at Battery Spencer (and on Conzelman Road) due to the race being shifted further east along the San Francisco waterfront in 2012. Conditions are expected to be comfortable to manageably crowded slightly more crowded than typically experienced under current conditions, and less crowded than conditions observed on the Saturday of Fleet Week in 2011.

As shown in Table VUE-48, LOS on 2013 race days could range between A and D. On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the on-site crowding conditions could range between LOS A to LOS C for most locations. Conditions are expected to be comfortable to manageably crowded, slightly more crowded than current conditions and less crowded

TABLE VUE-48: BATTERY SPENCER VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE E

	Battery Spencer Main Walkways	People at One Time
2011 Existing Conditions and Fleet Week Saturday		
2011 Weekday	A	A
2011 Weekend	A	B
Fleet Week Saturday (10/8/2011)	B	D
2012 Race Conditions		
2012 Peak Race Weekday (2 days)	A	A
2012 AC 72 Weekend Race (2 days)	B	C
2012 AC45 Weekend Race (2 days)	B	C
2013 Race Conditions		
2013 Peak Race Weekday (10 days)	A	C
2013 Peak Weekend Race (5 days)	B	D
2013 Medium High Weekend (6 days)	B	D
2013 Average Weekend (13 days)	A	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

than conditions observed on the Saturday of Fleet Week in 2011. However, without management actions and protection measures, areas where people would gather to watch AC34 events could be very crowded (LOS D) on the five 2013 peak weekend race days. Without management actions and protection measures that would reduce effects of visitor density at this location, race days with very crowded conditions would result in adverse visitor safety, use conflicts, and diminished visitor satisfaction effects. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use, satisfaction, and understanding impact from negligible in 2012 to minor levels in 2013 due to a longer duration of crowding and larger amount of displacement from crowding in San Francisco.

4.7.10.9 Fort Baker

As shown in **Table VUE-49**, onsite crowding conditions could reach LOS A to LOS C on the 2012 peak weekday and AC45 weekend race days at Fort Baker, busy, but comfortable to manageably crowded, similar to crowding that is typically experienced under current conditions. The level of crowding would likely be less than the level of crowding on the Saturday of Fleet Week in 2011.

On 2013 peak weekday, peak weekend, medium high weekend, and average weekend race days, the on-site crowding conditions are more likely to reach LOS A to LOS C at Fort Baker. Conditions are expected to be busy, but comfortable to manageably crowded, slightly higher than crowding that is typically experienced under current condition, and similar to that observed on the Saturday of Fleet

TABLE VUE-49: FORT BAKER VISITOR USE LEVEL OF SERVICE PROJECTIONS FOR ALTERNATIVE E

	Center Road	Moore Road	Sommerville Road	People at One Time
2011 Existing Conditions and Fleet Week Saturday				
2011 Weekday	B	B	A	A
2011 Weekend	B	B	B	C
Fleet Week Saturday (10/8/2011)	C	C	B	C
2012 Race Conditions				
2012 Peak Race Weekday (2 days)	B	B	A	B
2012 AC 72 Weekend Race (2 days)	C	C	B	C
2012 AC45 Weekend Race (2 days)	C	C	B	C
2013 Race Conditions				
2013 Peak Race Weekday (10 days)	B	B	A	B
2013 Peak Weekend Race (5 days)	C	C	C	C
2013 Medium High Weekend (6 days)	B	B	B	C
2013 Average Weekend (13 days)	B	B	B	C

NOTES: Level of Service (LOS) conditions are estimates used to assess potential visitor use and experience effects. The perceived LOS conditions could be somewhat higher on particularly high interest race event periods, such as afternoons of actual peak weekend races.

-- = Not calculated

SOURCE: ORCA, 2012.

Week in 2011. While excessive overall crowding is not expected, some protection measures could be implemented on peak 2012 and 2013 weekend race days to ensure visitor safety, resource protection, use of trails, and park partner programs and services, such as the Bay Area Discovery Museum, Cavallo Point lodge, restaurant and spa, as well as operational USCG facilities, Travis marina, boat shop and moorings. The overall visitor safety, use, satisfaction, and understanding impact would be short-term and minor, and without impacts on pier fishing, due to the lack of any proposed special AC34 events on that pier.

4.7.10.10 Marin Headlands, Baker Beach, China Beach, Lands End, and Alcatraz Island

Alcatraz Island. Secondary viewing from Alcatraz Island would be limited by the availability and schedule of ferry services to the island and limited access to food and snacks on the island. And afternoon access may be effected during short term race periods in 2013 for no more than 10 minutes from scheduled departure times; however, with Management actions, these delays will be very limited to actual race periods, and be supported otherwise with escorts thru the race box by ACRM escorts. Visitors may seek extended stays on Alcatraz to view the races; however, they may experience additional security screening at the point of embarkation, Pier 31 ½. Further, group access to Alcatraz Island for after hours special events would be managed so as to minimize effects on both park visitor embarkation at Pier 31½ (Protection Measure VUE-8),and staffing operations, already busy with the AC34 event management in other park locations. Impacts on the Alcatraz visitor experience will be

negligible to minor with access to the point of Embarkation addressed in the transportation section under the City's Mini-People plan for the Embarcadero.

Marin Headlands(proper). Though not a viewing area, uses and programs in the Ft.Barry –Cronkhite area of the Marin headlands could experience increased visitation from displacement from other park areas during the 2012 and 2013 AC34 races. This would result mostly in access issues on peak weekends that are addressed in the Transportation section. When it is congested on auxiliary access roads into the Headlands, Fire/EMS responses could also be effected. Protective Measures have been established to address that by insuring traffic controls on intersections and at the tunnel will be available on peak and high interest weekend days under the NPS Incident Command System implemented to maintain fire lanes; and, EMS personnel could also be pre-positioned, as needed, to address maintaining average response times consistent with SMFPD standards.

Baker Beach, Presidio Bluffs, China Beach, and Lands End

Under Alternative E, it is expected that spectators would be drawn to the park as areas of displaced visitation, similar to Alternative B, and it is possible that excessive crowding could occur during 2013 peak weekend days. Without protection measures, such crowding could result in adverse visitor use and experience impacts, similar to those described under Alternative B. However, management and protection measures, such as those described under Alternative B, would also apply to these areas, where applicable, though no specific parking and traffic controls would be set up for these SF areas which would be covered by normal park patrols. With application of relevant management actions and protection measures, visitor safety and diminished visitor satisfaction effects would be short-term and minor.

4.7.10.11 Presidio of San Francisco (Area B)

Under Alternative E, areas of the Presidio of San Francisco (Area B) are likely to experience increased visitation during the AC34 events, similar to Alternative B, and it is possible that excessive crowding could occur during 2013 peak weekend days. Without protection measures, such crowding could result in adverse visitor use and experience impacts, similar to those described under Alternative B. However, management actions and protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use conflicts, diminished visitor satisfaction, and understanding effect to minor levels.

4.7.10.12 United States Coast Guard Managed Nearshore Areas

Under Alternative E, displaced or rerouted vessel traffic and the increased number of recreational vessels in the Bay could be in conflict with human-powered recreational uses along the project region shoreline, similar to Alternative B. In addition, NPS visitors to Alcatraz Island on their regularly-scheduled ferry service could be disrupted by increased recreational traffic and the race in 2013. On water congestion could result in adverse visitor safety, use, and experience impacts, similar to those described under Alternative B. The USCG would work with NPS and the NPS contracted ferry service operator, along with ACRM, to ensure that delays do not exceed 10 minutes on average during afternoon race periods. This may be accomplished through an ACRM escort boat through the race

course. However, protection measures described under Alternative B would be applied, thereby reducing the overall short-term visitor safety, use conflicts, diminished visitor satisfaction, and understanding effect to minor levels.

4.7.10.13 Cumulative Impacts

The impacts on visitor use and experience from Alternative E would combine with other effects from past, present, and reasonably foreseeable future projects on all lands managed by SAFR, the GGNRA, and the Presidio Trust, and offshore areas managed by the USCG. Of particular note, the second World Series race events would occur during Fleet Week in 2012 under Alternative E, which would result in a greater cumulative visitation to the region. Further, Doyle Drive construction activities would limit access to waterfront areas and through federally managed lands in the vicinity of AC34 and Fleet Week activity and viewing areas. In addition, the 2013 Fleet Week events would re-occur within two weeks after the final AC34 races. In addition to the LOS estimated for AC34 race conditions as described above, without management actions and protection measures, LOS could be elevated with the addition of Fleet Week visitors. In particular, estimated crowding levels would increase at the following locations[4]:

- Aquatic Park – promenade near the bath house and lawn/beach areas
- Fort Mason - piers and waterfront areas
- Crissy Field East – pathway adjacent to Mason Street and beach/lawn areas
- Crissy Field West and Crissy West Picnic Area – lawn, picnic, waterfront/pier areas
- Fort Point – Marine Drive to Fort Point
- Golden Gate Bridge Overlook – Coastal Trail at the west side of the plaza and viewing locations
- Battery Spencer – walkways and viewing area
- Fort Baker – Moore Road and viewing areas

Because most impacts associated with Alternative E would be minor with implementation of protection measures, and because all other projects, other than Fleet Week on federal lands have been or would be subject to project conditions or mitigation measures to reduce effects to visitor use and experience as much as feasible, the combined impacts on visitor use and experience would be considered minor to moderate.

[4] As described in Chapter 2–Alternatives, a portion of the 2012 America's Cup World Series (ACWS) race schedule was modified to coincide with the Fleet Week activities. As this schedule modification occurred late in the alternatives development process, and factored only into the development of Alternative E at the value analysis workshop, the impacts of such are not included in the analyses of the other action alternatives. However, if Fleet Week had been represented among the cumulatively considerable projects analyzed under those alternatives, the impacts would have been similar to those described for Alternative E.

4.7.10.14 Conclusion

Implementation of Alternative E, including application of all protection measures, would result in an overall short-term minor to moderate effect. New park visitors, attracted to these sites as a result of AC34 races, would enjoy watching the races while also experiencing some of the natural, cultural, scenic, and recreational resources that make parklands unique, despite the lack of programming. Potential adverse effects from shorter periods of crowding due to lower visitation levels could temporarily reduce visitor safety, use, and experience that would be addressed through adoption of management and protective measures in project sponsor permits. These would range from an ICS augmented by SFPD deputized, commissioned officers along with City staff acting as "safe street ambassadors" to dedicated bike lanes, bike and sailboard storage lockers, and added traffic controls and other visitor use management measures; provision of additional restrooms, hand washing stations, added emergency services; and visitor education programming emphasizing maritime history and Bay Area ecology. The minor effects that may occur as a result of Alternative E, in combination with other effects from past, present, and reasonably foreseeable projects on federal lands and waters, would be considered minor to moderate, depending on the race location and race year series, with primary NPS viewing sites in 2013 more impacted.

4.7.11 Mitigation Measures

No mitigation would be warranted with regard to visitor use and experience under any of the project alternatives as the co-Project Sponsors, primarily the City and County of SF for lands, and the America's Cup Race Management for waters, would assume primary responsibilities for either providing the Management and Protection Measures herein or will be responsible for funding of such in order to obtain the federal permits required to conduct these AC34 race event series. All potential effects on visitor use and experience have been addressed through the-specific protection measures associated with each of the project alternatives.

4.7.12 References

National Park Service (NPS)

2000 "Strategic Plan FY2001-FY2005." August 2000. Available on the Internet at <https://planing.nps.gov/document/NPS_Strategic_plan.pdf>. Viewed on January 20, 2012.

2006 *NPS Management Policies 2006*. Prepared by National Park Service. Viewed on February 29, 2012.

ORCA

2012 "America's Cup 34 – NEPA Analysis Scenarios and Locations: Visitation Estimates Report," January 10 (with revisions provided June 5).

Presidio Trust

2002 *Presidio Trust Management Plan*. Available on the Internet at <http://www.presidio.gov/trust/documents/environmentalplans/ptmp.htm>.

San Francisco Fire Department

2012 Fire Code Section 5.10, "Safety Requirements for Regulated Activities at Outdoor Food and Street Fair." Available on the Internet at <http://38.106.4.187/index.aspx?page=1148>. Viewed on January 20, 2012.

Shacklett, Al

2012 Personal communication between Al Shacklett, ORCA, and Alisa Moore, Environmental Science Associates, January 20, 2012.

4.8 SOUNDSCAPE AND NOISE

This section assesses the potential soundscape and noise impacts of the AC34 project, including short-term construction noise impacts and noise impacts from vehicle traffic, marine vessels, and other operations during the AC34 events.

This section discusses potential project-related noise and vibration impacts on humans. Noise effects on marine and terrestrial wildlife as a sensitive receptor are dependent on species and a number of biological factors; those environments and effects are addressed in Sections 3.5 and 4.5, Biological Resources.

4.8.1 Study Area/Context

The project area is located within the San Francisco Bay Area and includes urbanized portions of the San Francisco waterfront as well as recreation areas operated by the National Park Service (NPS). The proposed action alternatives would increase ambient noise levels from a variety of sources during both construction activities and operations of the AC34 events. Temporary, construction-related ground vibration caused by pile driving at Marina Green may occur. The consequences analysis examines potential noise and soundscape impacts on federal lands and adjacent receptors from permitted actions on federal lands. Construction and operation elements of AC34 that are sufficiently distant from federal lands (one mile away or more) and therefore would not represent a federally permitted action are presumed to have negligible impacts to federal lands and are not evaluated in this analysis. Cumulative noise effects are assessed by considering construction activities of other projects in the vicinity of federal lands and vehicle contributions to local roadways from other projects.

4.8.2 Issues

Construction activities that would be associated with the AC34 project are expected to occur at various locations, primarily along the waterfront during 2012 and 2013, the same years that project operations would occur. The durations and types of construction activities would vary depending on site conditions and may include site preparation, placement of infrastructure, placement of foundations for structures, and fabrication of structures. Pile driving would not occur on federal lands but would be required for pile replacement and installation of floating boat slips, and docks off of Marina Green and could affect visitors of the adjacent Fort Mason. No other pile driving activities associated with the action alternatives would occur within one mile of federal lands. These activities in particular would have the potential to generate substantial noise levels depending on the duration of the activity and the proximity to sensitive receptors.

Less extensive construction activities would be required for temporary installations, such as placement of barges and installation of hospitality and spectator areas (tents and bleachers, etc.). These construction activities would be more typical of those that commonly occur for single-day events in San Francisco waterfront areas, such as the San Francisco Marathon and other foot-race events. These construction activities typically do not involve impact equipment or heavy-duty off-road diesel construction equipment.

Operation of the America's Cup events would result in the temporary introduction of both stationary and mobile noise sources. Stationary noise sources would include the operation of power generators to provide lighting and other electrical services to spectator areas and team support areas as well as the operation of public address systems and amplification equipment at spectator areas with entertainment venues. Mobile noise sources associated with AC34 events would include operation of helicopters used for AC34 2012 and AC34 2013 races to serve broadcasting and media operations as well as increased vehicle traffic on the local roadway network.

4.8.3 Guiding Regulations and Policies

4.8.3.1 2006 National Park Service Management Policies

NPS Management Policies 2006 describe applicable soundscape management policies. These policies are designed in accordance with the Organic Act of 1916 and strive to manage national parks in a way that will preserve them for the enjoyment of future generations. The policies state that the NPS will preserve, to the greatest extent possible, the natural soundscapes of parks.

The policies state that the "NPS will restore to the natural condition wherever possible those park soundscapes that have become degraded by unnatural sounds (noise), and will protect natural soundscapes from unacceptable impacts. Using appropriate management planning, superintendents will identify what levels and types of unnatural sound constitute acceptable impacts on park natural soundscapes" (NPS 2006). The frequencies, magnitudes, and durations of acceptable levels of unnatural sound will vary throughout a park, being generally greater in developed areas.

4.8.3.2 Director's Order 47 – Soundscape Preservation and Noise Management

NPS Directors Orders are one of several types of written guidance created for the proper management of national parks. The key directive from Director's Order 47 is that where natural soundscape conditions are currently not affected by inappropriate noise sources, the objective must be to maintain those conditions. Where the soundscape is found to be degraded, the objective is to facilitate and promote progress toward the restoration of the natural soundscape. There are instructions and requirements outlined in Director's Order 47.

4.8.3.3 Federal Noise Act

The Federal Noise Act prohibits removing of noise control devices or rendering them inoperable and requires the United States Environmental Protection Agency (U.S. EPA) to act as federal coordinator for noise control efforts and establishing noise control standards. The intent of this regulation, according to the NEPA handbook of the United States Geological Survey, is to ensure that proposed new construction or operations and aircraft landing, take-off, and launching patterns that may increase noise in neighboring communities are evaluated for potential noise impacts.

4.8.3.4 Federal Aviation Administration Regulations

Federal Aviation Administration (FAA) Order 1050.1E, FAA Order 5050.4B and Title 14—Aeronautics and Space Chapter I—Federal Aviation Administration, Department Of Transportation Subchapter I—Airports Part 150—Airport Noise Compatibility Planning (FAR Part 150) provide the regulatory framework for noise related to aircraft operation, including helicopters. Order 1050.1E requires that a significant noise impact must be determined though the use of the Integrated Noise Model (INM) (or other FAA-approved noise model) along with local land use guidance and general guidance contained in Appendix A of FAR Part 150. Appendix A of FAR Part 150 states "for the purpose of compliance with this part, all land uses are considered to be compatible with noise levels less than DNL (or CNEL in California) 65 dB. Local needs or values may dictate further delineation based on local requirements or determinations".

4.8.3.5 Local Noise Regulations

With regard to construction noise, the San Francisco Noise Ordinance (Article 29 of the San Francisco Police Code) prohibits the operation of any powered construction equipment emitting noise at a level in excess of 80 dBA at 100 feet, or an equivalent sound level at some other distance. This limit does not apply to impact tools and equipment, such as pile drivers, pavement breakers, and jackhammers, provided such equipment is fitted with approved noise control features.

4.8.4 Assessment Methods/Thresholds

A variety of sources are used to guide the analytic of approach and thresholds used to assess noise impacts. These sources include the following:

- Impact criteria contained in the guidance document of the U.S. Department of Transportation, Federal Transit Administration: *Transit Noise and Vibration Impacts Assessment (FTA2006)*;
- Findings of the Federal Interagency Committee on Noise (FICON 1992);
- Guidance of the U.S. Department of Transportation, Federal Highway Administration, *Highway Traffic and Construction Noise, Problem and Response*; and
- City and County of San Francisco noise ordinances.

To assess potential short-term construction noise impacts, sensitive receptors and their relative exposure are identified. Combined intermittent noise levels from the simultaneous operation of onsite equipment expected to be used in project construction were determined based on a study of measured construction equipment noise in the Roadway Construction Noise Model of the Federal Highway Administration (FHWA). Based on these noise levels and a typical noise attenuation rate, resultant noise levels at noise-sensitive receptors were calculated. Consistent with the guidance for determination of construction noise impacts of the Federal Transit Administration (FTA), impacts are assessed assuming simultaneous operation of the two noisiest pieces of construction equipment (FTA 2006).

Operational noise impacts would be associated with (1) noise generated by increases in vehicle traffic and marine vessel operations, (2) operation of generators for auxiliary power supply at public venue and support sites, (3) amplified sound systems for public address and entertainment venues, and (4) helicopter operations for televising race events.

4.8.4.1 Analysis Thresholds - Construction Noise

Construction phase-related noise impacts would occur during 2012 and 2013, the same years as the operation of AC34 events. FHWA guidance states that construction noise should generally be addressed in a qualitative, rather than quantitative, manner commensurate with the scope of the project, but that construction noise levels may be predicted, if warranted. Construction noise impact criteria are suggested in the Federal Transit Administration (FTA) guidance which identifies a one-hour Leq of 90 dBA for daytime and 80 dB for nighttime construction noise exposure at residential uses and other noise sensitive land uses with significant outdoor use such as NPS lands. Commercial and industrial land use exposure to construction noise of 100 dBA is suggested as an assessment criterion. Additionally, the City and County of San Francisco noise ordinance prohibits the operation of any powered construction equipment emitting noise at a level in excess of 80 dBA at 100 feet, or an equivalent sound level at some other distance. This limit does not apply to impact tools and equipment, such as pile drivers, pavement breakers, and jackhammers, provided such equipment is fitted with approved noise control features.

The following impact thresholds were established to describe the construction noise effects under the various alternatives being considered. Unless otherwise indicated all construction noise impacts discussed are local, short-term, and adverse.

Negligible Impact: Construction noise would be below ambient noise levels, or would exceed them 5 percent of the time or less.

Minor Impact: Construction noise would exceed ambient noise levels but would not result in a perceived doubling of noise over ambient levels (a 10 dBA increase) at residential or parkland uses and these increases would occur between five and 25 percent of the time.

Moderate Impact: Construction noise would exceed 10 dBA over ambient levels but would be less than 90 dBA during daytime hours or 80 dBA during nighttime hours at residential or parkland uses, or 100 dBA at commercial or industrial land uses at any time. These increases would occur no more than 50 percent of the time.

Major Impact: Construction noise would meet or exceed 90 dBA during daytime hours or 80 dBA during nighttime hours at residential or parkland uses, or 100 dBA at commercial or industrial land uses at any time. These increases would occur more than 50 percent of the time.

4.8.4.2 Analysis Thresholds – Operational Vehicle Traffic Noise

Traffic noise level significance is determined by comparing the increased traffic noise levels to the Federal Interagency Committee on Noise (FICON) significance recommendations, which assess the annoyance effects of changes in ambient noise levels resulting from aircraft operations (FICON 1992). Although the FICON recommendations were specifically developed to assess aircraft noise impacts, they are

applicable to all sources of noise described in terms of cumulative noise exposure metrics such as the L_{dn}. Per FICON significance recommendations, an increase in traffic noise of 3 dBA or more would be significant where the ambient noise level is between 60 and 65 dBA L_{dn}, and an increase of 1.5 dBA or more would be significant where the ambient noise level is more than 65 dBA L_{dn}. For noise environments below 60 dBA, L_{dn}, a transportation noise increase of 5.0 dBA or greater is used as a significance threshold for major adverse impacts. These recommendations are used in the noise impact criteria developed by the Federal Transit Administration (FTA) and presented in **Figure NOI-1**. Figure NOI-1 does not make a distinction between negligible and minor noise impacts. As a practical matter, this analysis identifies a negligible impact as a resultant increase in noise levels that would not round up to the next whole decibel (i.e., 0.4 dBA or less). Note that the vertical axis in Figure NOI-1 is the noise exposure contribution of the project and not the resultant noise level with the project. Therefore, the addition of a noise source of 59 dBA in an existing noise environment of 60 dBA would have a moderate adverse noise impact, as the resultant noise level would round to a 3 dBA increase. Figure NOI-1 considers the intensity of noise exposure in terms of two different noise sensitivity categories:

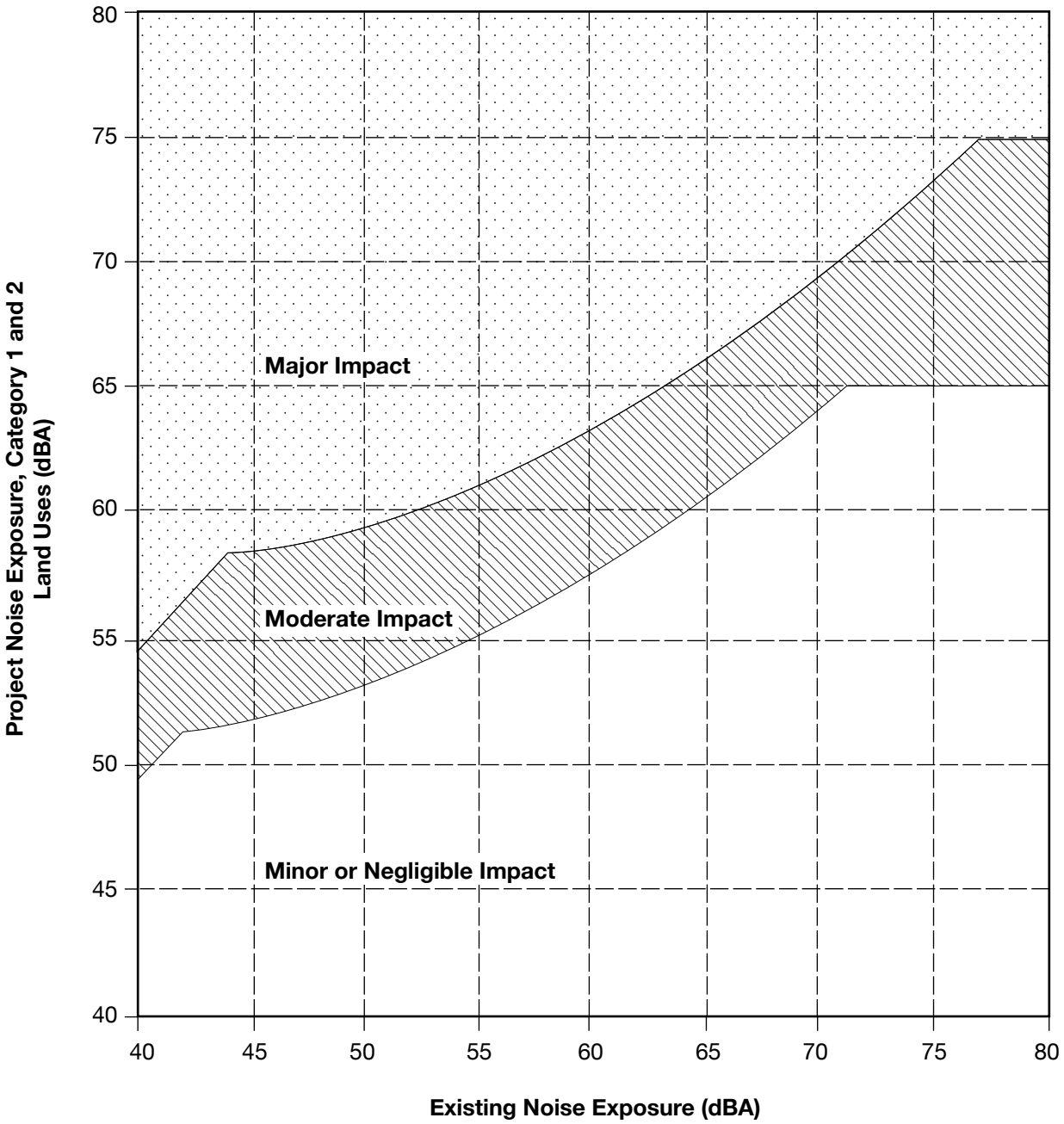
- *Category 1*: Where quiet is essential (including national historic landmarks with significant outdoor use, recording studios, concert halls);
- *Category 2*: Residences and buildings where people normally sleep (including hotels); and
- *Category 3*: Institutional land uses with primarily daytime and evening use.

4.8.4.3 Analysis Thresholds – Operational Helicopter Noise

FAA Order 1050.1E, FAA Order 5050.4B and Title 14—Aeronautics and Space Chapter I—Federal Aviation Administration, Department Of Transportation Subchapter I—Airports Part 150—Airport Noise Compatibility Planning (FAR Part 150) provides the regulatory framework for noise related to aircraft operation. Order 1050.1E requires that a significant noise impact must be determined though the use of the Integrated Noise Model (INM) (or other FAA-approved noise model) along with local land use guidance and general guidance contained in Appendix A of FAR Part 150. However, this order was generally developed for application at airports and as such the requirements of Order 1050.1E that identifies use of long-term average noise contours as a means for assessing impact is not appropriate to a helicopter operations of limited duration over a year. Therefore helicopter noise impacts are assessed herein relative to their affect on the hourly average noise equivalent level (Leq (h)). In this manner, the potential impact of helicopter impacts on parklands for given hour of racing may be assessed.

Impacts are assessed herein relative to the baseline ambient conditions at the federal lands in the area. Acoustical studies performed in the GGNRA have established baseline ambient conditions within its parklands (NPS 2011). Specifically, the closest parklands to the proposed AC34 race areas are assessed: Alcatraz and Crissy Field marsh. The existing ambient baseline noise levels at these two locations during daytime hours in the summer are 59.0 and 57.0 dBA, Leq.

The Integrated Noise Model, Version 7.0b, was used to quantify helicopter noise exposure in the vicinity of a helipad location and along the race course. This model is the noise model approved by the Federal Aviation Administration (FAA) for quantifying fixed-wing and rotary-wing aircraft noise. The model input requires information specific to each helipad, including the total number of helicopter



Note:
Noise exposure is in terms
of L_{eq} (h) for Category 1 and 3 land uses,
L_{dn} for Category 2 land uses.

SOURCE: ESA

Figure NOI-1
Operational Noise Impact Criteria

operations, the flight paths followed, the specific helicopter types, and the time of day at which the operations occurred. The model works by defining a network of grid points at ground level.

Based on these established baseline ambient levels, the following thresholds were developed for assessing noise impacts with respect to helicopters. Unless otherwise indicated all helicopter noise impacts discussed are local, short-term, and adverse.

Negligible Impact: Helicopter noise would result in no measurable change in the existing hourly average ambient conditions.

Minor Impact: Helicopter noise would result in hourly average ambient conditions changing by 2.0 dBA or less, representing a change that would be undetectable to the average person.

Moderate Impact: Helicopter noise would result in hourly average ambient conditions changing by more than 2.0 dBA but less than 5.0 dBA, a noticeable change in the existing ambient conditions.

Major Impact: Helicopter noise would result in hourly average ambient conditions changing by 5.0 dBA or more, representing a noticeable change in the existing ambient conditions.

4.8.4.4 Analysis Thresholds – Vibration

Vibration impacts could result from construction activities that involve "impact activities," primarily pile driving and use of a hoe ram (an excavator or backhoe fitted with a ramming bit in place of a shovel) to break concrete. The assessment of these impacts is separated into two threshold categories: potential for damage to structures and human annoyance.

Building Damage

Construction vibration damage criteria published by the United States Department of Transportation (U.S. DOT) range from 0.5 inch per second for reinforced structures to 0.12 inch per second for the protection of buildings "extremely susceptible to vibration damage". Based on U.S. DOT guidance, the following thresholds apply to the potential for vibration damage to structures. Unless otherwise indicated all vibratory impacts discussed are local, short-term, and adverse.

Negligible: impacts from the project would not alter existing vibration levels.

Minor: impacts from the project would increase vibration levels, but levels are below 0.10 inches per second at the nearest structure.

Moderate: impacts from the project would increase vibration levels at the nearest structure by more than 0.1 inches per second, but would be less than the construction damage criteria associated with the type of nearby structures: (0.5 inches per second for reinforced concrete, steel or timber; 0.3 inches per second for engineered concrete or masonry without plaster; 0.2 inches per second for non-engineered timber and masonry buildings; and 0,12 inches per second for not exceed levels are at those indicated for each land use type and frequency in Table NOI-1.

Major: impacts from the project increase vibration levels and levels exceed those indicated for extremely fragile buildings.

Human Annoyance

Vibration criteria in the FTA guidance manual are commonly used in assessing potential vibration impacts from construction activities and provide guidance on acceptable levels. These criteria, summarized in **Table NOI-3**, are based on the vertical vibration velocity level of the building floor, in decibels. To avoid confusion with noise levels in decibels, the vibration velocity level is usually referred to as VdB. Vibration levels of as low as 65 VdB can be perceptible to people. Unless otherwise indicated all annoyance impacts discussed are local, short-term, and adverse.

TABLE NOI-3: GROUNDBORNE VIBRATION IMPACT CRITERIA

Land Use Category	Groundborne Vibration Impact Levels in VdB		
	Frequent Events	Occasional Events	Infrequent Events
Category 1	65	65	65
Category 2	72	75	80
Category 3	75	78	83

NOTE: VdB = vibration decibels.

SOURCE: U.S. Department of Transportation, Federal Transit Administration, Traffic Noise and Vibration Impact Assessment, May 2006.

Negligible Impact: The project would not alter existing vibration levels.

Minor Impact: The project would increase vibration levels, but levels are below those indicated for each land use type and frequency combination in Table NOI-1.

Moderate Impact: The project would increase vibration levels, but levels are at those indicated for each land use type and frequency in Table NOI-1

Major Impact: The project would increase vibration levels and levels exceed those indicated for each land use type and frequency in Table NOI-1.

U.S. DOT defines "frequent events" as more than 70 vibration events of the same source per day. "Occasional events" are defined as between 30 and 70 events per day, and "infrequent events" are defined as fewer than 30 events per day (FTA 2006). Thus, the vibration criteria for residential (category 2) buildings applicable to a full day of pile driving or other high-impact construction event would be 72 VdB (see Table NOI-3).

4.8.4.5 Cumulative Impacts

Cumulative impact thresholds are as follows. Unless otherwise indicated all cumulative impacts discussed are local, short-term, and adverse.

Negligible Impact: Cumulative noise sources would result in hourly average ambient conditions changing by 2.0 dBA or less, representing a change that would be undetectable to the average person.

Minor Impact: Cumulative noise sources would result in hourly average ambient conditions changing by more than 2.0 dBA but less than 5.0 dBA, a measureable change in the existing ambient conditions, but unlikely to be noticed.

Moderate Impact: Cumulative noise sources would result in hourly average ambient conditions changing by more than 5.0 dBA but less than 10.0 dBA, a noticeable change in the existing ambient conditions.

Major Impact: Cumulative noise sources would result in hourly average ambient conditions changing by more than 10.0 dBA, representing a perceived doubling of loudness.

4.8.5 Impacts of Alternative A—No Action

Under the No Action Alternative, no new AC34 related developments would occur that would increase noise levels on the San Francisco waterfront or federal parklands. Operations on NPS lands currently have a minimal effect on the noise environment, with visitor and employee vehicle noise, noise from ferries to Alcatraz Island and park maintenance operations (landscape equipment) being primary contributors.

4.8.5.1 Construction Noise

Construction activities currently occurring on or in the vicinity of federal lands consist of improvements to Doyle Drive. This may include tunnel excavation, and roadway construction, demolition, and trenching activities on any given day through 2012 and 2013. Noise levels in excess of 89 dBA may occur at sensitive receptors from these construction activities (FHWA 2005). Impacts to Crissy Field marsh are characterized as minimal. The No Action Alternative would have a negligible impact on these existing conditions.

4.8.5.2 Construction Vibration

Construction activities currently occurring on or in the vicinity of federal lands that may result in vibration consist of improvements to Doyle Drive. The No Action Alternative would have a negligible impact on these existing conditions.

4.8.5.3 Helicopter Noise

Helicopter operations that currently may occur are generally from air tour operations, USCG operations and local new affiliates. Data collected within GOGA indicate that helicopter and fixed wing aircraft operations are audible between six and 12 percent of the time at Crissy Field and Alcatraz Island. The No Action Alternative would have a negligible impact on these existing conditions.

4.8.5.4 Traffic Noise

Vehicle traffic currently generated noise on local federal roadways accessing federal lands. These noise levels for the existing conditions with no project are presented in Table NOI-3. The No Action Alternative would have a negligible impact on these existing conditions.

4.8.5.5 Generator Noise

There are no generators currently permitted by the Bay Area Air Quality Management District (BAAQMD) on federal lands in the vicinity of the project areas that are operated on a daily basis. BAAQMD records indicate occasional maintenance operations of a generator at the Argonaut Hotel, approximately 400 feet from Aquatic Park. The No Action Alternative would have a negligible impact on these existing conditions.

4.8.5.6 Amplified Sound

Live musical event are not a regular occurrence at Crissy Field or Alcatraz. Fort Mason has hosted outdoor music festivals but none are currently planned. The No Action Alternative would have a negligible impact on these existing conditions.

4.8.5.7 Fireworks

Fireworks are set off from the foot of the Municipal Pier near Pier 39 on the 4th of July and New Years. Sound monitoring conducted between 1993 and 2001 reported firework displays generating peak sound levels of 82 dBA and average sound levels of 78 dBA at a 0.5-mile distance (NOAA 2011). The No Action Alternative would have a negligible impact on these existing conditions.

4.8.5.8 Cumulative

Federal lands including parklands would be subjected to the cumulative contribution of all noise sources in the area. The contributions from nearby construction projects, local traffic, aircraft and helicopter operations and other sources all combine to represent the existing ambient noise environment.

4.8.5.9 Conclusion

The No Action Alternative would have a negligible adverse impact with regard to noise and vibration impacts.

4.8.6 Impacts Common to All Action Alternatives

Noise sources resulting from the proposed project would be the same for all action alternatives, which would vary only in the location and number of sources at certain venue locations. Noise sources resulting from the action alternatives would include the following:

- *Construction Noise Sources*. These sources would include noise from construction and demolition equipment used to support AC34 events as well as venue locations included in each alternative.
- *In-air Sources*. These sources would include noise from helicopters used to film race activities.

- *On-road Spectator Traffic*. Spectator traffic would incrementally add to noise levels along roadways used for travelling to and from primary and secondary viewing areas.
- *Stationary Noise Sources*. These sources would be a variety of off-road equipment sources at AC34 support and venue locations. They would primarily consist of generators supplying electrical power to locations where utility power is not available.
- *Fireworks*. There would be no fireworks events associated with the America's Cup in 2012. For the 2013 events, there would be up to four fireworks displays, two of which would be of a 30-minute duration and two of which could be up to 45 minutes in length in conjunction with opening and closing ceremonies for the LVC Challenger and AC34 Match Series, respectively.

4.8.7 Impacts of Alternative B—Sponsor Proposed Project

The Sponsor Proposed Project (Alternative B) would generate noise from a variety of different sources. These include construction and demolition equipment; mobile sources, such as helicopters, marine vessels, and vehicle traffic; and stationary sources such as generators, amplified sound systems at entertainment venues and fireworks displays. The potential for adverse noise impacts on the human environment associated with each of these sources is discussed below. Refer to Section 4.5 Biological Resources for information on noise effects on sensitive species.

4.8.7.1 Construction Noise

Construction activities that would be associated with activities in the proposed AC34 Sponsor Proposed Project subject to federal permitting would occur at various locations, primarily along the waterfront, over a two-year period. The durations and types of construction activities would vary depending on the needs of the project site and may include site preparation, placement of infrastructure, placement of foundations for structures, and fabrication of structures. Demolition and construction activities at a number of the pier sites along the San Francisco waterfront would require the use of heavy trucks, material loaders, cranes, concrete breakers, and other mobile and stationary construction equipment but would occur far from federal lands and would not require federal permitting.

Pile driving would be required for pile replacement and installation of floating boat slips, and docks. These activities in particular would have the potential to generate substantial noise levels depending on the duration of the activity and the proximity to sensitive receptors. More minor construction activities would be required for temporary installations, such as placement of barges and installation of hospitality and spectator areas (tents and bleachers, etc.). These construction activities would be more typical of those that commonly occur for single-day events in San Francisco waterfront areas, such as the San Francisco Marathon and other foot race events. These construction activities typically do not involve impact equipment or off road diesel construction equipment.

Construction of 2012 Event Facilities

The America's Cup Village at Marina Green in 2012 would contain a range of facilities and services, including the AC34 operations office, a hospitality area for corporate and private functions, outdoor amphitheater event seating, and areas of sponsor displays, general merchandise, and food and

beverage sales. Temporary construction noise would be substantially greater than existing noise levels at the nearby receptor locations and would have the potential to impact existing sensitive receptors. The loudest construction activities, such as pile driving, would occur over a two-week period. Once the particular construction activity was completed the associated noise would no longer be experienced by the affected receptors.

A pile driver would be required for installation of the temporary berthing docks, which would represent the noisiest construction equipment operation proposed for Marina Green. Although vibratory hammers would be used to the extent feasible, this analysis conservatively assumes use of an impact pile driver. Installation of floating docks would require installation of approximately 12 piles over a one- to two-day period, during which pile driving would occur intermittently throughout the period. Other equipment would include trucks, a mobile crane to install docks, and a tugboat to maneuver barges carrying cranes and equipment. Proposed construction would be required to comply with the San Francisco Noise Ordinance, which prohibits construction activities between 8:00 p.m. and 7:00 a.m.

Assuming simultaneous operation of the two noisiest pieces of construction equipment (an impact pile driver and a mobile crane) as a worst-case analysis, peak construction-related noise levels at Marina Green would be 101.1 dBA at a distance of 50 feet.

The nearest sensitive receptors to Marina Green are single-family residences across Marina Boulevard, approximately 100 feet from Marina Green and approximately 400 feet from the Bay where pile driving would occur. Pile driving locations would be approximately 1,500 feet from Fort Mason facilities and 1,900 feet from Crissy Field east facilities and parklands.

At the 400-foot distance, construction-related noise would be attenuated to 83.0 dBA. This contribution to the existing monitored background would result in a daytime noise level of 83.1 dBA at these receptors and would result in a temporary increase of ambient noise of 20 dBA. Noise from pile-driving activities would represent a moderate adverse construction noise impact at the nearest residence. Pile driving noise impacts to the nearest park lands (Fort Mason) would be 71 dBA, approximately 2 dBA above hourly average ambient levels along Laguna Street. Construction noise would result in minor adverse impacts on the nearest parklands.

Temporary construction activities that would affect sensitive receptors at any one location would be limited and intermittent. The loudest construction activities, such as pile driving, would occur over a fraction of the total construction period for the given phase, and once the particular construction activity was completed, the associated noise would no longer be experienced by the affected receptors.

Construction of 2012 and 2013 Spectator Areas

Proposed bleacher seating tents/ canopies would require construction activities consisting of truck deliveries of materials and low-impact construction equipment (e.g., forklifts and power tools) to erect bleachers and tented structures over a period of several days. Use of heavy-duty off-road diesel equipment is not anticipated. The predominant noise source during forklift operations would be intermittent back-up alarms, if in use. Consequently, construction activities at these spectator areas

would reasonably be expected to conform to the San Francisco noise ordinance and would result in noise levels 10 dBA above ambient or less at nearby receptors and a minor adverse construction noise impact.

4.8.7.2 Construction Vibration

Vibration impacts could result from construction activities that involve "impact activities," primarily pile driving and use of a hoe ram (an excavator or backhoe fitted with a ramming bit in place of a shovel) to break concrete. These impacts are separated into two categories: potential for damage to structures and human annoyance.

Building Damage

Vibration intensity is expressed as peak particle velocity (PPV, in inches per second); the maximum speed at which the ground moves while it temporarily shakes. According to the Federal Railroad Administration, fragile buildings can be exposed to groundborne vibration PPV levels of 0.5 inch per second without experiencing structural damage (FRA 2005). Groundborne vibration from construction activities that involve "impact activities," primarily pile driving and use of a hoe ram to break concrete, could produce detectable or substantial vibration at nearby sensitive buildings and sensitive receptors unless proper mitigation is followed.

Pile-driving activities are proposed to occur intermittently along the San Francisco waterfront from 2012 to 2013. Offshore pile driving would be restricted by Protective Measures BIO-15, identified in Chapter 2—Alternatives, which requires the use of vibratory hammers and cushion blocks between hammer and pile and restricts impact pile-driving activity to a five-month period from July 1 to November 30 for offshore pile driving to reduce impacts on biological resources. Groundborne vibration from activities that involve "impact tools," especially pile driving, could produce significant vibration. Vibratory pile driving can result in PPV of up to 0.734 inch per second at a distance of 25 feet.

Pile-driving activities would exceed the U.S. DOT criterion of 0.2 inch per second for fragile structures at distances closer than 60 feet. The closest pile driving to federal lands would occur at Marina Green and would be approximately 1,500 feet from Fort Mason. At this distance, vibration levels from pile driving would be reduced to 0.0013 inches per second and would be a negligible adverse impact with regard to building damage.

Human Annoyance

Vibration levels can also result in interference or annoyance impacts at residences or other land uses where people sleep, such as hotels and hospitals.

Pile driving can result in typical vibrations of 93 VdB at a distance of 25 feet, although upper-range vibrations of up to 105 VdB have been reported, depending on soil conditions. The closest pile driving to federal lands would occur at Marina Green and would be approximately 1,500 feet from Fort Mason. At this distance, vibration levels from pile driving would be reduced to 51 VdB and would be a negligible adverse impact with regard to human annoyance.

4.8.7.3 Helicopter Noise

Helicopters would be used for AC34 races to serve broadcasting and media operations. Hourly average noise levels were modeled for peak race day events in 2012 and 2013.

Helicopter Operations and Fleet

An existing helipad on Treasure Island would serve as the landing location for the helicopters between races. The modeling has assumed four races per day for the 2012 events and three races per day for the longer 2013 events. Two helicopters were modeled operating on event days for 2012 and three for 2013. The helicopter types were all assumed to be Aerospatiale AS 350, based on data provided by the event operator. The modeling effort assumed that all helicopter operations would occur during daytime hours.

Flight tracks for helicopter operations would follow the race course and include a 1,000-foot buffer from the Crissy Field shoreline to reflect protective measure restrictions on helicopter flights in this area. In order to cover the race, the modeling assumed the helicopters would be flying at relatively low altitudes. One helicopter was modeled at 100 feet above sea level (ASL) and either one (in 2012) or two (in 2013) helicopters were modeled at 300 feet ASL at an average speed of 30 knots while in flight and including 15 minutes of hovering time per race. In order to model the hovering periods, the race course was divided into four equal segments. The helicopters were modeled hovering for 5 minutes at each of these areas. **Figure NOI-2** depicts the modeled race course area and hovering locations.

Hourly Average Noise Levels. As an indication of what park visitors may experience, **Table NOI-4** presents the estimated hourly average noise level (Leq) that are predicted by the INM model and adds them to the existing ambient conditions for both Alcatraz and Crissy Field to determine the resultant increase over ambient levels. Although there would be an additional helicopter in 2013, its contribution is more than compensated by the reduction in operations (fewer race operations per hour in 2013). As can be seen from the data in Table NOI-4, helicopter noise during a peak race hour event would result in a minor adverse impact at Alcatraz and a moderate adverse impact at Crissy Field for both 2012 and 2013.

TABLE NOI-4: MODELED HELICOPTER NOISE LEVELS AT CRISSY FIELD AND ALCATRAZ RECEPTORS FOR 2013

Operating Scenario	Helicopter Race Contribution dBA (Leq(h))	Existing Ambient dBA (Leq(h))	Resultant Noise Level dBA (Leq(h))	Increase Over Ambient dBA	Severity of Impact
Peak 2012 Hourly Operations					
Alcatraz West	53.6	59.0	60.1	1.1	Minor Adverse
Crissy Marsh	57.2	57.0	60.1	3.1	Moderate Adverse
Peak 2013 Hourly Operations					
Alcatraz West	56.1	59.0	60.8	1.8	Minor Adverse
Crissy Marsh	56.8	57.0	59.9	2.9	Moderate Adverse

SOURCE: ESA Airports, 2012; INM 7.0b; ESRI; Bing Maps.

Figure NOI-2

2013 Helicopter Race Area Noise Contours

Maximum Noise Levels. Although not established as a significance criterion, helicopter operations would increase maximum noise levels at Crissy Field Marsh and Alcatraz. Existing median maximum noise level recorded at these two locations are 73.2 and 76.5 dBA, respectively. Modeling indicates that maximum noise levels generated by simultaneous operation of three helicopters at these locations would be 76.4 and 79.8 dBA, respectively. Maximum noise levels would increase by 3.3 dBA or less.

4.8.7.4 Traffic Noise

Increased vehicle traffic associated with the proposed America's Cup events would increase noise levels along existing roadways. Increases in noise from traffic on existing roadways are assessed by modeling existing and future roadway noise levels and comparing the resulting increase to standards published by FICON for noise environments of 60 dBA, L_{dn} and above (see **Table NOI-5**).

TABLE NOI-5: MODELED AC34 TRAFFIC LEQ(H) NOISE LEVELS FOR ALTERNATIVE B IN 2013

Roadway Segment	Existing	Existing plus Sponsor Proposed Project	dBA Difference	Alternative B Exposure Contribution (for Use with Figure NOI-1)	Impact Intensity
Weekday PM Noise Levels					
Bay Street from Van Ness Avenue to Franklin Street (Fort Mason area)	69.9	65.7	-4.2	NA	Beneficial
Lombard Street from Lyon Street to Ruger Street (Presidio)	65.1	65.1	0	45.0	Negligible
Presidio Boulevard between Pacific Avenue and Broadway (Presidio)	64.6	65.5	+1.1	58.3	Negligible
Lincoln Boulevard between 25th Avenue and Hoard Road	67.7	69.1	+1.4	63.6	Moderate Adverse
Weekend Midday Peak Noise Levels					
Bay Street from Van Ness Avenue to Franklin Street (Fort Mason area)	68.4	69.6	+1.2	63.5	Moderate Adverse
Lombard Street from Lyon Street to Ruger Street (Presidio)	64.3	65.3	+1.0	58.5	Minor Adverse
Presidio Boulevard between Pacific Avenue and Broadway (Presidio)	64.0	65.0	+1.0	58.2	Minor Adverse
Lincoln Boulevard between 25th Avenue and Hoard Road	67.7	68.1	+0.4	57.6	Minor Adverse

NOTES: Road center to receptor distance is assumed to be 50 feet for values shown in this table. Noise levels were determined using the Federal Highway Administration (FHWA) traffic noise model. The average speed on these segments is assumed to be 25 miles per hour.

dBA = A-weighted decibels. Leq(H) = hourly average noise equivalent level; NA = Not Applicable

SOURCE: ESA 2012

The Sponsor Proposed Project (Alternative B) would result in a net increase in vehicle trips at intersections during the weekday peak hour but vehicles on Bay Street would decrease as result of the partial closure of the Embarcadero. During peak weekend events vehicle trips at all four roadway segments would increase. Based on baseline and future traffic projections developed as part of the transportation analysis, existing and existing plus project noise levels were estimated for representative roadway segments near federal lands within the AC34 event and spectator areas that pass near noise sensitive receptors. Modeled weekday and weekend hourly Leq traffic noise estimates for the four roadway segments are presented in **Table NOI-5**. Noise levels in Table NOI-5 represent year 2013 events. All roadway segments would have lower traffic volumes in 2012 than 2013 and, therefore, would experience less noise increase than that shown in Table NOI-5.

As shown in Table NOI-5, weekday traffic noise increases would be beneficial or negligible at three of the roadway segments and moderate adverse along Lincoln Boulevard. During peak weekend event days (two such days are forecast in 2012, five such days are forecast in 2013), three minor and one moderate increase in roadway noise would occur along the analyzed roadway segments. In all cases, the impact would be temporary.

Physical noise mitigation (i.e., installation of noise barriers) does not represent a feasible mitigation for these temporary weekend noise impacts. Chapter 2, Alternatives, of this EA identifies transportation related protection measures, including implementation of the People Plan which contains strategies to manage traffic associated with visitors arriving by auto and to encourage use of alternate modes of transportation. These protection measures would reduce the severity of these moderate adverse traffic impacts.

4.8.7.5 Generator Noise

Supplemental power would be required at spectator and event areas where no electrical facilities currently exist. Power would be required for television screens, public address and entertainment systems, lighting, and other equipment uses at most spectator areas. Noise generated by portable generators for supplemental power would depend on the size of the unit and the presence of muffling devices. Three generator sizes are proposed to be used throughout the event sites. Noise specifications were obtained for all three generator sizes assuming only a weatherproof enclosure. **Table NOI-6** presents estimated noise levels at the nearest sensitive receptor with operation of the maximum number of generators proposed for each venue at a centralized site location. These noise levels are based on specifications for generators of the size and number for each event venue as provided by the Event Authority.

Section 2909(a)(1) of the San Francisco Police Code identifies unnecessary, excessive, and offensive noise as that which exceeds ambient noise levels at a residential property line by more than 5 dBA.

Table NOI-6 indicates that the Fort Baker venue could have an increase in noise levels in excess of 5 dBA from generator operations. The receptor closest to the Fort Baker Pier, the Cavallo Point Lodge, is a commercial land use located in Marin County approximately 1,650 feet away from the pier. Section 6.70 "Loud and Unnecessary Noises" of the Marin County Code, restricts the creation and continuation of loud, unnecessary, or unusual noise. This ordinance, enforced by the Marin County Sheriff's Office,

TABLE NOI-6: NOISE LEVELS WITH OPERATION OF GENERATORS DURING AC34 EVENTS

Spectator Areas/ Piers	Nearest Sensitive Receptor and Distance from Generator	Existing Noise Level (dBA, Leq)	Existing Noise Level with Generator (dBA, Leq)	Increase Over Ambient Noise Level (dBA, Leq)
Fort Baker Pier	Cavallo Point Lodge, 1,660 feet	49.0	56.6	+ 7.6[a]
Crissy Field	Armistead Road Residences, 1,000 feet	62.3	64.1	+ 1.8
Crissy Field	Crissy Field Marsh, 1,000 feet	57.0	61.3	+ 4.3
Crissy Field	Crissy Field Center, 50 to 500 feet	57.0	+ 60	+ 3.0 or more
Fort Mason	Residences at Laguna and North Point Streets, 1,100 feet	68.0	68.1	+ 0.1
SAFR	Ghirardelli Square Residences, 750 feet from concession area	65.0	65.1	+ 0.1

NOTES:

[a] Does not account for attenuation of intervening hillside.

dBA = A-weighted decibels. Leq is the equivalent sound level.

SOURCE: ESA 2011.

prohibits excessive noise levels from various sources including motor vehicles, amplification systems, and persons yelling and does not establish quantitative standards. The *Marin Countywide Plan* establishes a benchmark of 50 dBA, L_{eq} at residential land uses or other noise-sensitive uses for stationary noise sources for the purposes of siting and planning land uses. While the estimated generator noise level at the nearest Cavallo Point Lodge building would be 6.7 dBA in excess of this benchmark and 7.6 dBA above the existing noise level, the proposed generator operations would be a temporary noise source and would not establish a new permanent land use or a new "stationary noise-generating development" identified in the Marin Countywide Plan for application of this implementation measure. Additionally, the line-of-sight between the Fort Baker Pier and the lodge is interrupted by an intervening hillside, which would reduce the predicted noise level by at least 5 dBA.

There are three generators currently proposed for the Crissy Field area in 2012 and two larger generators in 2013. The combination of these generators operating in unison is predicted to contribute 77 dBA in 2012 and 79 dBA in 2013 at 100 feet. As a National Park and educational center, rather than a residential area, Section 2909(a)(1) of the San Francisco Police Code does not apply. Schools and recreational facilities are classified by FTA criteria as a category 3 land use for which the criteria are 5 dBA higher than those presented in Figure NOI-1. Therefore, a major impact would occur if an additional contribution of 67 dBA were to occur where the existing noise levels was 57 dBA. If all generators were to be located in the Crissy Field East venue area, they would have the potential to result in major adverse noise impacts at Crissy Field Marsh and Crissy Field Center if located within 400 feet. Generator noise could also detract from the soundscape experience of park visitors present for reasons other than observing AC34 events. However, Protective Measure NOI-4 establishes a performance standard of 60 dBA for generators near Crissy Field Center to be achieved by distance, shielding or use of quiet generators. This protective measure would lessen the severity of this potential

major adverse impact to moderate adverse by ensuring the noise levels at Crissy Center would not increase more than 10 dBA over ambient conditions.

A single generator for SAFR would likely be used to power proposed exhibition and concession facilities. As shown in Table NOI-6, the distance to the nearest sensitive receptor as well as the existing noise levels at the receptors along Beach Street result in a marginal contribution to existing noise levels from operation of the proposed generator.

4.8.7.6 Amplified Sound

Entertainment venues are proposed for Crissy Field, Marina Green, Fort Mason, and Aquatic Park in 2012 and 2013 and also for Pier 27 in 2013. At Marina Green, the event stage would be located at the western end of the green and directed toward the Bay. At Crissy Field West, the event stage would be located at the center of the western field area.

The federal Department of Housing and Urban Development establishes fixed residential interior and exterior noise goals through 24 CFR 51.103 and 51.104, respectively. The standards in section 51.103 are applicable to exterior area and noise levels of up to 65 dBA, Ldn are identified as "acceptable and allowable". Section 51.104) is applicable to interior dwelling areas and prohibits interior noise levels from exceeding 45 dBA, Ldn. The potential exists for amplified noise to exceed these fixed residential interior noise limits at receptors in the vicinity of Crissy Field, Marina Green, and Fort Mason during the AC34 events, representing a potential major adverse impact. The likelihood of this potential impact would particularly be increased if high-volume and/or low-frequency (subwoofer) amplified music were to occur in outdoor areas. Amplified sound could also detract from the soundscape experience of park visitors present for reasons other than observing AC34 events. However, Protective Measure NOI-2 establishes operating procedures for amplified sound at entertainment venues, including establishment of appropriate operating volumes with noise monitoring verification. Because Protection Measure NOI-2 would establish a performance standard restricting operations commensurate with local land use noise restrictions, require establishment of volume settings prior during the first week of events, and verify compliance with acoustical monitoring, this protective measure would reduce this potential major adverse impact to moderate adverse.

4.8.7.7 Fireworks

For the 2013 events, there would be up to four fireworks displays, two of which would be of a 30 minute duration and two of which could be up to 45 minutes in length in conjunction with opening and closing ceremonies for the LVC Challenger and AC34 Match Series, respectively. Fireworks would be launched from a barge at the America's Cup Village near Piers 27-29, approximately 1 mile from the nearest federal lands (SAFR). Fireworks currently routinely occur along San Francisco Bay during the Fourth of July and radio station events. Sound monitoring conducted between 1993 and 2001 reported firework displays generating peak sound levels of 82 dBA and average sound levels of 78 dBA at a 0.5-mile distance (NOAA 2011). Sensitive (human) receptors in the area of federal lands include occupants of residences and transient lodging within Fort Mason and the Presidio along with park visitors. Other residences and hotels exist on lands adjacent to federal areas. Given the brief duration and limited number of firework events proposed, noise from firework displays is expected to

result in a minor adverse human exposure impact on federal lands, with noise levels of 72 dBA expected during 45-minute events. The magnitude of this noise is similar to roadside noise levels along The Embarcadero. Potential adverse noise impacts on wildlife from fireworks are addressed in Section 4.5, Biological Resources.

4.8.7.8 Cumulative Impacts

Federal lands, including parklands, would be subjected to the cumulative contribution of all noise sources generated by AC34 events. A park visitor would be simultaneously exposed to noise from generators, amplified sound, helicopters and roadway traffic increases on a given event day. There is also the potential for other projects, primarily though construction activities (e.g., construction of improvements to Doyle Drive), to cumulatively combine with the identified impacts of the project, as well as the existing noise sources occurring without the project.

A summation of cumulative noise sources at Crissy Field from AC34 events (57.0 dBA ambient + 57.2 dBA helicopters + 60 dBA generator + 60 dBA Amplified Sound) results in a cumulative noise level of 64.8 dBA, which would be 7.8 dBA above the ambient resulting in a moderate adverse impact.

4.8.7.9 Conclusion

The Sponsor Proposed Project would result in negligible impacts with regard to construction vibration minor adverse noise impacts with regard to construction noise, helicopter operations, and discharge of fireworks, and moderate adverse impacts with regard to noise increases from vehicle traffic, helicopter operations, generator operations, and amplified music. Protective Measures NOI-1, NOI-2, NOI-3, NOI-4 and NOI-5 are identified to lessen the contribution of noise impacts from stationary noise sources and reduce the severity of moderate adverse cumulative noise impacts.

4.8.8 Impacts of Alternative C—No Organized Events on NPS Lands

In this alternative, no spectator venues would be constructed or formally occupied at the Crissy Field, Aquatic Park, Fort Baker, Alcatraz or Fort Mason. This would result in a reduction in construction-related noise associated with temporary construction of spectator seating and tents and other facilities included in the proposed action. Operational stationary source noise emissions from generators, forklifts and light towers as well as amplified sound at event stages at these venue locations would also not occur under Alternative C. The discussion below analyzes the impacts of Alternative C and compares them to the impacts of the Sponsor Proposed Project (Alternative B).

4.8.8.1 Construction Noise

Minor adverse impacts from construction of spectator seating and tents at venues at Crissy Field, Aquatic Park, Fort Baker, Alcatraz and Fort Mason would not occur under Alternative C. Fort Mason would continue to experience a minor adverse noise impact associated with pile driving at Marina Green, as waterside improvements to Marina Green would not be on NPS lands and therefore would be included in Alternative C.

4.8.8.2 Construction Vibration

As under Alternative B, construction vibration impacts under Alternative C would also be negligible as no additional pile driving or impact-related construction activities would take place. Pile driving would not occur on park lands. The closest piles to parkland areas would be 1,500 feet from Fort Mason.

4.8.8.3 Helicopter Noise

There would be no changes to helicopter operations (location or altitude) for Alcatraz Island or Crissy Field under this alternative, as compared to that of the Sponsor Proposed Project. It is assumed that the pilots would use the vertical restriction of 1,000 feet which is assumed for the Sponsor Proposed Project to maintain a close distance to racing vessels for optimal photography. Consequently, noise impacts under Alternative C would be characterized as minor (Alcatraz) to moderate (Crissy Field) adverse for the same reasons described for Alternative B.

4.8.8.4 Traffic Noise

Compared to Alternative B, the number of daily spectators on NPS lands would be reduced under Alternative C as the result of the lack of amenities, and it is reasonable to assume a commensurate decline in roadway vehicle traffic on roads that provide access to NPS lands. The transportation analysis predicts that a reduction in traffic volumes would occur. **Table NOI-7** presents modeled weekday and weekend hourly Leq traffic noise level estimates for the four roadway segments under Alternative C.

As shown in Table NOI-7, both weekday and peak weekend traffic noise increases would be negligible for all four roadways under Alternative C.

4.8.8.5 Generator Noise

There would be no generators on federal lands under Alternative C. Consequently the nearest generator to NPS lands would be located at Marina Green, approximately 2,000 feet from Crissy Field Center. At this distance generator noise would be reduced to 54 dBA which is approximately the ambient level. Therefore the generator noise impact would be reduced from major adverse (under Alternative B) to negligible (under Alternative C).

4.8.8.6 Amplified Sound

There would be no entertainment venues on federal lands under Alternative C. Consequently the nearest amplified sound source would be the stage located at Marina Green, approximately 2,000 feet from Crissy Field Center. Resultant sound levels at this distance would depend on the volume levels established by the City of San Francisco for the Event Authority. Consequently, similar to the Alternative B, Protective Measure NOI-3 is identified to establish operating procedures for amplified sound at entertainment venues, including establishment of appropriate operating volumes with noise monitoring verification. Therefore the impact of amplified sound under Alternative C with protective measures would be similar to the Sponsor Proposed Project, moderate adverse.

TABLE NOI-7: MODELED AC34 TRAFFIC LEQ (H) NOISE LEVELS FOR ALTERNATIVE C IN 2013

Roadway Segment	Existing	Existing plus Alternative C	dBA Difference	Alternative C exposure contribution (for Use with Figure NOI-1)	Impact Intensity
Weekday PM Noise Levels					
Bay Street from Van Ness Avenue to Franklin Street (Fort Mason area)	69.9	70.0	+0.1	55.0	Negligible
Lombard Street from Lyon Street to Ruger Street (Presidio)	65.1	65.2	+0.1	49.0	Negligible
Presidio Boulevard between Pacific Avenue and Broadway (Presidio)	64.6	64.7	+0.1	48.4	Negligible
Lincoln Boulevard between 25th Avenue and Hoard Road	67.7	67.8	+0.1	51.5	Negligible
Weekend Midday Peak Noise Levels					
Bay Street from Van Ness Avenue to Franklin Street (Fort Mason area)	68.4	65.3	-3.1	NA	Beneficial
Lombard Street from Lyon Street to Ruger Street (Presidio)	64.3	64.3	0	NA	Negligible
Presidio Boulevard between Pacific Avenue and Broadway (Presidio)	64.0	64.3	+0.3	52.6	Negligible
Lincoln Boulevard between 25th Avenue and Hoard Road	67.7	68.0	+0.3	56.5	Negligible

NOTES: Road center to receptor distance is assumed to be 50 feet for values shown in this table. Noise levels were determined using the Federal Highway Administration (FHWA) traffic noise model. The average speed on these segments is assumed to be 25 miles per hour.

dBA = A-weighted decibels. Leq(H) = hourly average noise equivalent level; NA = Not Applicable

SOURCE: ESA 2012

4.8.8.7 Fireworks

Under Alternative C, there would continue to be a total of four fireworks events for the 2013 America's Cup events. Given the brief duration and limited number of firework events proposed, noise from firework displays under Alternative C is expected to result in a minor adverse human exposure impact, the same as under Alternative B.

4.8.8.8 Cumulative

Federal lands including parklands would be subjected to the cumulative contribution of all noise sources generated by AC34 events under Alternative C. The contributions from generators and amplified sound systems would be substantially reduced under Alternative C, as these sources would no longer operate on NPS lands. A park visitor would still be simultaneously exposed moderate to major noise contributions from roadway traffic increases as well as moderate adverse impacts from helicopters on a given event day. A summation of cumulative noise sources at Crissy Field from AC34

events (57.0 dBA ambient + 57.2 dBA helicopters + 55 dBA Amplified Sound) results in a cumulative noise level of 61.3 dBA, which would be 4.3 dBA above the ambient resulting in a minor adverse cumulative impact.

4.8.8.9 Conclusion

Alternative C would result in a negligible impact with regard to construction-related vibration from pile driving, minor adverse impacts from construction-related noise, spectator traffic and fireworks and a moderate adverse impact from helicopter operations, generator operations and amplified sound. There would be no potential major adverse noise impacts resulting from Alterative C. Noise impacts related to traffic and generators would be reduced from moderate to negligible under Alternative C compared to the Sponsor Proposed Project. Protective measures are identified to lessen the contribution of noise impacts and reduce the severity of cumulative noise impacts to a moderate level.

4.8.9 Impacts of Alternative D—Modified Program Alternative

Under Alternative D, minor modifications and restrictions would result in little, if any, reduction in operational noise, compared to the Sponsor Proposed Project (Alternative B). Under Alternative D there would be a reduced extent of spectator events at Crissy Field. This would result in a marginal reduction in temporary construction noise from reduced spectator seating from what is proposed under Alternative B. Operational stationary source noise from amplified sound at the Crissy Field venue location would not occur under Alternative D.

4.8.9.1 Construction Noise

Minor adverse impacts from construction of spectator seating and tents at venues at Crissy Field, would still occur in 2013 under Alternative D. Fort Mason would continue to experience a minor adverse noise impact associated with pile driving at Marina Green as well as negligible impacts from construction of spectator venues.

4.8.9.2 Construction Vibration

As under Alternative B, construction vibration impacts under Alternative D would be negligible as no additional pile driving or impact-related construction activities would take place.

4.8.9.3 Helicopter Noise

Alternative D would provide for a lateral shift in the race area of up to one-quarter mile away from the Crissy Field shore on 2012 race days, resulting in reduced noise contribution from helicopter operations at shore-side locations under this alternative compared to the Sponsor Proposed Project (Alternative B) in 2012. In addition, there would be a change in airspace restriction associated with this alternative, such that helicopters would be required to remain at least 2,000 feet above and 1,000 feet out from of the mean high tide line of NPS lands. While it is expected that helicopters may occasionally fly at low altitudes (100 and 300 foot) just outside the 1,000 foot horizontal limit in order to capture imagery of race events,

the increased vertical buffer is expected to reduce overall helicopter-related noise impacts to NPS lands, especially when the aircraft are transiting over areas containing sensitive receptors. Consequently, as compared to that of Alternative B, NPS lands under Alternative D would generally experience reduced helicopter noise; although on occasion, low-elevation helicopter activity for race photography could cause noise levels to come close to those of Alternative B. As a result, the impacts would be minor to moderate and adverse.

4.8.9.4 Traffic Noise

Compared to Alternative B, the number of daily spectators at NPS lands would be marginally reduced under Alternative D due to the reduced number of bleachers and lack of entertainment facilities. Consequently, worst-case event day traffic noise impacts under Alternative D would be reduced as presented in **Table NOI-8**.

TABLE NOI-8: MODELED AC34 TRAFFIC LEQ (H) NOISE LEVELS FOR ALTERNATIVE D IN 2013

Roadway Segment	Existing	Existing plus Alternative D	dBA Difference	Alternative D exposure contribution (for Use with Figure NOI-1)	Impact Intensity
Weekday PM Noise Levels					
Bay Street from Van Ness Avenue to Franklin Street (Fort Mason area)	69.9	70.0	+0.1	55.0	Negligible
Lombard Street from Lyon Street to Ruger Street (Presidio)	65.1	65.2	+0.1	49.0	Negligible
Presidio Boulevard between Pacific Avenue and Broadway (Presidio)	64.6	64.8	+0.2	51.5	Negligible
Lincoln Boulevard between 25th Avenue and Hoard Road	67.7	67.9	+0.2	54.5	Negligible
Weekend Midday Peak Noise Levels					
Bay Street from Van Ness Avenue to Franklin Street (Fort Mason area)	68.4	65.4	-3.0	NA	Beneficial
Lombard Street from Lyon Street to Ruger Street (Presidio)	64.3	64.6	+0.3	52.9	Negligible
Presidio Boulevard between Pacific Avenue and Broadway (Presidio)	64.0	64.7	+0.7	56.5	Minor
Lincoln Boulevard between 25th Avenue and Hoard Road	67.7	68.3	+0.6	59.5	Minor

NOTES: Road center to receptor distance is assumed to be 50 feet for values shown in this table. Noise levels were determined using the Federal Highway Administration (FHWA) traffic noise model. The average speed on these segments is assumed to be 25 miles per hour.

dBA = A-weighted decibels. Leq(H) = hourly average noise equivalent level; NA = Not Applicable

SOURCE: ESA 2012

As shown in Table NOI-8, weekday traffic noise increases would be negligible for all four analyzed roadways. Peak event weekend traffic noise increases would be negligible for one roadway, minor for two roadways and beneficial for one roadway due to road closures.

4.8.9.5 Generator Noise

Under Alternative D, generator operations would continue to occur at Crissy Field, Fort Mason, Fort Baker Pier, and SAFR as under the Sponsor Proposed Project. Consequently, the generator noise impact on Crissy Field Center as well as Fort Baker and Fort Mason and would remain moderate adverse with protective measures.

4.8.9.6 Amplified Sound

There would be no entertainment venues at Crissy Field under Alternative D. Consequently, the nearest amplified sound source would be the stage located at Marina Green, approximately 2,000 feet from Crissy Field Center. Amplified sound impacts at Fort Mason would be the same as under the Sponsor Proposed Project. Resultant sound levels at this distance would depend on the volume levels established by the Event Authority. Consequently, similar to the proposed action, protective measures are identified to establish operating procedures for amplified sound at entertainment venues, including establishment of appropriate operating volumes with noise monitoring verification. Therefore the impact of amplified sound under Alternative D with protective measures would be similar to the Sponsor Proposed Project, moderate adverse.

4.8.9.7 Fireworks

There would continue to be a total of four fireworks events for the 2013 events under Alternative D. Given the brief duration and limited number of firework events proposed, noise from firework displays under Alternative D is expected to result in a minor adverse human exposure impact, the same as under Alternative B.

4.8.9.8 Cumulative Impacts

Federal lands including parklands would be subjected to the cumulative contribution of all noise sources generated by AC34 events under Alternative D. The contributions from amplified sound systems would be reduced for Crissy Field receptors under Alternative D, as these sources would no longer operate at Crissy Field. A park visitor at Crissy Field would continue to be simultaneously exposed to minor noise contributions from roadway traffic increases as well as moderate adverse impacts from helicopters and generators on a given event day. A summation of cumulative noise sources at Crissy Field from AC34 events under Alternative D (57.0 dBA ambient + 57.2 dBA helicopters + 60 dBA Amplified Sound) results in a cumulative noise level of 63.1 dBA, which would be 6.1 dBA above the ambient resulting in a minor adverse cumulative impact.

4.8.9.9 Conclusion

There would be no potential major adverse noise impacts resulting from Alterative D. Noise impacts related to traffic and amplified sound would be reduced from moderate to minor under Alternative D compared to the Sponsor Proposed Project. Protective measures, described in Chapter 2, are identified to lessen the contribution of noise impacts and reduce the severity of cumulative noise impacts to a moderate level.

4.8.10 Impacts of Alternative E—Preferred Alternative

Under Alternative E, no spectator venues would be constructed or formally occupied at the Crissy Field, Presidio Trust Lands, Fort Mason, Fort Baker, or the Marin Headlands. This Alternative could involve some AC34 programmed activities at SAFR, and limited private, after-hours activities on Alcatraz Island. Operational stationary source noise from generators, forklifts and light towers at these venue locations would also not occur under this alternative. Park visitation could also be reduced under this alternative due to the lack of amenities.

4.8.10.1 Construction Noise

Minor adverse impacts from construction of tents at venues at SAFR could still occur in 2013 under Alternative E. Fort Mason would continue to experience a minor adverse noise impact associated with pile driving at Marina Green as well as negligible impacts from construction of spectator venues.

4.8.10.2 Construction Vibration

As under Alternative B, construction vibration impacts under Alternative E would be negligible as no additional pile driving or impact-related construction activities would take place.

4.8.10.3 Helicopter Noise

Alternative E would provide for a lateral shift in the race area of up to one mile away from the Crissy Field shore on 2012 race days, resulting in reduced noise contribution from helicopter operations at shore-side locations under this alternative compared to the Sponsor Proposed Project in 2012. In addition, there would be a change in airspace restriction associated with this alternative, such that helicopters would be required to remain at least 1,000 feet out from and 1,000 feet above the mean high tide line of NPS lands, with the exception of Alcatraz Island, over which the vertical buffer would remain 1,000 feet out, but increase to 2,000 feet above. While it is expected that helicopters may occasionally fly at low altitudes (100 and 300 foot) just outside the 1,000 foot horizontal limit in order to capture imagery of race events, the shift in race area, combined with the increased vertical buffer is expected to reduce overall helicopter-related noise impacts to NPS lands, especially when the aircraft are transiting over areas containing sensitive receptors. Consequently, as compared to that of Alternative B, NPS lands under Alternative E would generally experience reduced helicopter noise; although on occasion, low-elevation helicopter activity for race photography could cause noise levels to come close to those of Alternative B. As a result, the impacts would be minor to moderate and adverse.

4.8.10.4 Traffic Noise

Compared to Alternative B, the number of daily spectators at NPS lands would be marginally reduced under Alternative E due to the reduced number of bleachers and lack of entertainment facilities. Consequently, worst-case event day traffic noise impacts under Alternative E would be reduced as presented in **Table NOI-9**.

TABLE NOI-9: MODELED AC34 TRAFFIC LEQ (H) NOISE LEVELS FOR ALTERNATIVE E IN 2013

Roadway Segment	Existing	Existing plus Alternative E	dBA Difference	Alternative E exposure contribution (for Use with Figure NOI-1)	Impact Intensity
Weekday PM Noise Levels					
Bay Street from Van Ness Avenue to Franklin Street (Fort Mason area)	69.9	70.0	+0.1	55.0	Negligible
Lombard Street from Lyon Street to Ruger Street (Presidio)	65.1	65.2	+0.1	49.0	Negligible
Presidio Boulevard between Pacific Avenue and Broadway (Presidio)	64.6	64.7	+0.1	51.5	Negligible
Lincoln Boulevard between 25th Avenue and Hoard Road	67.7	67.8	+0.1	54.5	Negligible
Weekend Midday Peak Noise Levels					
Bay Street from Van Ness Avenue to Franklin Street (Fort Mason area)	68.4	65.6	-2.8	NA	Beneficial
Lombard Street from Lyon Street to Ruger Street (Presidio)	64.3	64.3	+0.0	52.9	Negligible
Presidio Boulevard between Pacific Avenue and Broadway (Presidio)	64.0	64.3	+0.3	52.6	Negligible
Lincoln Boulevard between 25th Avenue and Hoard Road	67.7	68.0	+0.3	57.0	Negligible
Cumulative Fleet Week Weekend Midday Peak Noise Levels					
Bay Street from Van Ness Avenue to Franklin Street (Fort Mason area)	68.4	68.8	+0.4	58.3	Negligible
Lombard Street from Lyon Street to Ruger Street (Presidio)	64.3	64.9	+0.5	56.2	Minor
Lincoln Boulevard between 25th Avenue and Hoard Road	67.7	69.0	+1.3	63.2	Moderate

NOTES: Road center to receptor distance is assumed to be 50 feet for values shown in this table. Noise levels were determined using the Federal Highway Administration (FHWA) traffic noise model. The average speed on these segments is assumed to be 25 miles per hour.

dBA = A-weighted decibels. Leq(H) = hourly average noise equivalent level; NA = Not Applicable

SOURCE: ESA 2012

As shown in Table NOI-9, weekday traffic noise increases would be negligible for all four analyzed roadways. Peak event weekend traffic noise increases would be negligible for three roadways, and beneficial for one roadway due to road closures.

4.8.10.5 Generator Noise

Under Alternative E, generator operations may only occur at SAFR. Because the generator at SAFR would be only marginally increase the ambient noise environment at the nearest receptor (see Table NOI-6), the generator noise impact of Alternative E would be reduced from moderate adverse to minor adverse with protective measures.

4.8.10.6 Amplified Sound

There would be no entertainment venues at Crissy Field under Alternative E. Consequently the nearest amplified sound source would be the stage located at Marina Green, approximately 2,000 feet from Crissy Field Center. Amplified sound impacts at Aquatic Park could be the same as under the Sponsor Proposed Project. Resultant sound levels at this distance would depend on the volume levels established by the Event Authority. Consequently, similar to the proposed action, protective measures are identified to establish operating procedures for amplified sound at entertainment venues, including establishment of appropriate operating volumes with noise monitoring verification. Therefore, the impact of amplified sound under Alternative E with protective measures would be similar to the Sponsor Proposed Project, moderate adverse.

4.8.10.7 Fireworks

There would continue to be a total of four fireworks events for the 2013 events under Alternative E. Given the brief duration and limited number of firework events proposed, noise from firework displays under Alternative E is expected to result in a minor adverse human exposure impact, the same as under Alternative B.

4.8.10.8 Cumulative Impacts

Federal lands including parklands would be subjected to the cumulative contribution of all noise sources generated by AC34 events under Alternative E. The contributions from amplified sound systems would be reduced for Crissy Field receptors under Alternative E, as these sources would no longer operate at Crissy Field. A park visitor at Crissy Field would continue to be simultaneously exposed to minor noise contributions from roadway traffic increases as well as moderate adverse impacts from helicopters and generators on a given event day. A summation of cumulative noise sources at Crissy Field from AC34 events under Alternative E (57.0 dBA ambient + 57.2 dBA helicopters + 60 dBA Amplified Sound) results in a cumulative noise level of 63.1 dBA, which would be 6.1 dBA above the ambient resulting in a minor adverse cumulative impact.

Additionally, Alternative E, unlike the other alternatives would have a four-day overlap with Fleet Week activities in 2012. Fleet Week days would result in cumulative increases in vehicle traffic and additional noise from jet over flights. As indicated in Table NOI-3, cumulative traffic volumes

including Fleet Week traffic would result in a moderate impact along Lincoln Boulevard, a minor impact on Lombard Street and a negligible impact on Bay Street. The F-18 Hornet aircraft used by the Blue Angels during Fleet Week can generate 110 dBA at a distance of 1000 feet (U.S. Department of the Navy 2011). These noise levels from jet aircraft would overwhelm the cumulative contributions of Alternative E sources, which would not have a quantifiable contribution during flyover events.

4.8.10.9 Conclusion

There would be no potential major adverse noise impacts resulting from Alterative E. Noise impacts related to traffic and amplified sound would be reduced from moderate to negligible under Alternative E compared to the Sponsor Proposed Project (Alternative B). Protective measures are identified to lessen the contribution of noise impacts, including moderate cumulative traffic noise impacts on Lincoln Boulevard.

4.8.11 Mitigation Measures

No noise mitigation would be warranted under any of the project alternatives. All potential effects on noise have been addressed through site-specific protection measures and management actions associated with each of the project alternatives.

4.8.12 References

Federal Interagency Committee on Noise (FICON)

1992 "Federal Agency Review of Selected Airport Noise Analysis Issues." August 1992.

Federal Railroad Administration (FRA)

2005 *High Speed Ground Transportation Noise and Vibration Impact Assessment, Final*.

Federal Transit Administration (FTA)

2005 *Draft environmental Impacts Statement/Report and Draft Section 4(f) Evaluation for South Access to the Golden Gate Bridge*. December 2005.

2006 *Transit Noise and Vibration Impact Assessment*.

National Oceanographic and Atmospheric Administration (NOAA)

2011 "Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to Coastal Commercial Fireworks Displays at Monterey Bay National Marine Sanctuary, CA." *Federal Register* (76FR29196) June 6, 2011. Pgs 29196-29209

National Park Service (NPS)

2000 Director's Order #47: Soundscape Preservation and Noise Management, approved by Robert Stanton, Director, December 2000, Available on the Internet at http://www.nps.gov/policy/DOrders/DOrder47.html, viewed on December 2, 2011.

2006 Management Policies, 2006, page 56, Available on the Internet at http://www.nps.gov/policy/mp2006.pdf, viewed on December 2, 2011.

2011 Golden Gate National Recreation Area. *Acoustical Monitoring 2007-2008*.

U.S. Department of the Navy

2011 Scoping Meeting U.S. Navy F-35C, West Coast Homebasing, Environmental Impact Statement, February 2011.

4.9 VISUAL RESOURCES

This section addresses the potential visual impacts associated with implementation of the America's Cup (AC34) proposed project and alternatives. Visual resources are defined as the visible natural and built landscape features that surround a project site. In this section, the effects of the proposed actions on the visual resources under federal jurisdiction in the study area are evaluated. The resources of particular interest are the affected viewsheds and lightscapes. Section 3.9 describes the existing visual setting at each of the federally managed spectator venues and secondary viewing areas. Impacts of light on wildlife are evaluated in Section 4.5, Biological Resources.

4.9.1 Study Area/Context

San Francisco and San Francisco Bay provide the regional setting for the AC34 project. The San Francisco waterfront is a highly developed urban waterfront with considerable density, variation of landform, and land uses that provide numerous scenic vistas and viewing opportunities for AC34 activities on San Francisco Bay. Within this diverse setting are the federal lands that are the subject of this visual evaluation.

The spectator venues addressed in the federal action include San Francisco Maritime National Historical Park (SAFR) and the related Aquatic Park; Crissy Field; Lower Fort Mason; Alcatraz Island; and Fort Baker Pier. Secondary viewing areas—those areas offering views of the race that are not specifically identified as potential venues—are the Marin Headlands, Fort Point National Historic Site, and the Presidio of San Francisco (Area B). The Marin Headlands and Fort Point National Historic Site are both within the Golden Gate National Recreation Area (GGNRA), whereas Area B of the Presidio is managed by the Presidio Trust. The Golden Gate Bridge also provides considerable opportunities to view to the Bay, though it is not under federal jurisdiction. Within the Bay are Alcatraz Island, Angel Island, Treasure Island, and Yerba Buena Island, all offering viewing opportunities of the proposed racing area. Only Alcatraz Island is under federal (NPS) jurisdiction. A map of the study area is shown in **Figure ALT-1**.

4.9.2 Issues

Potential visual resource issues associated with the AC34 events include the following:

- **Quality of Public Views of the Bay.** America's Cup activities may block views of the Bay, ocean, or adjacent open spaces. This issue stems from concerns that many large yachts might come to San Francisco Bay to watch the races and might position themselves between landside venues and the race events such that they would block views of the Bay.

- **Quality of Public Views from NPS Lands.** During periods of the America's Cup events, typical views from national park lands may not be available because of the likelihood of more boats on the Bay and more people in the parklands during some race events. This issue arises from the desire to continue providing top-quality views and viewing conditions for traditional visitors who may not be interested in the America's Cup races.

- **Quality of AC34 Spectator Views of the Race.** The quantity of America's Cup spectators (on land and on water) may periodically limit or block views to the Bay and the actual America's Cup events. This issue arises from the desire to provide top-quality viewing experiences for visitors who do want to see the races.

- **Impacts of AC34 Spectator Density on the Aesthetic Quality of NPS Lands and Facilities**. The number of America's Cup spectators drawn to a particular viewing location may exceed the capacity of available facilities to accommodate those visitors, thereby diminishing the viewing experience and potentially harming the landside resource. This issue raises the question of which areas can accommodate expected crowds and what management measures would be implemented to protect the visual resources and aesthetic resources in those areas.

4.9.3 Guiding Regulations and Policies

The regulations and policies specific to visual resources are summarized below. Preservation of the area's scenic beauty is a consistent theme in all of the primary policy documents.

4.9.3.1 Federal Regulations

National Park Service Organic Act of 1916

Through the NPS Organic Act of 1916 (Organic Act), Congress directs the U.S. Department of the Interior and the NPS to manage units "to conserve the scenery and the natural and historic objects and wildlife therein and to provide for the enjoyment of the same in such a manner and by such a means as will leave them unimpaired for the enjoyment of future generations" (16 USC 1). The Organic Act prohibits actions that impair park resources unless a law directly and specifically allows for these actions (16 USC 1a-1).

National Park Service Management Policies (2006)

Regulations governing the GGNRA (Marin Headlands, Alcatraz Island, Area A of the Presidio) and San Francisco Maritime National Historical Park are promulgated by the NPS in accordance with Title 36, Code of Federal Regulations. Specific policies for each area within NPS jurisdiction are established in individual general management plans. Particularly relevant to the management of visual resources are the NPS Management Policies, which establishes as NPS policy the preservation "to the greatest extent possible, the natural lightscapes of parks, which are natural resources, and the values that exist in the absence of human-caused light" (NPS 2006). The NPS restricts the use of artificial lights in parks to those areas where security, basic human safety, and specific cultural resource requirements must be met, and encourages shielding artificial lighting where necessary to prevent the disruption of the night skies.

General Management Plan – Golden Gate National Recreation Area

The original GGNRA General Management Plan (GMP) (NPS 1980) is a master land use plan that ensures that the park has a clearly defined direction that sets achievable and sustainable goals for

resource preservation and visitor use. The GMP combines the plan for the GGNRA with the plan for Point Reyes National Seashore, which adjoins the GGNRA. In reference to the outstanding quality of the scenic, natural, and historic resources in the GGNRA, the GMP states as follows:

> It may be the sharp contrast between the intensively developed urban environment of San Francisco and the park's adjacent and undeveloped areas that make it particularly unique. It points to the chance to view wilderness-quality scenery, headlands that are much like they were when gold-seekers first viewed them a century ago, and the chance to be removed from the sights and sounds of man a short hike away. This wide variety of resources and outdoor settings provide opportunities for a correspondingly diverse array of recreational and educational activities of a quality and character found nowhere else.

Since 1980, the GGNRA has doubled in size, and park staff members have gained a better understanding of the natural and cultural resources and recreational uses within the park. Although always valued for its preservation of public open spaces, the GGNRA is now considered to be one of the most biologically diverse areas along the California coast and is recognized by the United Nations as part of the Golden Gate Biosphere Reserve. Numerous and varied landscapes, including military landscapes, ranch sites, and historic districts, have been identified with the park since 1980, expanding awareness of the park's historical importance. Additionally, the growing and diverse population of the Bay Area now enjoys the park in a variety of ways, creating new and different demands that must be addressed.

The NPS is currently updating the GMP for NPS-administered lands within the GGNRA. The draft GMP (NPS 2011a) recognizes that the park's scenic beauty and natural character provide opportunities for visitors to experience dramatic settings. The draft GMP also notes that the park's varied landscapes are the stage for multisensory experiences that are a hallmark of the Bay Area. The updated plan seeks to preserve these important scenic resources and make them available to the public, and provides guidance in the preservation and enhancement of scenic resources. The updated plans also provides for measures to minimize visual intrusions, such as using fences to route people away from sensitive natural and cultural resources while still permitting access to important viewpoints.

A key interpretive theme for the updated GGNRA GMP includes scenic beauty, which has been found to have a positive influence and interpretive message for the area. The dramatic setting provides a contrast between urban environments and undeveloped spaces and the compelling historical stage that contributes to the understanding the history of the area. The updated GGNRA GMP also includes alternatives to reach out and engage the community and other visitors in the enjoyment, understanding, and stewardship of the park's resources and value. Goals are geared toward the visitor's experience and cultural and natural resources (NPS 2011a).

General Management Plan Amendment, Presidio of San Francisco

GGNRA legislation ensured that if the military deemed the Presidio of San Francisco to be in excess of its needs, jurisdiction would be transferred to the NPS. In 1989 the Presidio was designated for closure, and in 1994 the U.S. Army transferred the Presidio to the NPS. The GMP Amendment (GMPA) (NPS 1994) was developed by the NPS to provide direction and policy guidance in the

transition of this former military post to a unit of the NPS and provide guidelines for management, use, and development of the overall site.

The 1994 GMPA acknowledged the "spectacular views of the Golden Gate, Alcatraz Island, and the bay" as among Crissy Field's most important natural features. The 1994 GMPA foresaw that the "world-class views" anchored by the Golden Gate Bridge and its dramatic setting would reinforce the vision of the Presidio as a site of international significance. A key objective of the 1994 GMPA is to manage Crissy Field to enhance its setting to allow experiences that draw visitors from throughout the world.

Crissy Field Plan

The Crissy Field Plan (NPS 1996) recognizes Crissy Field's "awe-inspiring" views of the scenic landscape of the Bay Area and assumes that visitors to the site would be highly sensitive to adverse changes that might block or diminish these views.

Presidio Trust Management Plan

In 1996, Congress passed the Presidio Trust Act, creating the Presidio Trust as a wholly owned federal government corporation and granting jurisdiction of the 1,168-acre interior area of the Presidio, known as Area B, to the Presidio Trust. Area A, the flat area including Crissy Field along the shoreline inland to Mason Street, remains under the jurisdiction of the NPS.

In 2002, the Presidio Trust approved the Presidio Trust Management Plan (PTMP) to update and supersede the GGNRA GMP Amendment in Area B. The GGNRA GMP Amendment remains the management plan for Area A, the coastal lands of the Presidio, which are still under the jurisdiction of the NPS. The PTMP notes that the Mason Street corridor in Crissy Field offers views across the airfield and marsh to the Golden Gate Bridge and the Bay. The PTMP seeks to keep Mason Street as an open streetscape with expansive views, and to retain the open setting and feel of Crissy Field.

General Management Plan—San Francisco Maritime National Historical Park

The GMP for San Francisco Maritime National Historical Park guides the management of resources, visitor use, and general development at the park. It summarizes the final actions that were approved in the park's Final General Management Plan/Environmental Impact Statement (NPS 1997).

The direction for future park management is based on the laws establishing the park, the purpose of the park, and the park's significant resources. The park's purpose, as mandated by Congress, is to preserve and interpret the history of achievements of seafaring Americans and the nation's maritime heritage, especially on the Pacific Coast.

4.9.3.2 State and Local Regulations

The following laws, regulations, plans, and policies are administered by state and local agencies within the project area but do not directly affect or control decisions on federal lands.

San Francisco Bay Conservation and Development Commission (BCDC) Plans and Policies

The Bay Conservation and Development Commission (BCDC) is a state agency with permit authority over the Bay and its shoreline. BCDC regulates new development within 100 feet of the shoreline to ensure that maximum feasible public access to and along the Bay is provided. BCDC is also charged with ensuring that the limited amount of shoreline property suitable for regional high-priority water-oriented uses (ports, water-related industry, water-oriented recreation, airports, and wildlife areas) is reserved for these purposes. Landside uses and structural changes are governed by policies regarding public access. BCDC can require, as conditions of permits, shoreline public access improvements consistent with a proposed project, such as, but not limited to, pathways, observation points, bicycle racks, parking, benches, landscaping, and signs.

BCDC's *San Francisco Bay Plan* (Bay Plan) was amended through 2007 in accordance with the McAteer-Petris Act (California Government Code Sections 66600-66682). The Bay Plan guides the protection and use of the Bay and its shoreline. Part IV of the Bay Plan contains findings and policies that pertain to "Appearance, Design and Scenic Views"; "Salt Ponds and Other Managed Wetlands"; and "Other Uses."

The policy framework of Part IV of the Bay Plan includes area plans for specified uses or geographic locations that provide more detailed and site-specific policy direction. There are two such plans that apply to the San Francisco waterfront: (1) the *Bay Area Seaport Plan*, and (2) the *San Francisco Waterfront Special Area Plan*. Refer to the AC34 Draft Environmental Impact Report for detailed information about these two plans.

San Francisco General Plan – Northeastern Waterfront Area Plan

The Northeastern Waterfront Area Plan of the *San Francisco General Plan* includes the Fisherman's Wharf Subarea, which extends from Municipal Pier (in Aquatic Park) to Pier 39. This plan guides growth and development along San Francisco's northeastern waterfront, from Fisherman's Wharf to South Beach. The Northeastern Waterfront Area Plan recommends objectives and policies designed to "contribute to the waterfront's environmental quality, enhance the economic vitality of the Port and the City, preserve the unique maritime character, and provide for the maximum feasible visible and physical access to and along the Bay."

Designated or Eligible Scenic Roads

In 1938, San Francisco's Downtown Association created the 49-mile Scenic Drive to highlight San Francisco's beauty and to promote the city as a tourist destination. The 49-Mile Scenic Drive passes through much of the project area, including portions of The Embarcadero, Jefferson Street through Fisherman's Wharf and along Aquatic Park, Bay Street, Laguna Street around Fort Mason, Marina Boulevard along Marina Green, and Lincoln Boulevard through the Presidio and overlooking Crissy Field. Although there are no plans or policies associated with 49-Mile Scenic Drive, these streets are recognized for their aesthetic value. The Golden Gate Bridge is one of the scenic destinations of the 49-Mile Scenic Drive, and Highway 1, which passes over the bridge, is considered as an eligible roadway under the Caltrans scenic highway program.

4.9.4 Assessment Methods/Thresholds

This section describes the approach to the visual analysis, the criteria used to evaluate each alternative, and the process of determining impacts and conclusions. The criteria discussed below include context, intensity, and duration of impacts at each venue as well as the cumulative effects.

4.9.4.1 Impact Thresholds

The AC34 event sponsors propose to install temporary facilities and host events at multiple spectator venues that could affect the visual character of federal sites and scenic resources. The sailing events themselves and many of the spectator boats would be in federal waters that are scenic resources of San Francisco Bay. The race, the facilities, and the spectators would temporarily modify the scenic character of these areas. The scenic character of the shoreline includes all existing natural and built features of the viewsheds, during both day and nighttime viewing.

The following impact thresholds have been developed for analyzing America's Cup impacts on scenic resources, viewsheds, and lightscapes. Due to the nature of the event, unless otherwise indicated, all impacts discussed would be local, short-term, and adverse.

Beneficial Impact: The character-defining features of a scenic resource or landscape would be maintained and restored to improve the scenic character of the setting or viewshed.

Negligible Impact: Impacts caused by the America's Cup facilities and associated activities would be at the lowest levels of detection, barely measurable with neither adverse nor beneficial consequences. The scenic character of the shoreline landscape and the near-Bay waters would incur no change or barely perceptible changes to scenic resources that contribute to the viewshed.

Minor Impact: The AC34 projects would not affect the visual character of the scenic resource. The impact would be measurable or detectable but slight, of limited intensity, or of such short duration so as not to diminish the overall integrity of the resource.

Moderate Impact: The AC34 project would alter the visible character-defining feature(s) of the site or viewshed such that the visible effects of the proposed changes would be measurable and perceptible. These changes could temporarily diminish the visual quality of the site, but they would cause no lasting or permanent change to scenic resources of the site or viewshed.

Major Impact: The AC34 project would alter the visible character-defining features of the site or viewshed such that the visible effects of the proposed changes would be obvious and measurable. The visible changes to scenic resources would affect the missions of the NPS and the Presidio Trust to protect scenic resources and landscapes from long-term detrimental changes. The impact would be substantial, noticeable, and permanent. The action would severely damage scenic resources.

This analysis considers the consistent desire expressed in parkland legislation, general planning goals, and community objectives to protect and preserve scenic views of San Francisco Bay and the surrounding landscape. The thresholds acknowledge the consistently high visual quality of San Francisco Bay and the shoreline and evaluate the project's effect on scenic viewsheds and lightscapes surrounding the AC34 events. To determine if impacts on scenic resources would be major or minor, the duration and intensity of project activities are evaluated. "Intensity" in this case refers to

the scale and dominance of the anticipated visual changes relative to associated features in the existing scene. "Integrity" refers to the comparison of the existing scene before changes are made, to determine how noticeable new facilities and management actions may be. The visual impact thresholds are equally relevant and applicable to each of the potential issues presented above and are used when analyzing impacts in relation to each issue. The context of the potential impacts is typically based on shared regional viewsheds.

4.9.4.2 Approach to Visual Analysis

This analysis compares the existing visual conditions, as discussed in Section 3.9, with the visual conditions anticipated under the proposed project and each of the alternatives. The context, duration, and intensity of the proposed changes are evaluated to determine the degree of impact. Any changes to the visual character at each of the project sites associated with the AC34 project are described and assessed according to the impact thresholds listed above.

Also considered are nighttime views, or lightscapes, and the potential for the project to create light or glare in surrounding areas. This topic is of particular interest along the waterfront in the Presidio and in the Marin Headlands, which maintain consistently darker nighttime skies, similar to darker portions of the Bay that offer better views of the stars as compared to views from the City or other brighter lightscapes.

This scenic resources evaluation uses a three-step process:

1) Existing scenic resources at project sites are described in Section 3.9, where the visual characteristics or assembly of natural and built features contributing to each viewshed are identified.

2) Visible changes associated with implementation of the proposed project and alternatives are characterized. The characterizations of visible changes are segmented by alternatives and venues. For each of the venues the foreground, middleground, and background portions of the viewsheds are considered, as are potential changes to nighttime lightscapes.

3) Each of the visual issues identified above are evaluated for the proposed project and alternatives. For each of the issues discussed above, the impact thresholds are used to determine the intensity of impacts at each venue. The visual characteristics of the proposed project features are evaluated for their effect on viewsheds and nighttime lightscapes.

4.9.4.3 Summary of Visual Changes

Alternatives carried forward for detailed analysis include:

- Alternative A–No Action;
- Alternative B–Sponsor Proposed Project;
- Alternative C–No Organized Events on NPS Lands;
- Alternative D–Modified Program Alternative; and
- Alternative E–Preferred Alternative.

Each of these alternatives is described in full detail in Chapter 2 – Alternatives.

The following sections summarize the visual changes anticipated with implementation of Alternatives A through E. **Tables VIS-2** through **VIS-5** below summarize the visual changes anticipated with the action alternatives (Alternatives B through E), with characterizations of the visible facilities, viewing distances, and anticipated visitation numbers. The temporary changes to the viewsheds, by foreground, middleground, and background, are described for each venue under each alternative. The effects of each alternative on nighttime lightscapes are also characterized. The changes to viewsheds and lightscapes are finally compared to the impact thresholds to determine the impact intensity. Higher intensity impacts related to each alternative are discussed further in the following sections.

4.9.5 Impacts of Alternative A—No Action

Under Alternative A, the 34th America's Cup would not be held in San Francisco Bay. Federal agencies would not issue permits or develop regulations for race-related activities. Accordingly, there would be no AC34 races on San Francisco Bay, no organized AC34 activities on NPS lands, and no race-related water-based improvements. Alternative A assumes a continuation of normal events and activities throughout the San Francisco Bay region, including those under the purview of the U.S. Coast Guard, National Park Service, U.S. Army Corps of Engineers, and the Presidio Trust, that would have otherwise occurred in the absence of the 34th America's Cup races in 2012 and 2013.

4.9.5.1 Alternative A Impacts on Viewsheds

Under Alternative A, impacts on project area viewsheds resulting from ongoing activities and obstructions would continue as under current conditions. There would, however, be no impact on federally managed viewsheds caused by AC34.

4.9.5.2 Alternative A Impacts on Lightscapes

Under Alternative A, impacts on project area lightscapes resulting from ongoing sources of night lighting would continue as under current conditions. There would, however, be no impact on federally managed lightscapes caused by AC34.

4.9.5.3 Conclusion

Alternative A would not involve any change from current activities, and there would be no actions that could cause long-term detrimental changes to visual resources, federal or otherwise, in the Bay or on adjacent parklands. Therefore, there would be no impact to visual resources.

TABLE VIS-2: ALTERNATIVE B–SPONSOR PROPOSED PROJECT: SUMMARY OF VISUAL CHANGES

AC34 Temporary Facilities and Agency Management Actions at Each Venue	Viewing Distances (feet) Primary Course/ *Contingency Course*	Race Day Visitation Estimates (Average Peak Weekend)[1]	Temporary Viewshed and Lightscape Changes	Impact Intensity
Aquatic Park/SAFR First aid kiosk, portable restrooms, and hand washing stations during all race periods Exhibitions, including up to six boat displays in Aquatic Park Cove Several large landside video screens and announcement system Possible use of Maritime Museum for special indoor events Weather monitoring equipment installed at Municipal Pier	Primary Course: 1,000'- 5,000'= Near - constrained viewshed over Municipal Pier *Contingency Course: Not Visible – behind Hyde Street Pier*	Primary Course: Existing – 9,720 **2012** – 12,920 **2013** – 16,120 *Contingency Course: Fewer visitors*	***Foreground*:** Tents in upper park area on Beach Street would be similar to art shows typically held there, though more crowded. Spectators would be in the amphitheater, which is usually vacant. Beach, waterfront not changed. Maritime Museum not changed. Bay Trail (Aquatic Park Promenade) busier on weekend race days. ***Middleground*:** The circular Aquatic Park Cove would be focused on six additional display boats in the center, extending the existing historic ship displays at Hyde Street Pier. ***Background*:** Views of distant hills, Angel Island, Alcatraz Island, and Tiburon would be unchanged. Open water of the Bay would be visible only from elevated perspectives. ***Lightscape*:** Cable car, Ghirardelli Square, and Fisherman's Wharf tourist destinations would continue to surround the park area with a busy well-lit nighttime setting. In 2013, fireworks would be visible, but no additional lighting or nighttime activities, such as a video screen, are scheduled. The Bay and backside of Fort Mason would remain dark.	Minor Minor Minor Negligible
Crissy Field Facilities set back 25 feet from the Bay Trail (Crissy Field Promenade), with no sponsor displays One large tent (300'x 100'x 42' tall), several small tents (12'x 12') for hospitality, food, and beverage First aid kiosk, portable restrooms, hand washing stations, and educational installations during race periods Bleachers (140'x 25' x 8'), seating for 4,800, 1 stage (110'x 100' x 70'), with sound and light Three video screens, one (20'x 11') and two small (13' x 5')	Primary Course: 1,000'- 5,000' = Near *Contingency Course: 8,000'- 18,000'= Distant (behind Alcatraz Island)*	Primary Course: Crissy Field East Existing: 5,790 **2012** – 10,390 **2013** – 11,310 Crissy Field West Existing: 2,100 **2012** – 16,910 **2013** – 51,480 *Contingency Course: Fewer visitors especially at Crissy Field West*	***Foreground*:** The large open lawn landside of the Bay Trail would have a large tent, bleachers, a stage, tents with food, restrooms, and water occupying half the open area. Bay Trail (Crissy Field Promenade) views would not be blocked. 2012 visitation would be minimal, while 2013 visitation would create crowded conditions. ***Middleground*:** More use of the Bay Trail by more pedestrians and bicyclists viewing shoreline and races. Patrols managing access to beach. Race boats and spectator boats visible on Bay waters. ***Background*:** Portions of the Bay, the Marin Headlands, Tiburon, Angel Island, Alcatraz, distant East Bay hills, and the city skyline would still be visible; some obstructed viewing due to crowding. ***Lightscape*:** Nighttime activities, and video screens, would illuminate this otherwise very dark area from sunset to 10:00 p.m. Amber lights would continue to outline Golden Gate Bridge and towers.	Moderate Minor Minor Minor

[1] Average peak weekend visitation are total daily visitation figures. AC34 spectator estimates include portions of existing visitors according to facilities and conversion rates at each site. Please see Section 4.7, Visitor Experience, for a more detailed discussion of visitation at these locations.

TABLE VIS-2: ALTERNATIVE B–SPONSOR PROPOSED PROJECT: SUMMARY OF VISUAL CHANGES (CONTINUED)

AC34 Temporary Facilities and Agency Management Actions at Each Venue	Viewing Distances (feet) Primary Course/ *Contingency Course*	Race Day Visitation Estimates (Average Peak Weekend)	Temporary Viewshed and Lightscape Changes	Impact Intensity
Fort Mason Mostly internal operations and media; food and beverage Pier 2 hosts floating barge (~60'x 80') for media boat dock Secondary viewing on aprons Up to 10 satellite dishes on Pier 3 apron Temporary displacement of existing uses Portable restrooms and hand washing stations during race periods	Primary Course: 1,000'- 5,000' = Near *Contingency Course: 6,000' - 15,000' = Moderate Distance*	Primary Course: Existing: 4,580 **2012** – 5,380 **2013** – 5,380 *Contingency Course: Same number of visitors*	***Foreground*:** Continued use of parking, large historic warehouses would remain unchanged. One additional barge at Pier 2 is consistent with normal use. Temporary satellite dishes may be visible depending on color and location. ***Middleground*:** Addition of race boats and spectator boats in primary race area just off shore. Contingency course would be visible from east-facing aprons of eastern pier only. ***Background*:** Views of the Marin Headlands, Tiburon, Angel Island, and Alcatraz Island would not be affected. ***Lightscape*:** Fort Mason Center nightlife with clubs, restaurant surrounded by well-lit parking lots would remain. Upper Fort Mason would remain dark.	Minor Minor Negligible Negligible
Alcatraz Regular tours and ferry service ongoing during AC34. No additional Weather station and satellite dishes After-hours temporary interior installations for private/corporate events in main cell house in accordance with NPS special use permits	Primary Course: 1,000'- 5,000' = Near *Contingency Course: 1,000'-5,000' = Near*	Primary Course: Existing: 5,200 **2012** – 5,200* **2013** – 5,200* *Contingency Course: Same number of visitors* *No Change-existing visitation only	Visitation use patterns would shift toward the water. ***Foreground*:** Historic lighthouse, fortifications, and prison structures would be visible ***Middleground*:** Edges of the island would see increases in visitors and the near-Bay waters would have multiple race boats visible during races. The primary course to the west and contingency course to the east would be equidistant. ***Background*:** No change to views of distant waters and shorelines of the city, Golden Gate Bridge, Marin Headlands, Angel Island, and East Bay hills would result. ***Lightscape*:** Dark. City skyline and Golden Gate Bridge illuminated in distance. Any lighting for nighttime activities would be interior, as allowed by special use permit.	Minor Minor Negligible Minor
Fort Baker After-hours venue for hosting corporate and private events Provisions for public daytime fishing Secondary viewing location Portable restrooms and hand washing stations during race periods	Primary Course: **2012** 3,500'- 5,000' **2013** 2,500'- 5,000' *Contingency Course: 15,000' - 30,000' (3-5½ miles = Very Far)*	Primary Course: Existing: 1,770 **2012** – 2,050 **2013** – 2,170 *Contingency Course: Fewer visitors*	***Foreground*:** More visitors could limit views to nearby waters. ***Middleground*:** 120-degree view of Bay, with moderate distance to 2012 primary race area. 2013 races would be closer and more visible. ***Background*:** Cavallo Point, Bay waters, distant City skyline views. Contingency race area so far away *it would be not be visible*. ***Lightscape*:** Dark. City skyline and Golden Gate Bridge illuminated. Area lighting for nighttime events may occur, as approved under separate special use permits. All fireworks would be very distant.	Minor Minor Negligible Moderate

TABLE VIS-3: ALTERNATIVE C–NO ORGANIZED EVENTS ON NPS LANDS: SUMMARY OF VISUAL CHANGES

AC34 Temporary Facilities and Agency Management Actions at Each Venue	Viewing Distances (feet) Primary Course/ *Contingency Course*	Race Day Visitation Estimates (Average Peak Weekend)	Temporary Viewshed and Lightscape Changes	Impact Intensity
Aquatic Park/SAFR No video screen or display boats No food or beverage concessions Events in Maritime Museum per NPS permits First aid kiosk, portable restrooms, and hand washing stations only on peak and medium-high weekends Continued public aquatic uses	Primary Course: 1,000′ – 5,000′= Near (over Municipal Pier) *Contingency Course Northeast of Treasure Island: Not Visible*	Primary Course: Existing: 9,720 **2012** – 11,320 **2013** – 12,920 *Contingency Course: Fewer visitors*	***Foreground*:** No change except addition of portable restrooms. Views of museum, park, amphitheater, and steps to beach would be mostly unobstructed, but additional crowing could occur. More people on Bay Trail on weekend race days going to see AC34 races. ***Middleground*:** Views of the circular Aquatic Park Cove would remain unchanged. Views of race boats in the distance. ***Background*:** Views of distant hills, Angel Island, Alcatraz Island, and Tiburon would be unchanged. ***Lightscape*:** No change; continued tourist destination with busy well-lit nighttime setting until about midnight. The Bay and backside of Fort Mason would remain dark.	Negligible Minor Negligible Negligible
Crissy Field No tents or structures No food or beverage concessions No bleacher structures, stage, sound, or night lighting system Limited facilities landside of Bay Trail First aid kiosk, portable restrooms, and hand washing stations only on peak and medium-high weekends	Primary Course: 1,000′ – 5,000′ = Near *Contingency Course: 8,000′ – 18,000′ Distant (behind Alcatraz)*	Primary Course: *Crissy Field East* Existing: 5,790 **2012** – 9,010 **2013** – 14,530 *Crissy Field West* *Existing: 2,100* **2012** – 5,560 **2013** – 11,480 *Contingency Course: Fewer visitors especially at Crissy Field West*	***Foreground*:** Open lawn at edge of the Bay Trail (Crissy Field Promenade) would become large secondary viewing area with limited facilities or controls. Increased use by pedestrians, runners, and bicyclists on the Bay Trail would occur. ***Middleground*:** Same race boats in the Bay would be visible, as in Alternative B, and spectators would gather to watch with binoculars and scopes, seeking viewing advantages from elevated positions. ***Background*:** Views of distant portions of the Bay, the Marin Headlands, Tiburon, Angel Island, Alcatraz Island, the East Bay hills, and the city skyline would remain the same. ***Lightscape*:** No change; still very dark, with limited traffic on Mason Street (at night) and amber lights delineating the Golden Gate Bridge, highlighting towers.	Minor Minor Negligible Negligible
Fort Mason No barge at Pier 2 for media boats No satellite dishes on Pier 3 apron Secondary viewing from apron of piers; piers used for other events as normal Portable restrooms and hand washing stations only on peak and medium-high race weekends	Primary Course: 1,000′ – 5,000′= Near *Contingency Course: 6,000′ – 15,000′*	Primary Course: Existing: 4,580 **2012** – 5,380 **2013** – 4,980 *Contingency Course: Same number of visitors*	***Foreground*:** No change to parking lots or historic warehouses. Additional crowing around viewpoints. ***Middleground*:** Addition of race boats and spectator boats in primary race area just off shore. Contingency race area visible from east-facing aprons of eastern pier only. ***Background*:** No change to views of the Marin Headlands, Angel Island, and Alcatraz Island. ***Lightscape*:** No change to active well-lit nightlife at Fort Mason Center. Upper Fort Mason would remain dark.	Minor Minor Negligible Negligible

TABLE VIS-3: ALTERNATIVE C–NO ORGANIZED EVENTS ON NPS LANDS: SUMMARY OF VISUAL CHANGES (CONTINUED)

AC34 Temporary Facilities and Agency Management Actions at Each Venue	Viewing Distances (feet) Primary Course/ *Contingency Course*	Race Day Visitation Estimates (Average Peak Weekend)	Temporary Viewshed and Lightscape Changes	Impact Intensity
Alcatraz Regular tours and ferry service ongoing during AC34 No weather station and satellite dishes No temporary interior installations for private/corporate events	Primary Course: 1,000′ – 5,000′= Near *Contingency Course:* *1,000′ – 5,000′*= Near	Primary Course: Existing: 5,200 **2012** – 5,200* **2013** - 5,200* *Contingency Course:* *Same number of visitors* **No Change-existing visitation only*	Visitation use patterns would shift toward the water. ***Foreground*:** Historic lighthouse, fortifications, and prison structures would be visible ***Middleground*:** Edges of the island would see increases in visitors and the near-Bay waters would have multiple race boats visible during races. The primary race area to the west and contingency area to the east would be equidistant. ***Background*:** No change to views of distant waters and shorelines of the city, Golden Gate Bridge, Marin Headlands, Angel Island, and East Bay hills would result. ***Lightscape*:** Dark. City skyline and Golden Gate Bridge illuminated in distance. Additional lighting for nighttime activities would be interior, as allowed by special use permit.	Minor Minor Negligible Negligible
Fort Baker No special events Secondary viewing from Fort Baker Pier Portable restrooms and hand washing stations only on peak and medium-high race weekends	Primary Course: **2012** – 3,500′- 5,000′ **2013** – 2,500′-5,000′ = Near to Moderate Distance *Contingency Course:* *15,000′ – 30,000′ = Very Distant*	Primary Course: Existing: 1,770 **2012** – 2,050 **2013** – 2,170 *Contingency Course:* *Fewer visitors*	***Foreground*:** More visitors on deck would not be likely to limit viewing. ***Middleground*:** 120-degree view of Bay would be available. 2012 views to primary race area would be of moderate distance. 2013 races would be closer and more visible. ***Background*:** Views of Cavallo Point, the waters of the Bay, and the distant City skyline would be available. Contingency Race area so far away that it would be generally not visible, ***Lightscape*:** Dark, with illuminated city skyline and Golden Gate Bridge. All fireworks would be very distant.	Minor Minor Negligible Negligible

TABLE VIS-4: ALTERNATIVE D–MODIFIED PROGRAM ALTERNATIVE: SUMMARY OF VISUAL CHANGES

AC34 Temporary Facilities and Agency Management Actions at Each Venue	Viewing Distances (feet) Primary Course/ *Contingency Course*	Race Day Visitation Estimates (Average Peak Weekend)	Temporary Viewshed and Lightscape Changes	Impact Intensity
Aquatic Park/SAFR First aid kiosk, portable restrooms, and hand washing stations only on peak and medium-high race weekends No video screen No boat displays in Aquatic Park Cove Wi-Fi kiosks for transmission of race feeds to hand-held computers; and Weather monitoring equipment installed at Municipal Pier	Both Primary Courses: 1,000'- 5,000'= Near (View over Municipal Pier) *Contingency Course: Not Visible*	Primary Course: Existing: 9,720 ***2012*** **–** 13,720 ***2013*** **–** 13,720 *Contingency Course: Fewer visitors*	***Foreground*****:** Kiosks in upper park area on Beach Street would be similar to art shows typically held there, though more crowded. Spectators would be in the amphitheater, which is usually vacant. Beach, waterfront not changed. Maritime Museum not changed. Bay Trail busier on weekend race days. ***Middleground*****:** Views of the circular Aquatic Park Cove would remain unchanged. ***Background*****:** Views of distant hills, Angel Island, Alcatraz Island, and Tiburon would be unchanged. Open water of the Bay and occasional AC34 sailing races would be visible only from elevated perspectives. ***Lightscape*****:** Cable car and Fisherman's Wharf tourist destinations would continue to surround the park area with a busy well lit nighttime setting. In 2013 fireworks would be visible, though no additional lighting or nighttime activities would occur. The Bay and back side of Fort Mason would remain dark.	Minor Minor Negligible Negligible
Crissy Field Two large tents, 300'x 100'x 42'tall 3 bleachers, 140'x 25'x 8' free for 2,400 No sponsor displays, fewer small tents No stage, sound, lights, or LED screen Wi-Fi kiosks for transmission of race feeds to personal/rented screen devices No private tents or hospitality services Portable restrooms, hand washing stations, and first aid station only on peak and medium-high race weekends	2012 Primary Courses: 2,500'-6,500' (farther away from Crissy Field) = Moderate Distance 2013 Primary Course: 1,000'- 5,000'= Near *Contingency Course: 15,000' -30,000'= Far (behind Alcatraz Island)*	Primary Course: *Crissy Field East* *Existing: 5,790* ***2012*** **–** 7,350 ***2013*** **–** 15,910 *Crissy Field West* *Existing: 2,100* ***2012*** **–** 2,990 ***2013*** **–** 18,890 *Contingency Course: Fewer visitors*	More distant viewing of 2012 races (compared to Alternative B). ***Foreground*****:** Fewer facilities would be in place. Views from the Bay Trail (Crissy Field Promenade) to the Bay would not be blocked. No stage or large screens, fewer bleachers. 2012 visitation would be low, 2013 visitation high (same as Alternative B, especially during peak race days). ***Middleground*****:** Increased use of Bay Trail would occur. Limited visibility of distant races would reduce race use, though possibly more displaced regular users. ***Background*****:** Unchanged; The Bay, the Marin Headlands, Angel Island, Alcatraz Island, distant East Bay hills, and the city skyline would be visible, some with distant races. ***Lightscape*****:** No scheduled nighttime activities. Continued darkness. Amber lights outline Golden Gate Bridge and towers.	Moderate Minor Negligible Negligible

TABLE VIS-4: ALTERNATIVE D–MODIFIED PROGRAM ALTERNATIVE: SUMMARY OF VISUAL CHANGES (CONTINUED)

AC34 Temporary Facilities and Agency Management Actions at Each Venue	Viewing Distances (feet) Primary Course/ *Contingency Course*	Race Day Visitation Estimates (Average Peak Weekend)	Temporary Viewshed and Lightscape Changes	Impact Intensity
Fort Mason Mostly internal operations and media; food and beverage Pier 2 hosts floating barge (~60'x 80') for media boat dock No satellite dishes on pier apron Pier aprons open for public access Portable restrooms and hand washing stations only on peak and medium-high race weekends	Both Primary Courses: 1,000'- 5,000'= Near *Contingency Course: 6,000' -15,000' Visible from East Aprons*	Primary Course: Existing: 4,580 ***2012 –*** 5,380 ***2013 –*** 5,380 *Contingency Course: Same number of visitors*	Shift in 2012 race area would make Fort Mason a more attractive race viewing location. Aprons would be crowded with viewers. ***Foreground***: More crowds in parking lots and surrounding large historic warehouses on piers and aprons may limit views to the water. ***Middleground***: Warehouse structures would frame views of the Bay and race areas with boats. ***Background***: Views of the hills of the Marin Headlands, Tiburon, Angel Island, and Alcatraz Island would remain unchanged. ***Lightscape***: Fort Mason Center nightlife would become more active with the same lighting. Upper Fort Mason would remain dark.	Minor Minor Negligible Negligible
Alcatraz Regular tours and ferry service ongoing during AC34 Weather station and satellite dishes After-hours temporary interior installations for private/corporate events in main cell house in accordance with NPS special use permits	Both Primary Courses: 1,000'- 5,000' Near Island to South *Contingency Course: 1,000'- 5,000' Near Island to East*	Primary Course: Existing: 5,200 ***2012 –*** 5,200* ***2013 –*** 5,200* *Contingency Course: Same number of visitors* *No Change-existing visitation only	Duration of visitation may increase and patterns would shift toward the southern-facing open space areas facing the race area. ***Foreground***: Historic lighthouse, fortifications, and prison structures would be visible. ***Middleground***: Southern edges of island would see increases in visitors. Near-Bay waters would have multiple race boats visible during races. ***Background***: No change to views of distant waters and shorelines of the city, Golden Gate Bridge, Marin Headlands, Angel Island, and East Bay hills would occur. ***Lightscape***: No change; no nighttime activities would occur, and the area would remain dark.	Minor Minor Negligible Minor
Fort Baker No special events Secondary viewing from Fort Baker Pier Portable restrooms and hand washing stations only on peak and medium-high race weekends	2012 Primary Course: 7,000'- 20,000'= Moderate Distance 2013 Primary Course: 2,500' – 5,000' = Near *Contingency Course: 15,000' – 30,000 = Very Distant*	Primary Course: Existing: 1,770 ***2012 –*** 2,050 ***2013 –*** 2,170 *Contingency Course: Fewer visitors*	2012 race areas would be farther away. Nearest ends of primary courses would be visible. ***Foreground***: Few visitors for viewing with little change to views ***Middleground***: Little change 120-degree views of Bay, with added sail boats in distance ***Background***: No change to views of Cavallo Point, Bay waters, distant city skyline. ***Lightscape***: No change; dark, with illuminated city skyline and Golden Gate Bridge. All fireworks would be very distant.	Minor Minor Negligible Negligible

TABLE VIS-5: ALTERNATIVE E–PREFERRED PROGRAM ALTERNATIVE: SUMMARY OF VISUAL CHANGES

AC34 Temporary Facilities and Agency Management Actions at Each Venue	Viewing Distances (feet) Primary Course/ *Contingency Course*	Race Day Visitation Estimates (Average Peak Weekend)	Temporary Viewshed and Lightscape Changes	Impact Intensity
Aquatic Park/SAFR No large video screen on barge No food or beverage concessions Potential for small land-side video screens and announcement system Potential for Wi-Fi kiosks for transmission of race feeds to hand-held computers Potential for exhibitions, including up to six boat displays in Aquatic Park Cove Weather monitoring equipment installed at Municipal Pier First aid kiosk, portable restrooms, and hand washing stations only on peak and medium-high race weekends	Primary Course: 1,000′ – 5,000′= Near (visible over Municipal Pier) *Contingency Course Northeast of Treasure Island: Not Visible*	Primary Course: Existing: 9,720 **2012** – 13,720 **2013** – 16,120 *Contingency Course: Fewer visitors*	***Foreground*:** Addition of portable restrooms and the possibility of additional small video screens. Views of museum, park, amphitheater, and steps to beach would be impacted by visitors. More people on Bay Trail (Aquatic Park Promenade) and within park area on weekend race days to see AC34 races. ***Middleground*:** Views of the circular Aquatic Park Cove could be interrupted by up to six boat displays. ***Background*:** Views of distant hills, Angel Island, Alcatraz Island, and Tiburon would be unchanged. Open water of the Bay would be visible only from elevated perspectives. ***Lightscape*:** No change; continued tourist destination with busy well-lit nighttime setting until about midnight. The Bay and back side of Fort Mason would remain dark.	Minor Minor Negligible Negligible
Crissy Field No tents or structures No food or beverage concessions No bleacher structures, stage, LCD screen sound, or night lighting system First aid kiosk, portable restrooms, and hand washing stations only on peak and medium-high race weekends No evening events, no possible night lighting Secondary Viewing Location	Primary Course: 3,500′ – 7,500′ = Near *Contingency Course: 8,000′ – 18,000′ Distant (behind Alcatraz Island)*	Primary Course: *Crissy Field East* Existing: 5,790 **2012** – 7,630 **2013** – 14,530 *Crissy Field West* *Existing 2,100* **2012** – 2,590 **2013** – 10,990 *Contingency Course: Fewer visitors, especially at Crissy Field West*	***Foreground*:** Open lawn at edge of the Bay Trail would become large secondary viewing area with limited facilities or controls. Increased use by pedestrians, runners, and bicyclists on the Bay Trail would occur. ***Middleground*:** Same race boats in the Bay would be visible, as in Alternative B, and spectators would gather to watch with binoculars and scopes, seeking viewing advantages from elevated positions. ***Background*:** Views of distant portions of the Bay, the Marin Headlands, Tiburon, Angel Island, Alcatraz Island, the East Bay hills, and the city skyline would remain the same. ***Lightscape*:** No change; still very dark, with limited traffic on Mason Street (at night) and amber lights delineating the Golden Gate Bridge, highlighting towers.	Moderate Minor Negligible Negligible

TABLE VIS-5: ALTERNATIVE E–PREFERRED PROGRAM ALTERNATIVE: SUMMARY OF VISUAL CHANGES (CONTINUED)

AC34 Temporary Facilities and Agency Management Actions at Each Venue	Viewing Distances (feet) Primary Course/ *Contingency Course*	Race Day Visitation Estimates (Average Peak Weekend)	Temporary Viewshed and Lightscape Changes	Impact Intensity
Fort Mason No interior installations for media operations No food or beverage concession No floating barge at Pier 2 for media boats. No satellite dish on Pier 3 apron Continuation of existing uses at Piers 2 and 3 as normal Likely secondary viewing from apron of piers Portable restrooms and hand washing stations only on peak and medium-high race weekends	Primary Course: 1,000′ – 5,000′= Near *Contingency Course: 6,000′ – 15,000′ = Moderate to Distant*	Primary Course: Existing: 4,580 ***2012 –*** 5,380 ***2013 –*** 4,980 *Contingency Course: Same number of visitors*	***Foreground*:** No change to parking lots or historic warehouses. Some crowding around viewing areas. ***Middleground*:** Addition of race boats and spectator boats in primary race area just off shore. Contingency course visible from east-facing aprons of eastern pier only. ***Background*:** No change to views of the Marin Headlands, Angel Island, and Alcatraz Island. ***Lightscape*:** No change to active well-lit nightlife at Fort Mason Center. Upper Fort Mason would remain dark.	Minor Minor Negligible Negligible
Alcatraz No food or beverage concessions Potential after-hours events and interior installations Regular tours and ferry service ongoing during AC34 Secondary viewing location	Primary Course: 1,000′ – 5,000′= Near *Contingency Course: 1,000′ – 5,000′*= Near	Primary Course: Existing 5,200 **2012** – 5,200* **2013** – 5,200* *Contingency Course: Same number of visitors* *No Change-existing visitation only	Duration of visitation may increase and patterns would shift toward the southern-facing open space areas facing the race area. ***Foreground*:** Historic lighthouse, fortifications, and prison structures would be visible. ***Middleground*:** Southern edges of island would see increases in visitors. Near-Bay waters would have multiple race boats visible during races. ***Background*:** No change to views of distant waters and shorelines of the city, Golden Gate Bridge, Marin Headlands, Angel Island, and East Bay hills would occur. ***Lightscape*:** No change; no nighttime activities would occur, and the area would remain dark.	Minor Minor Negligible Negligible
Fort Baker Secondary viewing from Fort Baker Pier No special events or facilities No broadcasting equipment Portable restrooms and hand washing stations only on peak and medium-high race weekends	Primary Course: **2012** – 3,500′- 5,000′ **2013** – 2,500′-5,000′ = Near to Moderate Distance *Contingency Course: 15,000′ – 30,000′ = Very Distant*	Primary Course: Existing: 1,770 **2012** – 2,050 **2013** – 2,170 *Contingency Course: Fewer visitors*	2012 race areas would be farther away. Only nearest ends of primary courses would be visible. ***Foreground*:** Few visitors for viewing with little change to views ***Middleground*:** Little change 120-degree views of Bay, with added sail boats in distance ***Background*:** No change to views of Cavallo Point, Bay waters, distant city skyline. ***Lightscape*:** No change; dark, with illuminated city skyline and Golden Gate Bridge. All fireworks would be very distant.	Minor Minor Negligible Negligible

4.9.6 Impacts Common to All Action Alternatives

This section characterizes the visible elements common to all action alternatives. The following list of elements visible in all action alternatives describes the visual context, and establishes the duration of visibility, each of which contribute to the evaluation of impacts for each alternative and intensity of impacts and cumulative effects.

4.9.6.1 AC34 Race Schedule

The race schedule defines the timing parameters within which race events could produce temporary visible effects on the Bay. The 2012 events would occur between late summer and early fall, and involve the America's Cup World Series (ACWS) and exhibition races. As described in Chapter 2, Alternatives, there would be up to 12 race days in 2012, and up to 45 in 2013. Race series would usually be held over long weekends including Fridays, Saturdays, and Sundays. In 2013, some race periods would extend over the Fourth of July and Labor Day holiday weekends. Late August and September would see heightened competition in the later phases of the Louis Vuitton Cup and during the final Match. With races, events, and facility installations occurring over a series of weeks, visual effects associated with AC34 installations would be considered short-term effects.

4.9.6.2 AC34 Race Boats

The race boats are the objects of visual interest on the Bay. Larger boats are more visible on the Bay. Racers would be using the AC45 catamaran in 2012 and the AC72 catamaran in 2013. Conceptual renderings of the twin hulled boats and more detailed specifications are included in Chapter 2 – Alternatives. The basic specifications for each catamaran are as follows:

Boat	Length	Width	Height	Draft	Crew
AC45	45′	23′	70′	9′	5
AC72	72′	46′	130′	11′	11
SOURCE: ESA, 2011.					

The AC72 yacht class is nearly twice the size of the AC45 series and would therefore be more visible than the smaller counterpart. The AC72 would be the fastest yacht class in America's Cup competition, expected to sail in excess of 30 knots (1 knot is approximately 1.151 miles an hour), sailing upwind at 1.2 times the speed of the true wind and downwind at 1.6 times the speed of the true wind. These faster speeds suggest that the duration of visibility for the large boat racing events would be relatively short.

4.9.6.3 Duration and Frequency of AC34 Races

Duration and frequency of visibility are key aspects of visibility because they are the measure of time that people could be exposed to America's Cup events. The analysis below demonstrates that both the duration and frequency of America's Cup events are low. In 2012, there would be 12 race days with races held between 1:00 and 5:00 p.m. Depending on the winds, weather, and race organization, a race

an hour is feasible. Assuming four races on a race day, a viewer on the northern San Francisco waterfront for an afternoon could observe each of those four races moving westward (downwind) up the waterfront at a distance of no less than 1,000 feet and once going back eastward (downwind) farther offshore at a maximum distance of about 5,000 feet. (Binoculars or a scope would be helpful for viewing.) From a single viewing point, depending on the winds, boats would pass by in approximately 5 to 15 minutes, depending on how spread out the fleet becomes. On Fridays and Saturdays, races would have fewer boats (at times as few as two). On Sundays, during fleet racing days, viewers would see more boats, with the fleet hovering around 10 boats (10 teams). There would be four Sunday afternoons, with an estimated four races each afternoon, when the larger fleet would be visible.

In 2012, if the contingency course near Treasure Island is selected due to fog or changing winds, viewers would have less opportunity to see the races. Ends of the piers on San Francisco's northeastern waterfront would offer distant views of the races but with limited capacity for observers. Elevated viewpoints, such as Coit Tower on a clear day, would provide a better vantage point to watch (with binoculars or a scope), though viewing distances from the closest points in San Francisco would range from 8,000 to 18,000 feet depending on where racers are in the course.

Similar viewing experiences would be available in 2013, and there would be more opportunities to view the races in 2013 (12 weekends in 2013 versus 4 weekends in 2012). Also, the boats would be larger and faster. In 2013, the primary race area is to be set farther away from the San Francisco waterfront, resulting in the closest available viewing distances increasing from 400 feet in 2012 to 1,000 feet in 2013. More distance typically makes an object (the race boats) appear smaller. Counteracting the distance effect would be the larger AC72s, which would be easier to see and faster. Faster boats mean the actual viewing time (for a stationary observer) would be shorter.

4.9.6.4 Weather Effects on Viewing

Summer fog is a strong possibility and could adversely affect race viewing in July and August, as it could completely obscure the races from public visibility or be a cause to move the race area to better weather but also potentially away from public view. Also, localized fog or cloudiness could redirect crowds to more sunny locations.

Offshore breezes, rather than the typical onshore breezes, would encourage use of the contingency race area near Treasure Island, which would reduce the overall visibility and visitor attendance at nearly all designated venues since they are situated around the primary course. Alcatraz Island and Treasure Island would be the exceptions, because their proximity to the contingency race area would encourage increases in visitor attendance. Because of constraints in transportation and overall visitor capacity at those two venues, however, visitor increases would not be able to offset visitor losses at other locations.

4.9.6.5 Spectator Vessels on the Bay

Projections of visitor attendance include spectator vessels that would be visible on San Francisco Bay. These vessels have been categorized into three primary types. Recreational boats, typically in the range of 25 to 60 feet long (though some may be larger), would be mostly from local marinas around the Bay. Commercial charters are much larger boats carrying up to 150 people; they would also originate on the

Bay. Private yachts, in the range of 100 to 250 feet long, would typically arrive from elsewhere and stay for the Challenger Series, the Match, and potentially the Defender Series races in 2013. Private yachts visiting from afar may also stay sometime after the races. Projections of spectator vessels on the Bay remain consistent for all alternatives.

Projections for the number of spectator vessels on the Bay in 2012 and 2013 are as follows:

Sailing Event	Type of Spectator Vessel	Number of Vessels in 2012	Number of Vessels in 2013
Peak Race Day	Recreational boats (7 people each)	332	800
	Commercial charters (150 people)	8	20
	Private yachts (30 people)	0	60
Peak Week Day	Recreational vessels (7 people each)	125	134
	Commercial charters (150 people)	3	3
	Private yachts (30 people)	0	10
SOURCE: AECOM 2012			

The presence of spectator vessels on the Bay may cause the Bay to appear crowded and boats could potentially block scenic views and/or views of the race events themselves. This would temporarily alter the open character of the Bay and would briefly diminish the quality of certain views. Therefore the presence of many additional boats on the Bay would be as much as a moderate impact, as there would be no lasting change to the visual resources to the area.

4.9.6.6 Helicopters

Helicopters would be visible during race events. Two to three helicopters would be used for AC34 races to serve broadcasting and media operations. The helicopters following each race would fly between 100 and 400 feet above sea level beyond NPS lands and Wildlife Protection Areas. Under no alternative would helicopters be permitted to fly closer than 1,000 vertical or horizontal feet from sensitive wildlife areas at Crissy Field and Alcatraz Island. Two helicopters during race events would stay approximately 400 feet above the race area to coordinate graphics shots sent to the live video feed, and a third helicopter would fly low, between 100 and 400 feet, to more closely capture the racing action. Helicopters are relatively small craft, and because of the distances involved, the presence of helicopters would have little visible consequence within the viewshed and therefore the visual impact of their presence would be negligible.

4.9.6.7 Lightscapes – Fireworks

The project sponsor proposes fireworks during nighttime entertainment for 2013 events. For all alternatives, fireworks would be visible. This section describes the location and frequency of those fireworks. For the 2013 events, there would be up to four fireworks displays, two of which would be 30 minutes and two of which could be up to 45 minutes in conjunction with opening and closing

ceremonies for the Challenger and Match Series, respectively. Fireworks are proposed to be launched from Piers 27-29. As described in Chapter 2 for Alternative B, firework displays would be coordinated with both the NPS and the USCG regarding limitations on location, frequency, and duration to minimize potential environmental impacts and protect wildlife and other resources. Any proposed fireworks displays over water would be subject to approval by the USCG and addressed within the Marine Event Permit.

4.9.6.8 Management Actions Affecting Views to the Bay

A general set of management actions, described here, would govern the overall AC34 event. Other more specific management actions are associated with each alternative.

Generally, the race areas would be patrolled by the USCG, in cooperation with local law enforcement. The USCG would establish safety zones around the race areas and vessels and, for some of the alternatives, would develop a Special Local Regulation (SLR) that sets forth specific rules for on-water AC34 activities. The SLR would enable the establishment of closed race areas and provide for the creation of an exclusive non-motorized zone and a small craft transit zone along the City's waterfront. Ferry service would be maintained during both years' events. The race area would be established by the America's Cup Race Management Team and marked by flagged spectator vessels. Spectator vessels would be required to remain at least 100 yards from race vessels at all times during the race events. On-water spectators of the 2012 events would be expected to concentrate primarily along the northern edge of the course. Concentrating spectator vessels on the north side of the Bay limits the potential for those vessels to block views of the Bay from the San Francisco waterfront, including federal lands, and therefore the impact of these management actions would be beneficial in maintaining the scenic character of the viewshed.

4.9.6.9 Spectator Use of NPS Parklands

Temporary visible disturbance of vegetation and soils could occur to varying degrees in all action alternatives due to the generally increased visitation to NPS parklands that would result from the AC34 event. The potential exists for visitors within secondary viewing areas to cause incidental yet visible damage through the creation of informal trails and/or increased use of off-trail areas. The location of potential visual impacts would be within Crissy Field, the Marin Headlands, and Fort Baker/Cavallo Point. The degree of impact at different locations and under different action alternatives varies in relation to the most desirable secondary viewing areas under each alternative. For all alternatives, installation of temporary facilities such as fencing at established spectator venues and at secondary viewing areas would occur. For this reason, visible impacts on vegetation and soil at established spectator venues would be negligible.

4.9.6.10 Dredging

The dredging operations would have short term adverse impacts on visual resources in the bay. Because dredging equipment and barges are frequently seen vessels on San Francisco Bay, the impact would likely be minor.

4.9.6.11 Cumulative Effects Common to All Alternatives

Federal lands, including parklands, would be subjected to the cumulative contribution of multiple visible actions generated by AC34 events. As discussed above, all the alternatives share these common visible elements, including:

- Central San Francisco Bay setting;
- Common schedule of events;
- Common AC45 and AC72 race boats;
- Typical duration of races under an hour;
- Changeable weather conditions;
- Presence of spectator vessels on the Bay;
- Presence of helicopters filming the events;
- Visible temporary management actions in the water and on the land; and
- Visitor use of NPS lands and secondary viewing areas and associated impacts.

4.9.6.12 Conclusion

Impacts common to all of the action alternatives include up to 880 additional vessels on the Bay, which could temporarily cause a moderate impact on the visual quality of the Bay. However, because the race area would be configured such that spectator vessels would be concentrated along the north side of the race area, away from the San Francisco waterfront, the potential effect of blocking scenic views would be minimized. On the land side, the NPS proposes to manage the anticipated crowds to minimize the potential for disturbance of soils and vegetation outside of formal paths and trails that may occur due to large gatherings of spectators viewing the AC34 races. Management actions and protective measures identified for the action alternatives, such as implementation of Protection Measure GEO-1, would serve to eliminate or reduce effects on sensitive soil resources (and vegetation), and the aesthetic impacts associated therewith, to minor levels.

Because of the temporary nature of the AC34 events, none of the actions above has the potential to cause a major adverse impact, either independently or cumulatively, because none of the actions constitutes a long-term detrimental change to visual resources, federal or otherwise, in the Bay or on adjacent parklands. Therefore, the long term effect would be negligible under each alternative.

4.9.7 Impacts of Alternative B—Sponsor Proposed Project

Under Alternative B–Sponsor Proposed Project, race events would occur in Central San Francisco Bay in 2012 and 2013. The maximum areas proposed for the primary east-west race areas and north-south contingency courses for the respective years' events are presented in Figure ALT-15. The primary 2012 race area would be approximately 600 feet from the San Francisco waterfront and extend from west Crissy Field to Aquatic Park. The primary 2013 race area would encompass a slightly larger area, located approximately 1,000 feet from the San Francisco waterfront and extending from Battery East to Piers 27-29. The contingency race area would be along Treasure Island's northwestern waterfront

and would be the same for both years. Actual race courses within these areas would be subject to wind and water conditions and finalized closer to the race events.

Table VIS-2 (preceding these discussions) summarizes the visual changes that would result from Alternative B.

4.9.7.1 Impacts of Alternative B on Aquatic Park Cove/SAFR Viewsheds

Distant views of the Bay and Angel Island from Aquatic Park are interrupted by Municipal Pier, which separates the cove waters from the Bay waters. This separation is most noticeable at water level; the effect of separation from the Bay is diminished as the viewer gains elevation and the pier becomes less dominant.

Aquatic Park was designed as a public place for swimming and protected boating. Views from within the water would be modified by the six display boats placed by the project in the middle of the cove. Temporary tents providing food and beverages would be located on the lawn area of the upper terrace just above and to the east of the amphitheater. Tents in this area are common for art shows regularly held here. This area is also already very active with tourists as they wait to ride the cable car up Hyde Street, where elevated views of the race area would be revealed. The upper park area at SAFR is small, and multiple tents in the area would temporarily block views from the typically busy Beach Street toward the Bay, though not from the Bay Trail. SAFR contains multiple places for viewing the Bay waters, including the amphitheater, the Maritime Museum, and the Bay Trail. Tents, similar to those currently used during special events at SAFR, would be temporary, and all views would be restored after the AC34 events such that the tents would cause no lasting or permanent change to the visual resources in the upper park area. While the visual effects of spectator facilities on the upper terrace would be detectable, the visual change would be slight, of limited intensity, and of short enough duration so as not to diminish the overall integrity of the public viewshed

The purpose of the existing amphitheater is to provide seating for special events held in Aquatic Park Cove; however, these events are rarely large enough to fill the structure The impact of using the amphitheater seating would be beneficial to the site, as it would realize the historic intention of the park, infuse the amphitheater with vibrant public activity, and encourage visitors to experience the unique setting and views of the Bay.

The most extreme of the visual impacts under Alternative B at Aquatic Park would be minor, and all visible changes there would be temporary.

4.9.7.2 Impacts of Alternative B on Crissy Field Viewsheds

Within the visual context discussed in Section 3.9, Alternative B would provide for the temporary installation of visitor facilities, set back landward at least 25 feet from the Bay Trail (Crissy Field Promenade) edge. This space would keep crowds away from the sensitive beach habitats, provide room for people to move up and down the Bay Trail, and maintain unobstructed views of the Bay and the AC34 races when they are available. The visitor facilities proposed for Crissy Field in Alternative B are:

- One large tent (300 feet by 100 feet by 42 feet tall);
- Several small tents (12 feet by 12 feet) for hospitality, food, beverage, and merchandising;
- Portable restrooms, hand washing stations, and educational installations;
- Several bleacher structures (140 feet by 25 feet by 8 feet) with seating for 4,800 people;
- One large video screen (20 feet x 11 feet) and two small screens (13 feet by 5 feet); and
- One stage (110 feet by 100 feet by 70 feet), sound, and a night lighting system.

The very large open lawn on the landside edge of the Bay Trail is the foreground of the viewshed and would have the large tent, bleachers, a stage, tents with concessions, and restrooms. Facilities would occupy about half of the open area at Crissy Field, providing nearby space for unobstructed views. (Other adjacent areas within the GGNRA would also be available for secondary viewing.) Views from the Bay Trail (Crissy Field Promenade) toward the Bay would not be blocked by any AC34 facilities. Estimated visitation for 2012 would be considerable, but not overwhelming, considering the size of the space. In 2013, visitation could become more substantial, sometimes creating crowded viewing conditions during peak events, though crowds would quickly thin as visitors could move to adjacent areas up or down the Bay Trail (Crissy Field Promenade) or in the Presidio. The impact of additional facilities and crowds in Crissy Field would be moderate and short-term, and is reduced by the management action of keeping facilities on the land side of the Crissy Field Promenade.

More use of the Bay Trail (Crissy Field Promenade) by more pedestrians and bicyclists vying for space during peak events, particularly later in the 2013 season, could begin to limit views of the water, though temporarily. Park police would manage access to the beach areas. Race boats and spectator boats would be visible on Bay waters from distances of 1,000 to 5,000 feet, which is relatively near for the Bay.

Portions of the Bay, the Marin Headlands, Tiburon, Angel Island, Alcatraz Island, distant East Bay hills, and the city skyline are the background to the Crissy Field setting and would all remain visible, though occasionally blocked in later stages of the races in 2013 by people in the foreground. Elevation would improve viewing.

The large video screen would be located for optimum visibility from the many vantage points around the park. The video screen would block portions of the view to the Bay. The video screen would be in place for approximately four weeks in 2012 and approximately seven weeks in 2013. Distant views would continue to be available from Crissy Field while the installation would be in place. From the park viewers could see over the screen to distant portions of the Bay. The video screen would not alter the visible character-defining features of the site, but the video screen would block small portions of scenic views of the Bay and Angel Island, which are also character-defining. These moderate adverse impacts would be short-term and would cause no lasting or permanent change to scenic resources of the site or viewshed.

The worst of the visual impacts for Alternative B at Crissy Field would be moderate, and all visible changes there would be short-term.

4.9.7.3 Impacts of Alternative B on Fort Mason Viewsheds

Fort Mason, as seen in Figure VIS-3, is located directly on San Francisco Bay and is a National Register-listed historic district. Fort Mason includes Lower Fort Mason, also known as the San Francisco Port of Embarkation, and is part of the GGNRA. Lower Fort Mason contains large three-story historic warehouses surrounded by surface parking. The pier sheds on the waterfront extend into the Bay and provide views across the water. Within these buildings is Fort Mason Center, which leases space to a number of environmental, cultural, and arts organizations and a restaurant.

The Fort Mason viewshed includes many historic waterfront facilities, piers, and parking. Views of San Francisco Bay and beyond include the Golden Gate Bridge, Alcatraz Island, and Marin County. Immediate views around Lower Fort Mason are of boats docked nearby, the hillside leading to Upper Fort Mason, and San Francisco Bay.

In this setting, the visible effects of Alternative B at Fort Mason would generally be minor. Alternative B would include a floating barge at Pier 2 and up to 10 satellite dishes on the apron of Pier 3. These facilities would be temporary and, therefore, would not cause a long-term adverse impact. Nonetheless, their location on the shoreline, a particularly sensitive visual resource, could have a short-term, minor adverse impact. However, with implementation of Protection Measure VIS-1, which would lessen the potential impact by moving the satellite dishes away from visible portions of the visible pier aprons and camouflage or otherwise mute the colors of the satellite dishes, the impact would be reduced to minor to negligible.

4.9.7.4 Impacts of Alternative B on Alcatraz Viewsheds

Alcatraz Island is a 22-acre island located approximately 1.5 miles offshore from San Francisco. As a former Civil War outpost and federal prison the structures there are designated historic. Alcatraz is a major tourist destination and museum. It is accessible only by ferry. Alcatraz Island offers visitors 360-degree panoramic views of San Francisco Bay. East Bay cities that can be seen from Alcatraz Island include Oakland, Berkeley, and Richmond. Views to the north include Angel Island, Tiburon, and Sausalito. The Marin Headlands, the Golden Gate Bridge, and San Francisco can all be seen from Alcatraz Island.

Under Alternative B, the facilities on the island would remain the same, but additional satellite communications dishes and a small weather station would be temporarily installed there. These facilities would be temporary and they would not cause a long-term adverse impact. However, they would be located on the island, a primary tourist destination, and could be visible during the AC34 events. Implementation of Protection Measure VIS-1 would ensure any potential visual impacts associated with such installations are minimized.

Both the 2012 and 2013 race areas would come near to the southern portion of Alcatraz Island, creating excellent viewing opportunities when race boats are nearby, potentially within 1,000 feet of the island. As a result, duration of visitation to the island may increase, depending on available ferry service, and at race times (weekend afternoons) visitors would shift toward locations with views

toward the race waters. This would be a minor temporary change in typical use patterns that would not affect the viewsheds.

4.9.7.5 Impacts of Alternative B on Fort Baker Pier Viewsheds

Fort Baker Pier is located at the north end of the Golden Gate Bridge, facing east on Horseshoe Bay. The Marin Headlands and Golden Gate Bridge form a backdrop, with foreground views of San Francisco Bay. Views across the Bay include the San Francisco skyline and Crissy Field. Cavallo Point blocks views to the north.

Fort Baker Pier is a former military wharf originally built in 1937, and modified in the 1940s and most recently in 1985. The pier is approximately 360 feet long and 115 feet wide at its widest point.

Under Alternative B, Fort Baker Pier would operate as a venue for private, after-hours, events and as a public secondary viewing area by day. Area lighting for nighttime events would be used and is discussed in Section 4.9.7.7 below. In the daytime, the nearest views to the race areas from Fort Baker Pier would range from 2,500 to 3,500 feet, which is a moderate distance on the Bay, causing the potential for increases in visitor attendance. The viewshed would see the addition of race boats in the distance on the Bay and stronger chances for more people in the foreground on the pier. Night lighting associated with occasional after-hours events on Fort Baker Pier could have an impact on park lightscapes. These impacts would be minor and short-term.

4.9.7.6 Impacts of Alternative B on Secondary Viewsheds

Secondary viewing areas on federal lands are located in Area B of the Presidio and other parts of the GGNRA in Marin County. Secondary viewing areas have individual viewsheds that include the Bay and AC34 race area(s). A complete description of the secondary viewing areas is provided in Section 3.9.

Under Alternative B, most listed secondary viewing areas would experience increases in visitation. Visitor increases would tend to be sporadic due to the unpredictable nature of the races and weather conditions, but because the race area in Alternative B would be centrally located for all secondary viewing areas, additional visitors would be distributed widely. Additional visitors may affect a site, depending on the size of the crowds and the capacity of the visitor-serving facilities there.

Secondary viewsheds in the Presidio (Area B) and the GGNRA in Marin County tend to be elevated, often offering panoramic views of San Francisco Bay, as seen in Figure VIS-6. The race area under Alternative B would impose a degree of control not otherwise seen in what typically appears to be chaotic waters of San Francisco Bay. Race areas would be established near the northern waterfront of San Francisco, spectator boats would be closer to Angel Island, and the USCG would be patrolling open shipping lanes, much like what is seen during Fleet Week every October. As AC34 vessels move westward toward the secondary viewing areas, the boats would become distinct and a viewer could judge the relative positions of the boats. The best viewing would be as racers round the westward mark and tack back to the east. This activity would happen briefly with each race. The visual effects of Alternative B on secondary viewsheds would be minor and short-term.

4.9.7.7 Impacts of Alternative B on Lightscapes at All Venues

Use of fireworks is discussed in Section 4.9.6 as an impact common to all action alternatives. In Alternative B, the effects of nighttime activities, lighting, and fireworks at each of the venues would be as follows:

Aquatic Park/SAFR – The cable car and Fisherman's Wharf tourist destinations would continue to surround the park area with a busy, well-lit, nighttime setting. In 2013, fireworks would be visible, but no additional lighting or nighttime activities are scheduled. The Bay and back side of Fort Mason would remain dark.

Crissy Field – Potential nighttime activities would illuminate this otherwise very dark area from an estimated 9:00 p.m. sunset to 10:00 p.m. Amber lights would continue to outline the Golden Gate Bridge and towers. The impact of these actions on visual resources would be minor.

Fort Mason – Fort Mason Center has regular nightlife with entertainment venues and a restaurant that are surrounded by well-lit parking lots. Alternative B could provide a slight increase in the use of Fort Mason Center, which would cause a minor impact on these visual resources.

Alcatraz – Alcatraz is typically dark at night. Additional lighting for nighttime activities as approved by NPS special use permit would mostly be interior and for safety. No additional exterior lighting is anticipated. The impact of these actions would be minor. Distant city skyline and Golden Gate Bridge views would remain illuminated in distance.

Fort Baker Pier – Fort Baker Pier is typically dark at night. Additional area lighting at nighttime for safety is likely. The impact of additional lighting on the pier would be as high as moderate in the immediate vicinity of the additional lighting, but bright lighting is not anticipated at this venue. The illuminated city skyline and amber light of the Golden Gate Bridge would remain. All fireworks would be visible but very small and distant. Night lighting associated with after-hours events on the pier could have a temporary effect. The overall impact would be minor

4.9.7.8 Cumulative Effects

Federal lands, including parklands, would be subjected to the cumulative contribution of multiple visible actions generated by AC34 events. Elements proposed in Alternative B would combine with elements common to all alternatives to create an array of temporary and generally minor to moderate visible changes to viewsheds and lightscapes at the designated venues and in San Francisco Bay. There would be no other cumulative visual effects of the America's Cup races because all visual impacts from the events are short-term.

4.9.7.9 Conclusion

Because of the temporary nature of the AC34 events under Alternative B, none of the actions would have the potential to cause a substantial adverse impact, either independently or cumulatively, because none of the actions would constitute a long-term detrimental change to visual resources, federal or otherwise, in the Bay or on adjacent parklands. As a result, the impacts to visual resources would be short-term and negligible to moderate.

4.9.8 Impacts of Alternative C—No Organized Events on NPS Lands

Under Alternative C–No Organized Events on NPS Lands, there would be no public programming for AC34 events on NPS lands (GGNRA or SAFR). A few small indoor private events could still occur in certain NPS buildings that typically host such events.

The race areas would be similar in design and location to those of Alternative B, though the actual race courses would be finalized closer to the race events. All NPS parklands would be open and available for use by the general public, including spectators of AC34 events.

The AC34 race areas would be managed in a similar manner to those in Alternative B. The USCG would establish safety zones around the race courses and vessels and would develop a Special Local Regulation (SLR) that sets forth specific rules for on-water AC34 activities. As described in Chapter 2, the SLR would specify areas within which race courses could be established and impose restrictions on vessel traffic during race events.

Table VIS-3 (preceding these discussions) summarizes the visual changes that would result from Alternative C.

4.9.8.1 Alternative C Impacts on Viewsheds

Alternative C would maintain the existing landside viewing conditions on NPS lands because no new facilities would be proposed at the designated viewing venues. This absence of additional facilities at Aquatic Park and Crissy Field would keep foreground views similar to existing conditions, rather than adding any new visitor-serving facilities. The circumstances surrounding the viewer would be similar to existing conditions. Observing AC34 races on a peak race day, however, would likely be within a context that is more crowded than a normal busy day. The increase in crowds on a peak day would limit viewing of the races and other scenic resources in some locations temporarily. The presence of large crowds associated with the AC34 event would be perceptibly larger and more concentrated than typical conditions on the site. Viewers uninterested in the AC34 races, who come to waterfront sites to experience an excellent aesthetic setting, may negatively perceive the activity and crowding associated with the AC34 event. The viewshed impacts for such visitors would be limited because no structures associated with Alternative C would be present to block or impede views of the Bay; however, high visitation on peak race weekends could briefly hinder access to the most high-quality views. For this reason, the impact of Alternative C at most locations would be minor, although the impact would be short-term and localized.

Views of the races would be the same as those described in Alternative B, since Alternative C would use the same race area. Viewing distances to the races would remain the same, with distances generally between 1,000 feet and 5,000 feet, placing the race boats in the middleground to background of the viewsheds. The short duration of views would also remain the same as under Alternative B. Impacts of Alternative C, like those of Alternative B, would be short-term and generally negligible to minor.

4.9.8.2 Alternative C Impacts on Lightscapes

Alternative C impacts on lightscapes Crissy Field and Fort Baker would be less than those of Alternative B, since there would be no additional land-based facilities or nighttime activities on these federal lands. Alternative C impacts on lightscapes at Aquatic Park and Fort Mason would be similar to those of Alternative B, since no outdoor nighttime facilities are proposed at these venues under Alternative B. In the absence of after-hours events at Alcatraz Island, impacts associated with interior lighting would be eliminated. Under Alternative C, the minor visual effects seen in Alternative B would be incrementally reduced. The impact of Alternative C on lightscapes would be negligible.

4.9.8.3 Conclusion

Alternative C proposes no facilities and no nighttime events, and therefore no potential to cause a substantial adverse impact, either independently or cumulatively, because none of the actions would constitute a long-term detrimental change to visual resources, federal or otherwise, in the Bay or on adjacent parklands. As a result, the cumulative impacts of Alternative C would be negligible to minor.

4.9.9 Impacts of Alternative D—Modified Program Alternative

Under Alternative D–Modified Program Alternative, AC34 race events would occur in Central San Francisco Bay in 2012 and 2013. The AC34 2012 primary race area would shift east from its Alternative B counterpart, away from Crissy Field, while remaining out of the shipping lane that runs between San Francisco and Treasure Island. In 2012, there would also be a small non-motorized craft zone along Crissy Field. The AC34 2013 primary race area would be similar in design and location to that in Alternative B, positioned at least 1,200 feet offshore of Crissy Field and at least 500 feet out from Alcatraz Island. The contingency course would be the same as that in Alternative B for both years. Actual race courses within these areas would be subject to wind and water conditions and finalized closer to the race events.

Table VIS-4 (preceding this discussion) summarizes the visual changes that would result from Alternative D.

4.9.9.1 Alternative D Impacts on Viewsheds

Most of the associated impacts on viewsheds would be as described for Alternative B above, with minor differences. In 2013, Alternative D would differ from Alternative B in the following ways:

- **Aquatic Park** would have no outdoor video screen, no display boats, and no outdoor concessions, thereby eliminating visual obstructions within the upper and lower park areas.

- **Crissy Field** would have no stage and no hospitality services, and therefore fewer small tents would be required. This reduction in facilities at the site would lessen the visual impacts of facilities at Crissy Field. A potential corresponding reduction in visitor demand would be more difficult to measure. People would continue to be attracted to Crissy Field, because of the proximity of the site to the race area, so the potential for moderate impacts due to crowds blocking views would remain during 2013 peak race periods

- **Fort Baker Pier** would not have any programmed special events or facilities, reducing impacts associated with facilities to negligible for Alternative D.

These differences in facilities organization would change the foreground views of described facilities, reducing the visual impacts. Under Alternative D impacts would be negligible to moderate.

4.9.9.2 Alternative D Impacts on Lightscapes

Use of fireworks is discussed in Section 4.9.6 as an impact common to all action alternatives. In Alternative D, the effects of nighttime activities, lighting, and fireworks would be similar to those of Alternative B with the following exceptions:

Aquatic Park – Without the outdoor video screens, Aquatic Park would experience little change from the existing lightscapes. The cable car and Fisherman's Wharf tourist destinations would continue to surround the park area with a busy, well-lit nighttime setting. In 2013 fireworks would be visible, though no additional lighting or nighttime activities would occur. The Bay and back side of Fort Mason would remain dark and the impact of Alternative D would be negligible.

Crissy Field – There would be no stage and no nighttime activities to illuminate this area after sunset, and therefore there would be a negligible impact associated with Alternative D. Fireworks would be visible but very small and distant.

Fort Baker Pier –Fort Baker Pier is typically dark at night and would remain so under Alternative D, since there would be no nighttime activities allowed there. Therefore, there would be no impact associated with Alternative D. Fireworks would be visible but very small and distant.

4.9.9.3 Conclusion

Because of the temporary nature of the AC34 events under Alternative D, none of the actions would have the potential to cause a substantial adverse impact, either independently or cumulatively, because none of the actions would constitute a long-term detrimental change to visual resources, federal or otherwise, in the Bay or on adjacent parklands. As a result, impacts to visual resources would be, short-term, and range from negligible to moderate.

4.9.10 Impacts of Alternative E—Preferred Alternative

Visual impacts of Alternative E–Preferred Alternative would be similar to those of Alternative C. In Alternative E, all federal sites including secondary viewing areas would continue to be available to view the AC34 events, though no special venue facilities would be provided. Certain potential limited AC34 spectator amenities at Aquatic Park would be the minor exception.

In the Bay, race areas would be similar in design and location to those of Alternative D, though shifted slightly farther east in 2012. All NPS parklands would be open and available for use by the general public, including spectators of AC34 events.

The AC34 race areas would be managed in a similar manner to those in Alternative B. The USCG would establish safety zones around the race courses and vessels and would develop a Special Local

Regulation (SLR) that sets forth specific rules for on-water AC34 activities. As described in Chapter 2, the SLR would specify areas within which race courses could be established and impose restrictions on vessel traffic during race events.

Table VIS-5 (preceding this discussion) summarizes the visual changes that would result from Alternative E.

4.9.10.1 Alternative E Impacts on Viewsheds

In Alternative E, the physical conditions at each site would remain essentially the same as the existing conditions, since Alternative E does not include any outdoor programming or activity structures at Crissy Field, Fort Baker, Alcatraz Island, or Fort Mason. Portable restrooms, hand washing stations, and first aid kiosks would still be provided temporarily during the races. Spectators observing AC34 races on a peak race day would experience more crowding than a normal busy day. The increase in crowds on a peak day would limit viewing of the races and other scenic resources in some locations. The presence of large crowds associated with the AC34 event would be perceptibly larger and more concentrated than typical conditions on the site. Viewers uninterested in the AC34 races, who come to waterfront sites to experience pure high quality aesthetic settings, may perceive the activity and crowding associated with the AC34 event negatively.

The viewshed impacts for such visitors would be limited, however, because no structures associated with Alternative E would be present in foreground to block or impede more distant views of the Bay. High visitation on peak race weekends could briefly hinder access to the most high-quality views. For this reason, Alternative E could cause a minor to moderate adverse impact at Crissy Field and SAFR, although the impact would be short-term and localized.

Views of the races would be the similar to those described in Alternative C since Alternative E would use similar race area configurations, with the exception of additional eastward race area shifts in 2012, which would present viewing opportunities more similar to those described for Alternative D. Viewing distances to the races would remain the same, with distances generally between 1,000 feet and 5,000 feet, placing the race boats in the middleground to background of the viewsheds. The short duration of views would also remain the same as under Alternative B. Impacts of Alternative E, like those of Alternative B, would be short-term and generally range from negligible to minor.

4.9.10.2 Alternative E Impacts on Lightscapes

There would be no additional land-based facilities on most federal lands and no outdoor nighttime activities. As a result, Alternative E impacts on lightscapes at Crissy Field, Fort Mason, and Fort Baker Pier would be minimal. At Aquatic Park there could be minor additions, such as temporary use of small video screens, with no use expected after dark. While there could be occasional after-hours activities at Alcatraz Island, all such activities would occur indoors and no additional night lighting would be provided, and there would be no after-hours AC34 events at Fort Baker. For these reasons, under Alternative E, the minor visual effects seen in Alternative B would be incrementally reduced. The impact of Alternative E on lightscapes would therefore be negligible.

4.9.10.3 Cumulative Impacts

Under Alternative E, the 2012 AC34 races and Fleet Week events would partially overlap, boosting overall spectator numbers throughout the project area. However, the protection measures designed for Alternative E, as described in Chapter 2 – Alternatives, would effectively reduce impacts on viewsheds resulting from the cumulative spectator numbers during this time. While it is possible that one or more of the cumulative scenario projects could result in minor effects, when combined with those of Alternative E, the result would remain negligible to moderate.

4.9.10.4 Conclusion

Alternative E proposes that federal parklands, with the exception of SAFR, remain as secondary viewing areas. None of the actions proposed would have the potential to cause a substantial adverse impact, either independently or cumulatively, because none of the actions would constitute a long-term detrimental change to visual resources in the Bay or on adjacent parklands. As a result, the impacts of Alternative E on visual resources would be negligible to moderate.

4.9.11 Mitigation Measures

No mitigation measures for visual impacts would be warranted under any of the project alternatives.

4.9.12 References

AECOM

2012 *Draft Report: America's Cup 34 NEPA Alternatives Visitation Analysis*. January 4, 2012.

City and County of San Francisco

1985 *Northeastern Waterfront Area Plan*, 1985

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2010 San Francisco Maritime National Historical Park, "Frequently Asked Questions." Available on the Internet at <http://www.nps.gov/safr/faqs.htm>. Viewed December 2011.

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Presidio Trust

2002 *Presidio Trust Management Plan*. Available on the Internet at <http://www.presidio.gov/trust/documents/environmentalplans/ptmp.htm>. Viewed May 2011.

San Francisco Bay Conservation and Development Commission (BCDC)

1965 *San Francisco Bay Plan* (as amended through November 2007).

4.10 TRANSPORTATION AND CIRCULATION

4.10.1 Study Area/Context

The transportation study area includes all aspects of the transportation network that may be measurably affected by the proposed project. The transportation study area is defined by travel corridors and by facilities such as bus stop and transit stations. It includes the existing street intersections that AC34 spectators, other visitors, and employees would use in traveling to and from the project sites.

4.10.2 Issues

Travel demand associated with the AC34 events has the potential to impact the transportation network for existing users and visitors traveling to and from the NPS and Presidio Trust facilities. Potential impacts on non-transit water travel, regulated by the United States Coast Guard, are discussed in ***Section 3.11, Maritime Navigation and Safety***. There are no foreseeable impacts related to the transportation system to the Army Corps of Engineers facilities and operations due to AC34 events.

Accessibility for persons with disabilities and for seniors is addressed in section 4.7, Visitor Use and Experience (subsection 4.7.6.1), and in Chapter 2, Alternatives (Table ALT-2, Protection Measure VUE-20).

4.10.3 Guiding Regulations and Policies

There are a number of laws, regulation and policies which have been enacted to protect the unique integrity of the federal facilities and operations within the project area. Those applicable to the AC34 events are described in ***Section 3.12, Facilities and Operations***. The following were used to guide the development of the approach and thresholds used to assess potential transportation and circulation impacts of the AC34 events.

The General Management Plan for the Golden Gate National Recreation Area was completed in 1980. To preserve for public use the park's natural, historic, scenic, and recreational features, the plan establishes the following objectives:

1. Preservation and restoration of natural resources to provide, maintain, and restore the character of natural environment lands by maintaining the diversity of native park plant and animal life.
2. Preservation and restoration of cultural resources to recognize the importance of cultural resources within the recreation area through a positive program of their identification.
3. Making the recreation area readily available to the broadest variety of park users — to pursue the extension of transit services between the park and transit dependent neighborhoods.
4. Provision of a broad variety of park experiences — to plan facilities to offer a wide variety of uses.
5. Consideration of park neighbors — to alleviate traffic impacts on adjacent communities.

6. Improve multi-modal transportation access to the park and within the park.

The emerging theme from the General Management Plan applicable to the AC34 events is to provide multi-modal transportation access to and within the project area that is compatible with NPS objectives and that considers a full range of alternative modes of transportation.

The methodologies to assess impacts of the proposed action on the transportation facilities were analyzed using the guidelines set forth in the City of San Francisco Planning Department's *2002 Transportation Impact Analysis Guidelines for Environmental Review (SF Guidelines)*[1] and supplemented with additional analysis, specific to typical NPS sites. The *SF Guidelines* provide direction for analyzing multi-modal transportation conditions and in identifying the transportation impacts of a proposed project in the City of San Francisco.

4.10.4 Assessment Methodology and Thresholds

This section presents the methodologies for analyzing the transportation impacts and the information considered in the travel demand and impact analysis. This section is organized in the following order:

- Analysis Methodology.
- Travel Demand Methodology and Results.
- Analysis Thresholds.

Supporting detailed technical information is included in **Appendix I**.

4.10.4.1 Analysis Methodology

Intersection Analysis

The traffic impact assessment for AC34 2012 and 2013 events was conducted for intersections in the vicinity of the NPS and Presidio event venues and secondary viewing areas. The study intersections were evaluated using the 2000 Highway Capacity Manual (2000 HCM) methodology. For signalized intersections, this methodology uses various intersection characteristics (e.g., traffic volumes, lane geometry, and signal phasing and timing) to estimate the capacity for each lane group approaching the intersection, and to calculate the average control delay experienced by motorists traveling through the intersection. The LOS is based on average delay (in seconds per vehicle) for the various movements within the intersection. A combined weighted average delay and LOS is presented for the intersection. For unsignalized intersection, average delay and LOS operating conditions are calculated by approach (e.g., northbound) and movement (e.g., northbound left-turn), for those movements that are subject to delay. For purposes of this analysis, the operating conditions (LOS and delay) for unsignalized intersections are presented for the worst approach (i.e., the approach with the highest average delay per vehicle). **Table TRA-13** presents the level of service descriptions and associated delays for signalized and unsignalized intersections.

[1] San Francisco Planning Department, *2002 Transportation Impact Analysis Guidelines for Environmental Review*, October 2002

TABLE TRA-13: LEVEL OF SERVICE (LOS) DEFINITIONS FOR SIGNALIZED AND UNSIGNALIZED INTERSECTIONS

Traffic Control / LOS	Description of Operations	Average Control Delay (seconds per vehicle)
Signalized		
A	Insignificant Delays: No approach phase is fully used and no vehicle waits longer than one red indication.	< 10.0
B	Minimal Delays: An occasional approach phase is fully used. Drivers begin to feel restricted.	> 10.0 and < 20.0
C	Acceptable Delays: Major approach phase may become fully used. Most drivers feel somewhat restricted.	> 20.0 and < 35.0
D	Tolerable Delays. Drivers may wait through no more than one red indication. Queues may develop but dissipate rapidly without excessive delays.	> 35.0 and < 55.0
E	Significant Delays: Volumes approach capacity. Vehicles may wait through several signal cycles and long queues form upstream.	> 55.0 and < 80.0
Unsignalized		
A	Insignificant delay for STOP-controlled approach.	< 10.0
B	Operations with minor delays.	> 10.0 and < 15.0
C	Operations with moderate delays.	> 15.0 and < 25.0
D	Operations with some delays.	> 25.0 and < 35.0
E	Operations with high delays and long queues.	> 35.0 and < 50.0
F	Operations with extreme congestion, with very high delays and long queues unacceptable to most drivers.	> 50.0
SOURCE: Transportation Research Board, 2000. Highway Capacity Manual – Special Report, Washington, DC		

Transit Analysis

The impact of additional transit ridership generated by the AC34 project was assessed by comparing the projected ridership to the transit capacity. Transit "capacity utilization" refers to transit riders as a percentage of the capacity of a transit line, or group of lines combined and analyzed as screenlines across which the transit lines travel.

For the AC34 project, the transit capacity utilization analysis was conducted at the Planning Department's three regional transit screenlines (for visitors from the East Bay, North Bay and South Bay traveling to the spectator venues by transit) and at two Muni screenlines developed for the AC34 analysis. The Muni transit routes serving the event venues and secondary viewing areas in the vicinity of the NPS and Presidio sites were grouped into two screenlines, and include the following Muni routes.

- ***Presidio/Crissy Field/Marina Screenline:*** 22-Fillmore, 28-19th Avenue, 30-Stockton (long-line service), 43-Masonic, 45-Union-Stockton, 49-Van Ness-Mission.
- ***Fisherman's Wharf Screenline:*** 8X-Bayshore Express, 8BX Bayshore "B" Express, 19-Polk, 30-Stockton (short-line service), 47-Van Ness, F-Market & Wharves, Powell-Hyde Cable Car, Powell-Mason Cable Car.

The existing weekday p.m. peak hour ridership was obtained from Muni monitoring data (September-October 2010) for Muni bus routes and July-August 2008 data for the F-Market & Wharves historic streetcar line.[2] The service capacity of each line was estimated by multiplying the passenger capacity of each transit vehicle by the number of service trips. For service provided by Muni, the capacity includes seated passengers and an appreciable number of standing passengers per vehicle (the number of standing passengers is between 30 and 80 percent of the seated passengers depending upon the specific transit vehicle configuration). The maximum loads (capacities), including both seated and standing passengers, vary by vehicle type and are 45 passengers for a 30-foot bus, 63 passengers for a 40-foot bus, 94 passengers for a 60-foot bus, 70 passengers for a cable car and a historic streetcar, and 119 passengers for a light-rail vehicle. The percent utilization of capacity was then calculated by comparing the ridership demand to the capacity provided. For analysis of the temporary AC34 event impacts, a capacity utilization standard of 100 percent was used, because more congested conditions on transit are acceptable for temporary special event conditions. Capacity of supplemental transit service expected to be provided as part of the September 2011 People Plan was based on proposed service levels and vehicle types. The peak hour capacity for the Muni and regional transit screenline analysis for Existing plus AC34 conditions include the additional Muni and regional transit service included in the September 2011 People Plan (included within this EA as **Transportation Protection Measure TRA-2**).

Weekday p.m. peak hour transit ridership demand and capacity at the three regional transit screenlines were obtained from the ongoing analysis of the Transit Center District Plan.[3] Saturday midday peak hour ridership and capacity at the regional screenlines were developed based on transit route, ridership and capacity information obtained by the Planning Department from the regional transit providers, including AC Transit, BART, Caltrain, WETA, SamTrans, Golden Gate Transit, and Blue & Gold for the CEQA analysis for the America's Cup project.[4] All regional transit providers have a peak hour capacity utilization standard of 100 percent.

Transit capacity utilization calculations are included in **Appendix I**.

Pedestrian Analysis

The impacts of the pedestrian and bicycle trips generated by the AC34 events were assessed qualitatively and quantitatively. Due to the unique nature of the events, an analysis methodology was developed based on existing pedestrian analysis techniques within the 2000 HCM and employed at a wide variety of recreational parks such as at the Disney theme parks and National Parks. The analysis methodology and impact analysis was prepared by ORCA Consulting LLC, who are experts in assessing pedestrian movements and visitation capacity. Extensive data collection of pedestrian and bicycle flow volumes was undertaken at key monitoring locations, along with "people at one time" (PAOT) counts at major public areas on weekdays and weekends in August and September 2011, as

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2 San Francisco Municipal Transportation Agency (SFMTA), Automatic Passenger Count Data, September-October 2010, and July-August 2008.

3 AECOM, *Transit Center District Plan Transportation Technical Analysis*, San Francisco Planning Department Case No. 2007.0058E and 2008.0789E, July 2011.

4 City and County of San Francisco, *The 34th America's Cup and James R. Herman Cruise Terminal and Northeast Wharf Plaza*, San Francisco Planning Department Case No. 2010.0493E, July 2011.

well as on October 8, 2011, the Saturday of Fleet Week. The Fleet Week data allows for a comparison for similar spectator conditions that can be expected on AC34 event days. The analysis methodology is detailed in the summary memorandum AC34 – *Spectator Sites on NPS Properties, Visitation Estimates and Capacity Assessment, Preliminary Report*, December 5, 2011, prepared by ORCA Consultants.

The methodology uses the 2000 HCM level of service descriptions for LOS A to LOS F conditions, however, adjusts the flow rates for the walkway analyses and density levels for the PAOT analyses to reflect higher impact of bicycles, presence of slower-moving spectators on pathways, and high-volume urban conditions. LOS A represents free-flowing pedestrian conditions, while LOS F indicates that there are substantial restrictions to pedestrian movement and speed. The walkway and PAOT analysis was conducted for the peak hour of the day for each analysis location, which may vary by location. For the AC34 events, the peak walkway period would typically be between noon and 2:00 p.m., and the peak PAOT period would be between 1:00 and 4:00 p.m. Where applicable, the walkway analysis includes the effects of both pedestrian and bicycle travel on the multi-use trails.

Walkway and PAOT level of service calculations are included in **Appendix I**. **Table TRA-14** presents a description of the pedestrian conditions associated with each service level for walkways and PAOT locations.

TABLE TRA-14: PEDESTRIAN LEVEL OF SERVICE (LOS) DESCRIPTIONS

LOS	Walkway[a]	PAOT[b]
A	Pedestrians move in desired paths without altering their movements in response to other pedestrians.	Spacious and comfortable conditions. All spectators have excellent viewing.
B	There is sufficient area for pedestrians to select their walking speeds freely, to bypass other pedestrians, and to avoid crossing conflicts.	Busy, but comfortable conditions. Almost all spectators have excellent viewing.
C	Space is sufficient for normal walking speeds, and for bypassing other pedestrians in primarily unidirectional streams. Reverse-direction or crossing movements can cause minor conflicts, and speeds are somewhat lower.	Crowded, but manageable conditions A significant portion of spectators have reduced visibility for events.
D	Freedom to select individual walking speed and to bypass other pedestrians is restricted. Crossing or reverse-flow movements face a high probability of conflict, requiring frequent changes in speeds and position.	Extremely crowded conditions The majority of spectators have reduced visibility and experience uncomfortable crowded levels.
E	Virtually all pedestrians restrict their normal walking speed, frequently adjusting their gait. Space is not sufficient for bypassing other pedestrians. Cross or reverse-flow movements are possible only with extreme difficulty.	Severe gridlock conditions.
F	All walking speeds are severely restricted, and forward progress is made only by shuffling.	--

[a] Walkway analysis based on flow rates (measured in pedestrians per minute per foot). See **Appendix I**.
[b] PAOT = People at One Time, based on density levels (measured in square feet per person). See **Appendix I**.

SOURCE: Transportation Research Board, 2000. Highway Capacity Manual – Special Report, Washington, DC, ORCA, 2011.

Bicycle Analysis

The project impact analysis includes a qualitative assessment of bicycle conditions. Bicycle conditions are assessed as they relate to the NPS and Presidio sites, including accessibility, bicycle routes, safety and right-of-way issues, and conflicts with pedestrian and vehicular traffic.

Access Analysis

Analysis of access for the AC34 project includes a qualitative assessment of the expected activities requiring access to the NPS and Presidio sites.

Parking Analysis

Parking analysis was conducted by comparing the projected demand that would be generated by the proposed uses to the publicly available supply in the vicinity of the proposed AC34 venues.

4.10.4.2 Travel Demand Methodology and Results

The methods commonly used for forecasting trip generation of development projects in San Francisco are based on person-trip generation rates, trip distribution information, and mode splits data described in the *Transportation Impact Analysis Guidelines for Environmental Review*, published by the San Francisco Planning Department in October 2002 (*SF Guidelines*). These data are based on a number of detailed travel behavior surveys conducted within San Francisco. The data in the *SF Guidelines* are generally accepted as more appropriate than conventional methods because of the unique mix of mix of uses, density, availability of transit, and cost of parking commonly found in San Francisco. However, the *SF Guidelines* do not include travel demand estimate for specialized event such as the America's Cup. Similarly, standard trip generation rates, such as those provided by Trip Generation, 8th Edition, 2008, Institute of Transportation Engineers, do not provide trip generation rates for such specialized uses. Therefore, the travel demand for the proposed project was based on the estimated number of AC34 spectators expected to be in San Francisco and at the NPS and Presidio sites. Travel demand calculations are included in Appendix I.

Daily visitation estimates for the four action alternatives were prepared by the AECOM, based on previous estimates prepared for the EIR, and the detailed analysis is included in **Appendix I**. In general, the number of visitors anticipated to view the event would vary by day of week (weekday versus weekend), weather, race schedule and position, interest in competing teams, and planned activities at the AC34 venues. Visitor attendance is first presented for AC34 2013 events, followed by a discussion of the racing events proposed to occur in 2012.

Total event visitor attendance for the AC34 2013 is projected to range between 14,000 and 18,000 visitors on non-race days (i.e., non-race day visitors to the AC34 Village) to between 260,000 and 300,000 visitors on a "peak race day" if combination of favorable factors all fall upon a weekend day. **Table TRA-15A** presents the estimated distribution of total peak and average attendance for AC34 event days in 2013 for Alternatives B (Sponsor Proposed Project), C (No Organized Events on NPS Lands) and D (Modified Program Alternative), while **Table TRA-15B** presents this information for Alternative E (Preferred Alternative).

TABLE TRA-15A: ESTIMATED SPECTATORS BY PROFILE DAY– AC34 2012 AND AC34 2013 – ALTERNATIVES B, C & D

AC34 2012				
Profile Day	Total Number of Event Days in 2012	Average Visitors Per Day		
		Alt B	Alt C	Alt D
Very High-Interest Weekend Days	**2**	**120,000**	**102,000**	**100,000**
High-Interest Weekend Days	**4**	**72,000**	**61,000**	**60,000**
High-Interest Weekday	**2**	**27,000**	**23,000**	**23,000**
Medium-interest Weekday	7	14,000	11,000	11,000
Low-interest Weekday	4	8,000	6,000	7,000
Total (Race + Non Race Days)	19	--		
AC34 2013				
Peak Weekend Race Days	**5**	**296,000**	**249,000**	**261,000**
Medium High Weekend/Holiday Race Day	6	181,000	159,000	166,000
Average Weekend/Holiday Race Day	**13**	**91,000**	**82,000**	**84,000**
Peak Race Weekday	**10**	**45,000**	**39,000**	**41,000**
Non-Peak Race Weekday	10	23,000	19,000	17,000
Non Race Day Weekday	40	18,000	14,000	14,000
Total (Race + Non Race Days)	84	--		

Bold indicates AC34 Scenarios analyzed in this EA

SOURCE: AECOM, 2012.

As indicated in the **Table TRA-15A**, for about 73 of the 84 days of AC34 2013 event days, daily visitor attendance is projected to be less than 100,000 visitors per day. For each action alternative, the following profile days were analyzed for AC34 2013 conditions:

- Peak weekend race day – analyzing between 249,000 and 296,000 total spectators
- Average weekend/holiday race day – analyzing between 82,000 and 91,000 spectators
- Peak weekday race day – analyzing between 39,000 and 45,000 spectators

Under Alternative B (Sponsor Proposed Project), the overall daily visitor attendance would range between 18,000 spectators on non-race day, to 296,000 spectators on a peak weekend race day. Under Alternative C (No Organized Events on NPS Lands) and Alternative D (Modified Program Alternative), due to the limited programmed activities expected to take place on NPS lands, overall travel demand for AC34 would be lower than under Alternative B. Under Alternative C and as indicated in **Table TRA-15B**, Alternative E (Preferred Alternative), daily spectator attendance would range between 14,000 spectators on non-race days, and 249,000 spectators on a peak weekend race day. Under Alternative D, spectator attendance would range between 14,000 spectators on non-race days and 261,000 spectators on a peak weekend race day.

TABLE TRA-15B: ESTIMATED SPECTATORS BY PROFILE DAY – AC34 2012 AND AC34 2013 – ALTERNATIVE E

AC34 2012		
Profile Day	Total Number of Event Days in 2012	Average Visitors Per Day
Very High-Interest Weekend Days[a,c]	**2**	**104,000**
High-Interest Weekend Days[b,c]	**3**	**100,000**
High-Interest Weekday	2	23,000
Medium-interest Weekday	5	11,000
Low-interest Weekday	2	6,000
Total (Race + Non Race Days)	14	--
AC34 2013		
Peak Weekend Race Days	**5**	**249,000**
Medium High Weekend/Holiday Race Day	6	159,000
Average Weekend/Holiday Race Day	**13**	**82,000**
Peak Race Weekday	**10**	**39,000**
Non-Peak Race Weekday	10	19,000
Non Race Day Weekday	40	14,000
Total (Race + Non Race Days)	84	--

Bold indicates AC34 Scenarios analyzed in this EA

[a] Peak AC45 Boat Race Weekend – August 2012
[b] Peak AC72 Boat Exhibition Weekend – September 2012
[c] One very-high race day (Sunday, October 7, 2012) and one high-interest race day (Saturday, October 6, 2012) would take place during Fleet Week. Impacts of AC34 races during Fleet Week are discussed separately as a cumulative condition for Alternative E. Thus, these two Fleet Week days are not included in the travel demand or impact analysis results tables describing traffic, transit, pedestrian, or parking conditions for very-high and high-interest race days.

SOURCE: AECOM, 2012

The scale and duration of the AC34 2012 events would be less than for AC34 2013, and the projected visitorship would also be less. **Table TRA-15A** presents the estimated distribution of peak and average attendance for AC34 event days in 2012 for Alternatives B, C and D. As indicated in the table, for about 13 of the 19 days of AC34 event days, daily visitor attendance is projected to be at or below 27,000 visitors per day. For each action alternative, the following profile days were analyzed for AC34 2012 conditions:

- Peak weekend race day – analyzing between 100,000 and 120,000 total spectators
- High-interest weekend race day – analyzing between 60,000 and 72,000 spectators
- Peak weekday race day – analyzing between 23,000 and 27,000 spectators

As described in Chapter 2—Alternatives, due to late schedule modifications, under Alternative E, the number of event days in 2012 would be 14, compared with 19 event days for Alternatives B, C, and D. As indicated on **Table TRA-15B**, under Alternative E, daily spectator attendance would be 100,000 to 104,000 spectators on up to five weekend days, and between 6,000 and 23,000 spectators on up to nine weekday event days. Unlike Alternatives B, C and D, under Alternative E, AC34 races are proposed to overlap with Fleet Week from October 4, 2012 through October 8, 2012. Only two profile days are analyzed under Alternative E for AC34 2012 Conditions: Very-high-interest race days and High-

interest race days. One very-high race day (Sunday, October 7, 2012) and one high-interest race day (Saturday, October 6, 2012) would take place during Fleet Week. Impacts of AC34 races during Fleet Week are discussed separately as a cumulative condition for Alternative E. Thus, these two Fleet Week days are not included in the travel demand or impact analysis results tables describing traffic, transit, pedestrian, or parking conditions for very-high and high-interest race days.

The visitation analysis also estimated geographic distribution for visitors to all proposed AC34 venues and other public areas where spectators might watch the AC34 races, based on spectator origin, access, visitor capacity, assumed viewing area appeal, and event programming and support services for spectators. For purposes of the transportation impact analysis, the visitor locations were aggregated into broader study areas, and are summarized by profile day for AC34 2012 and AC34 2013 conditions in **Table TRA-16A** for Alternatives B, C and D and in **Table TRA-16B** for Alternative E. The visitation analysis estimated geographic distribution for visitors at all proposed AC34 venues and other public areas where spectators might watch the AC34 races in 2012, based on spectator origin, access, visitor capacity, assumed viewing area appeal, and other factors.

Table TRA-17A (for Alternatives B, C and D) and **Table TRA-17B** (for Alternative E) summarize the daily spectator estimates in **Tables TRA-16A and 16B** for the NPS and Presidio sites by alternative and by profile day. Alternative B would have the greatest number of spectators for all event profile days, while Alternative D would have the fewest spectators on NPS and Presidio sites. For example, on the peak weekend day in 2013, Alternative B would have about 71,500 daily spectators, while Alternative C would have 25,500 spectators, Alternative D would have 37,500 spectators, and Alternative E would have 29,500 spectators.

The estimated daily spectators were allocated to travel modes in order to determine the number of auto, transit, walk, and other trips, where "other" includes bicycles, motorcycles, and taxis. Mode split information for the project was estimated from information taken from the SF Guidelines for visitor trips to the Northeastern Waterfront (Superdistrict 1), where most of the AC34 events would take place.[5] According to the *SF Guidelines*, visitor trips to Superdistrict 1 from other San Francisco locations have a high share (more than 85 percent) of non-auto trips, as it would likely be the case with AC34 visitors. Similarly, travel modes for AC34 visitor trips to San Francisco from all other Bay Area locations were assumed to be similar to those originating in the East Bay, which have the highest share (34 percent) of non-auto trips.

To determine the number of vehicle trips generated/attracted by the AC34, an average vehicle occupancy rate was applied to the number of person-trips based on information from surveys of visitors to the Fisherman's Wharf Area.[6] Table **TRA-18A** summarizes the mode split, average vehicle occupancy and origin/destination for trips destined to San Francisco destinations, while **Table TRA-18B** presents this information for trips destined outside to secondary viewing areas outside of San Francisco. The proportion of total trips occurring during the weekday p.m. and Saturday midday peak

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5 San Francisco is divided into four Superdistricts delineated to capture the different travel characteristics that are associated with the various street network, transit opportunities, and geographical constraints of different areas of San Francisco (Superdistrict 1 includes the northeast quadrant, Superdistrict 2 includes the northwest quadrant, Superdistrict 3 includes the southeast quadrant, and Superdistrict 4 includes the southwest quadrant.

6 Fisherman's Wharf Visitor Survey – Fisherman's Wharf Community Benefit District, November 2006.

TABLE TRA-16A: AC34 DAILY SPECTATORS BY AREA FOR AC34 2012 AND AC34 2013 – ALTERNATIVES B, C & D

Alternative/ Study Area Location	AC34 2012			AC34 2013		
	Peak Race Weekdays (2 days)	High Interest Weekend Race Days (4 days)	Peak Weekend Race Days (2 days)	Peak Race Weekdays (10 days)	Average Weekend Race Days (13 days)	Peak Race Weekend Days (5 days)
Alternative B – Sponsor Proposed Project						
Landside						
Presidio and Crissy Field	6,500	13,200	22,000	8,000	11,000	61,000
Marina and Fort Mason	11,100	30,600	51,000	10,200	28,300	56,000
Aquatic Park	500	2,400	4,000	600	2,500	8,000
Fisherman's Wharf	3,000	6,000	10,000	3,500	4,000	25,000
Northeast Embarcadero	4,000	13,500	22,500	20,000	36,000	109,000
Other San Francisco/Treasure Is.	200	2,190	3,650	450	3,650	18,500
Alcatraz Island	0	0	0	0	0	0
Marin Headlands/Fort Baker	200	510	850	250	350	1,000
Rest of Marin County/Angel Is.	300	1,200	2,000	350	1,400	7,000
Subtotal Landside	*25,800*	*69,900*	*116,500*	*43,350*	*87,500*	*286,000*
Spectators on Boats	1,200	2,100	3,500	1,650	3,500	10,000
Total all Spectators	***27,000***	***72,000***	***120,000***	***45,000***	***91,000***	***296,000***
Alternative C – No Organized Events on NPS Sites						
Landside						
Presidio and Crissy Field	2,300	4,260	7,100	2,000	3,700	20,000
Marina and Fort Mason	11,100	30,600	51,000	10,100	28,150	55,500
Aquatic Park	500	1,200	2,000	500	1,000	4,000
Fisherman's Wharf	3,000	6,000	10,000	3,500	4,000	25,000
Northeast Embarcadero	4,000	13,500	22,500	20,000	36,000	109,000
Other San Francisco/Treasure Is.	400	1,630	3,050	650	3,900	17,500
Alcatraz Island	0	0	0	0	0	0
Marin Headlands/Fort Baker	200	510	850	250	350	1,000
Rest of Marin County/Angel Is.	300	1,200	2,000	350	1,400	7,000
Subtotal Landside	*21,800*	*58,900*	*98,500*	*37,350*	*78,500*	*239,000*
Spectators on Boats	1,200	2,100	3,500	1,650	3,500	10,000
Total all Spectators	***23,000***	***61,000***	***102,000***	***39,000***	***82,000***	***249,000***
Alternative D – Modified Program Alternative						
Landside						
Presidio and Crissy Field	1,000	1,770	2,950	4,000	5,500	30,500
Marina and Fort Mason	11,100	30,600	51,000	10,200	28,300	56,000
Aquatic Park	2,000	3,000	5,000	400	1,500	5,000
Fisherman's Wharf	3,000	6,000	10,000	3,500	4,000	25,000
Northeast Embarcadero	4,000	13,500	22,500	20,000	36,000	109,000
Other San Francisco/Treasure Is.	200	1,320	2,200	650	3,450	17,500
Alcatraz Island	0	0	0	0	0	0
Marin Headlands/Fort Baker	200	510	850	250	350	1,000
Rest of Marin County/Angel Is.	300	1,200	2,000	350	1,400	7,000
Subtotal Landside	*21,800*	*57,900*	*96,500*	*39,350*	*80,500*	*251,000*
Spectators on Boats	1,200	2,100	3,500	1,650	3,500	10,000
Total all Spectators	***23,000***	***60,000***	***100,000***	***41,000***	***84,000***	***261,000***

SOURCE: AECOM, 2012

TABLE TRA-16B: AC34 DAILY SPECTATORS BY AREA FOR AC34 2012 AND AC34 2013 – ALTERNATIVE E

Alternative/Study Area Location	AC34 2012		AC34 2013		
	High-Interest Weekend Days (AC72 Boat Exhibition Weekend – September – 2 days)[a]	Very High-Interest Weekend Days (AC45 Boat Race Weekend – August – 1 day)[a]	Peak Race Weekdays (10 days)	Average Weekend Race Days (13 days)	Peak Race Weekend Days (5 days)
Alternative E – Preferred Alternative					
Landside					
Presidio and Crissy Field	2,850	7,100	2,000	3,700	20,000
Marina and Fort Mason	51,000	51,000	10,100	28,150	55,500
Aquatic Park	5,000	5,000	600	2,500	8,000
Fisherman's Wharf	10,000	10,000	3,500	4,000	23,000
Northeast Embarcadero	22,500	22,500	20,000	35,000	107,000
Other San Francisco/Treasure Is.	2,300	2,050	550	3,400	17,500
Alcatraz Island	0	0	0	0	0
Marin Headlands/Fort Baker	850	850	250	350	1,000
Rest of Marin County/Angel Is.	2,000	2,000	350	1,400	7,000
Subtotal Landside	*96,500*	*100,500*	*37,350*	*78,500*	*239,000*
Spectators on Boats	3,500	3,500	1,650	3,500	10,000
Total all Spectators	***100,000***	***104,000***	***39,000***	***82,000***	***249,000***

[a] One very-high race day (Sunday, October 7, 2012) and one high-interest race day (Saturday, October 6, 2012) would take place during Fleet Week. Impacts of AC34 races during Fleet Week are discussed separately as a cumulative condition for Alternative E. Thus, the spectator estimates for these two Fleet Week days are not shown in this table, rather are estimated as a percentage of Fleet Week attendance in the cumulative section of Alternative E.

SOURCE: AECOM, 2012

hours was estimated from BART ridership profile data for 2010 Fleet Week and San Francisco Giants World Series Championship Parade (November 3, 2010). During the weekday p.m. peak hour, about five percent of AC34 daily visitor trips would be inbound into San Francisco, and 15 percent would be outbound. During the Saturday midday peak hour, about 20 percent of AC34 daily visitor trips would be inbound into San Francisco, and about five percent would be outbound.

Table TRA-19 presents the total daily and peak hour person-trips by mode and vehicle trips generated by the four action alternatives by profile day in 2012 and 2013 for all event sites and secondary viewing areas. The person and vehicle trips generated and attracted by AC34 were allocated to the different viewing locations within and outside San Francisco based on their expected number of visitors. **Tables TRA-20** through **TRA-23** present the trip generation by mode of travel and location for Alternatives B through E, respectively. As shown in the tables, auto travel represents approximately 51 to 56 percent of the total person trips, transit represents 24 to 28 percent, and walk/other represents 19 to 21 percent.

TABLE TRA-17A: AC34 DAILY SPECTATORS[a] BY STUDY AREA FOR AC34 2012 AND AC34 2013 – ALTERNATIVES B, C & D

Alternative/Study Area Location	AC34 2012			AC34 2013		
	Peak Race Weekdays (2 days)	High Interest Weekend Race Days (4 days)	Peak Weekend Race Days (2 days)	Peak Race Weekdays (10 days)	Average Weekend Race Days (13 days)	Peak Race Weekend Days (5 days)
Alternative B – Sponsor Proposed Project						
Presidio and Crissy Field	6,500	13,200	22,000	8,000	11,000	61,000
Fort Mason	100	600	1,000	200	300	1,000
Aquatic Park	500	2,400	4,000	600	2,500	8,000
Alcatraz Island	0	0	0	0	0	0
Marin Headlands/Fort Baker	200	510	850	250	350	1,000
Total Spectators on Federal Lands	***7,300***	***17,010***	***28,350***	***9,050***	***14,450***	***71,500***
Alternative C – No Organized Events on NPS Sites						
Presidio and Crissy Field	2,300	4,260	7,100	2,000	3,700	20,000
Fort Mason	100	600	1,000	100	150	500
Aquatic Park	500	1,200	2,000	500	1,000	4,000
Alcatraz Island	0	0	0	0	0	0
Marin Headlands/Fort Baker	200	510	850	250	350	1,000
Total Spectators on Federal Lands	***3,100***	***6,570***	***10,950***	***2,850***	***5,200***	***25,500***
Alternative D – Modified Program Alternative						
Presidio and Crissy Field	1,000	1,770	2,950	4,000	5,500	30,500
Fort Mason	100	600	1,000	200	300	1,000
Aquatic Park	2,000	3,000	5,000	400	1,500	5,000
Alcatraz Island	0	0	0	0	0	0
Marin Headlands/Fort Baker	200	510	850	250	350	1,000
Total Spectators on Federal Lands	***3,300***	***5,880***	***9,800***	***4,850***	***7,650***	***37,500***

[a] Includes visitors attracted by AC34 events as well as those visitors who would still visit the area and would participate in the AC34 events in addition to other park uses (converted visitors).

SOURCE: AECOM, 2012

Similar to when other special events occur in San Francisco, on weekend days with very high AC34 attendance, the visitors that would normally visit NPS lands may not want to, or be able to, visit the area. For purposes of this analysis, these visitors are referred to as "displaced" visitors. Some of these visitors would still visit the area, and would take in the AC34 events in addition to other park uses. For purposes of this analysis, these visitors are referred to as "converted" visitors. The actual amount of visitation displacement/conversion that would occur is not specifically known, and is likely to vary based on visitors' expectations of crowding levels. The number of visitors that could potentially be displaced or converted on a daily basis was estimated to be 30 to 400 visitors at the Aquatic Park, 10 to 150 visitors per day at Fort Mason, 70 to 600 visitors per day at Crissy Field East, 550 to 8,000 visitors

TABLE TRA-17B: AC34 DAILY SPECTATORS[a] BY STUDY AREA FOR AC34 2012 AND AC34 2013 – ALTERNATIVE E

Alternative/Study Area Location	AC34 2012		AC34 2013		
	High-Interest Weekend Days (AC72 Boat Exhibition Weekend – 2 days)[b]	Very High-Interest Weekend Days (AC45 Boat Race Weekend – 1 day) [b]	Peak Race Weekdays (10 days)	Average Weekend Race Days (13 days)	Peak Race Weekend Days (5 days)
Alternative E – Preferred Alternative					
Presidio and Crissy Field	2,850	7,100	2,000	3,700	20,000
Fort Mason	1,000	1,000	100	150	500
Aquatic Park	5,000	5,000	600	2,500	8,000
Alcatraz Island	0	0	0	0	0
Marin Headlands/Fort Baker	850	850	250	350	1,000
Total Spectators on Federal Lands	***9,700***	***13,950***	***2,950***	***6,700***	***29,500***

[a] Includes visitors attracted by AC34 events as well as those visitors who would still visit the area and would participate in the AC34 events in addition to other park uses (converted visitors).

[b] One very-high race day (Sunday, October 7, 2012) and one high-interest race day (Saturday, October 6, 2012) would take place during Fleet Week. Impacts of AC34 races during Fleet Week are discussed separately as a cumulative condition for Alternative E. Thus, the spectator estimates for these two Fleet Week days are not shown in this table, rather are estimated as a percentage of Fleet Week attendance in the cumulative section of Alternative E.

SOURCE: AECOM, 2012

at Crissy Field West, and 50 to 800 visitors per day at the Crissy Field West Picnic Area. It could be reasonably assumed that approximately half the displaced/converted visitors would be displaced to other recreational areas, including some swimmers and rowers, such as other nearby NPS lands where similar recreational activities are available (e.g., Land's End, Fort Funston), while others would opt for other non-NPS activities (e.g., Golden Gate Park, Ocean Beach) (ORCA 2012). While some displacement of existing visitors would be expected, the overall number would be small, compared with the increased visitation. The traffic and transit analysis does not take into account the displacement of existing activities occurring at the NPS and Presidio sites, and therefore results in a conservative analysis of the potential impacts.

Table TRA-24 summarizes the vehicle trip generation for the NPS and Presidio sites by action alternative and profile day. As for overall trip generation, the number of peak hour vehicle trips to and from the NPS and Presidio sites would be the greatest under Alternative B. For example, for the peak weekend event day in 2013, Alternative C would generate about 38 percent of trips as Alternative B, Alternative D would generate about 54 percent of trips as Alternative B, and Alternative E would generate about 44 percent of trips as Alternative B.

Consistent with the September 2011 People Plan, the transportation analysis was conducted assuming that on AC34 event days, varying levels of temporary roadway management and transit service enhancements would be implemented to accommodate the increased travel demand. On high attendance days, for example, traffic on key roadways would be restricted in order to manage vehicular

TABLE TRA-18A: AC34 2012 AND AC34 2013 TRAVEL DEMAND ASSUMPTIONS – MODE SPLIT AND ORIGIN/DESTINATION FOR VIEWING LOCATIONS IN SAN FRANCISCO

		Weekday				Weekend			
		Worker		Visitor		Worker		Visitor	
Mode Split by Origin/Destination		**%**[b]	**AVO**[a,b]	**%**[c]	**AVO**[a,e]	**%**[b]	**AVO**[a,b]	**%**[d]	**AVO**[a,f]
San Francisco	Auto	13.8%	1.3	12.9%	2.2	13.8%	1.3	12.9%	3.8
	Transit	36.0%		17.1%		36.0%		17.1%	
	Walk/Other	50.2%		70.0%		50.2%		70.0%	
	Subtotal	*100.0%*		*100.0%*		*100.0%*		*100.0%*	
East Bay	Auto	39.4%	3.3	65.6%	2.4	39.4%	3.3	65.6%	3.8
	Transit	57.0%		34.4%		57.0%		34.4%	
	Walk/Other	3.6%		0.0%		3.6%		0.0%	
	Subtotal	*100.0%*		*100.0%*		*100.0%*		*100.0%*	
North Bay	Auto	52.8%	1.7	88.1%	1.9	52.8%	1.7	65.6%	3.8
	Transit	45.3%		11.9%		45.3%		34.4%	
	Walk/Other	1.9%		0.0%		1.9%		0.0%	
	Subtotal	*100.0%*		*100.0%*		*100.0%*		*100.0%*	
South Bay	Auto	58.0%	1.2	70.7%	2.5	58.0%	1.2	65.6%	3.8
	Transit	40.7%		29.3%		40.7%		34.4%	
	Walk/Other	1.3%		0.0%		1.3%		0.0%	
	Subtotal	*100.0%*		*100.0%*		*100.0%*		*100.0%*	
Out of Region	Auto	47.8%	1.5	59.8%	3.2	47.8%	1.5	65.6%	3.8
	Transit	50.0%		40.2%		50.0%		34.4%	
	Walk/Other	2.2%		0.0%		2.2%		0.0%	
	Subtotal	*100.0%*		*100.0%*		*100.0%*		*100.0%*	
All Origins	Auto	38.1%	1.6	52.7%	2.3	38.1%	1.6	48.9%	3.8
	Transit	44.5%		25.2%		44.5%		29.0%	
	Walk/Other	17.4%		22.1%		17.4%		22.1%	
	Total	***100%***		***100%***		***100%***		***100%***	
Origin/Destination		**%**[g]		**%**[g]		**%**[g]		**%**[g]	
San Francisco		31.6%		31.6%		31.6%		31.6%	
East Bay		25.5%		25.5%		25.5%		25.5%	
North Bay		12.1%		12.1%		12.1%		12.1%	
South Bay		25.7%		25.7%		25.7%		25.7%	
Out of Region		5.1%		5.1%		5.1%		5.1%	
	Total	***100%***		***100%***		***100%***		***100%***	

[a] AVO – Average Vehicle Occupancy in terms of persons per vehicle.
[b] *SF Guidelines*, Work Trips to Superdistrict 1- All (All San Francisco assumed same as SD1).
[c] *SF Guidelines*, Visitor Trips to Superdistrict 1 – All Other (All San Francisco assumed same as Superdistrict 1. Walk/other into and out of San Francisco were proportionally allocated to Auto and Transit %).
[d] *SF Guidelines*, Visitor Trips to Superdistrict 1 – All Other (All San Francisco assumed same as Superdistrict 1. Mode split for all trips into and out of SF were assumed to be similar to the East Bay. Walk/Other into and out of San Francisco were proportionally allocated to Auto and Transit %).
[e] AVO based on *SF Guidelines*, Visitor Trips to Superdistrict 1 (All Other).
[f] AVO based on Fisherman's Wharf Visitor Survey – Fisherman's Wharf Community Benefit District, November 2006.
[g] AECOM, Draft Report: America's Cup 34 NEPA Alternatives Visitation Analysis, January 2012.

SOURCE: *SF Guidelines*, AECOM, Adavant Consulting/LCW Consulting, 2012

TABLE TRA-18B: AC34 2012 AND AC34 2013 TRAVEL DEMAND ASSUMPTIONS – MODE SPLIT AND ORIGIN/DESTINATION FOR VIEWING LOCATIONS OUTSIDE OF SAN FRANCISCO

		Weekday				Weekend			
		Worker		Visitor		Worker		Visitor	
Mode Split by Origin/Destination		**%**[b]	**AVO**[a,b]	**%**[c]	**AVO**[a,d]	**%**[b]	**AVO**[a,b]	**%**[d]	**AVO**[a,e]
San Francisco	Auto	13.8%	1.3	100.0%	2.2	13.8%	1.3	100.0%	3.8
	Transit	36.0%		0.0%		36.0%		0.0%	
	Walk/Other	50.2%		0.0%		50.2%		0.0%	
	Subtotal	*100.0%*		*100.0%*		*100.0%*		*100.0%*	
East Bay	Auto	39.4%	3.3	100.0%	2.4	39.4%	3.3	100.0%	3.8
	Transit	57.0%		0.0%		57.0%		0.0%	
	Walk/Other	3.6%		0.0%		3.6%		0.0%	
	Subtotal	*100.0%*		*100.0%*		*100.0%*		*100.0%*	
North Bay	Auto	52.8%	1.7	100.0%	1.9	52.8%	1.7	100.0%	3.8
	Transit	45.3%		0.0%		45.3%		0.0%	
	Walk/Other	1.9%		0.0%		1.9%		0.0%	
	Subtotal	*100.0%*		*100.0%*		*100.0%*		*100.0%*	
South Bay	Auto	58.0%	1.2	100.0%	2.5	58.0%	1.2	100.0%	3.8
	Transit	40.7%		0.0%		40.7%		0.0%	
	Walk/Other	1.3%		0.0%		1.3%		0.0%	
	Subtotal	*100.0%*		*100.0%*		*100.0%*		*100.0%*	
Out of Region	Auto	47.8%	1.5	100.0%	3.8	47.8%	1.5	100.0%	3.8
	Transit	50.0%		0.0%		50.0%		0.0%	
	Walk/Other	2.2%		0.0%		2.2%		0.0%	
	Subtotal	*100.0%*		*100.0%*		*100.0%*		*100.0%*	
All Origins	Auto	40.7%	1.7	100.0%	2.2	40.7%	1.7	100.0%	3.8
	Transit	43.9%		0.0%		43.9%		0.0%	
	Walk/Other	15.4%		0.0%		15.4%		0.0%	
	Total	***100%***		***100%***		***100%***		***100%***	
Origin/Destination		**%**[f]		**%**[f]		**%**[f]		**%**[f]	
San Francisco		27.5%		27.5%		27.3%		27.3%	
East Bay		12.5%		12.5%		12.7%		12.7%	
North Bay		47.4%		47.4%		47.3%		47.3%	
South Bay		8.8%		8.8%		9.1%		9.1%	
Out of Region		3.8%		3.8%		3.6%		3.6%	
	Total	***100%***		***100%***		***100%***		***100%***	

[a] AVO – Average Vehicle Occupancy in terms of persons per vehicle.
[b] *SF Guidelines*, Work Trips to Superdistrict 1- All (All San Francisco assumed same as Superdistrict 1).
[c] All visitor trips assigned to Auto %.
[d] AVO based on *SF Guidelines*, Visitor Trips to Superdistrict 1 (All Other).
[e] AVO based on Fisherman's Wharf Visitor Survey – Fisherman's Wharf Community Benefit District, November 2006.
[f] AECOM, Draft Report: America's Cup 34 NEPA Alternatives Visitation Analysis, January 2012.

SOURCE: *SF Guidelines*, AECOM, Adavant Consulting/LCW Consulting, 2012

TABLE TRA-19: DAILY AND ANALYSIS-HOUR PERSON TRIP GENERATION FOR AC34 2012 AND AC34 2013

	Alternative B: Sponsor Proposed Project			Alternative C: No Organized Events on NPS Lands			Alternative D Modified Program Alternative			Alternative E Preferred Alternative		
AC34 2012	**Peak Weekday**	**High Interest Weekend**	**Peak Weekend**	**Peak Weekday**	**High Interest Weekend**	**Peak Weekend**	**Peak Weekday**	**High Interest Weekend**	**Peak Weekend**	**Peak AC45 Boat Race Weekend**		**Peak AC72 Boat Exhibition Weekend**
Total Daily Landside Person Trips	*54,180*	*146,790*	*244,650*	*45,780*	*123,690*	*206,850*	*45,780*	*121,590*	*202,650*	*211,050*		*202,650*
Analysis Hour[a]												
Person Trips Inbound	2,709	29,358	48,930	2,289	24,738	41,370	2,289	24,318	40,530	42,210		40,530
Outbound	8,127	7,340	12,233	6,867	6,185	10,343	6,867	6,080	10,133	10,553		10,133
Total Person Trips	10,836	36,698	61,163	9,156	30,923	51,713	9,156	30,398	50,663	52,763		50,663
Transit Trips Inbound	683	8,402	14,003	575	7,076	11,834	582	6,962	11,603	12,095		11,598
Outbound	2,049	2,100	3,501	1,726	1,769	2,959	1,747	1,741	2,901	3,024		2,900
Total Transit Trips	2,732	10,502	17,504	2,301	8,845	14,793	2,329	8,703	14,504	15,119		14,498
Vehicle Trips Inbound	632	4,003	6,672	536	3,380	5,651	532	3,332	5,554	5,772		5,549
Outbound	1,895	1,001	1,668	1,607	845	1,413	1,596	833	1,388	1,443		1,387
Total Vehicle Trips	2,526	5,004	8,340	2,143	4,225	7,064	2,128	4,165	6,942	7,215		6,937
AC34 2013	**Peak Weekday**	**Average Weekend**	**Peak Weekend**	**Peak Weekday**	**Average Weekend**	**Peak Weekend**	**Peak Weekday**	**Average Weekend**	**Peak Weekend**	**Peak Weekday**	**Average Weekend**	**Peak Weekend**
Total Daily Landside Person Trips	*91,035*	*183,750*	*600,600*	*78,435*	*164,850*	*501,900*	*82,635*	*169,050*	*527,100*	*78,435*	*164,850*	*501,900*
Analysis Hour[a]												
Person Trips Inbound	4,552	36,750	120,120	3,922	32,970	100,380	4,132	33,810	105,420	3,922	32,970	100,380
Outbound	13,655	9,188	30,030	11,765	8,243	25,095	12,395	8,453	26,355	11,765	8,243	25,095
Total Person Trips	18,207	45,938	150,150	15,687	41,213	125,475	16,527	42,263	131,775	15,687	41,213	125,475
Transit Trips Inbound	1,149	10,580	34,138	987	9,504	28,380	1,054	9,767	29,914	998	9,514	28,409
Outbound	3,446	2,645	8,534	2,961	2,376	7,095	3,161	2,442	7,478	2,993	2,378	7,102
Total Transit Trips	4,594	13,226	42,672	3,949	11,880	35,475	4,215	12,208	37,392	3,990	11,892	35,511
Vehicle Trips Inbound	1,060	4,982	16,492	917	4,470	13,868	958	4,593	14,569	911	4,478	13,890
Outbound	3,181	1,246	4,123	2,750	1,118	3,467	2,873	1,148	3,642	2,732	1,119	3,472
Total Vehicle Trips	4,241	6,228	20,614	3,667	5,588	17,336	3,831	5,741	18,211	3,642	5,597	17,362

[a] Analysis hours are weekday 5:00 to 6:00 p.m., and weekend 12:00 to 1:00 p.m.

SOURCE: AECOM, Adavant Consulting/LCW Consulting, 2012

TABLE TRA-20: ALTERNATIVE B: SPONSOR PROPOSED PROJECT – PERSON TRIP GENERATION BY MODE AC34 2012 AND 2013 – WEEKDAY PM AND WEEKEND MIDDAY PEAK HOURS – LANDSIDE LOCATIONS

Analysis Year/Location	Auto	Transit	Walk/ Other	Total	Auto	Transit	Walk/ Other	Total	Auto	Transit	Walk/ Other	Total
AC34 2012	**Peak Weekday PM Peak Hour**				**High Interest Weekend Midday Peak Hour**				**Peak Weekend Midday Peak Hour**			
Presidio and Crissy Field	1,426	701	603	2,730	3,352	2,047	1,531	6,930	5,586	3,411	2,552	11,550
Fort Mason	22	11	9	42	152	93	70	315	254	155	116	525
Aquatic Park	110	54	46	210	609	372	278	1,260	1,016	620	464	2,100
Subtotal Federal Land Locations in SF	*1,557*	*766*	*659*	*2,982*	*4,113*	*2,512*	*1,880*	*8,505*	*6,856*	*4,187*	*3,133*	*14,175*
Alcatraz Island	0	0	0	0	0	0	0	0	0	0	0	0
Marin Headlands (Conzelman Rd)	39	1	0	40	155	3	0	158	252	5	2	259
Fort Baker/Cavallo Pt.	39	1	0	40	137	2	0	140	173	3	1	176
Subtotal Federal Land Locations outside SF	*77*	*1*	*1*	*79*	*476*	*8*	*1*	*486*	*674*	*12*	*4*	*690*
Total all Federal Land Locations	***1,635***	***767***	***660***	***3,061***	***4,589***	***2,520***	***1,881***	***8,991***	***7,529***	***4,198***	***3,137***	***14,865***
AC34 2013	**Peak Weekday PM Peak Hour**				**Average Weekend Midday Peak Hour**				**Peak Weekend Midday Peak Hour**			
Presidio and Crissy Field	1,755	863	743	3,360	2,793	1,706	1,276	5,775	15,489	9,459	7,077	32,025
Fort Mason	44	22	19	84	76	47	35	158	254	155	116	525
Aquatic Park	132	65	56	252	635	388	290	1,313	2,031	1,240	928	4,200
Subtotal Federal Land Locations in SF	*1,930*	*949*	*817*	*3,696*	*3,504*	*2,140*	*1,601*	*7,245*	*17,774*	*10,854*	*8,121*	*36,750*
Alcatraz Island	0	0	0	0	0	0	0	0	0	0	0	00
Marin Headlands (Conzelman Rd)	62	1	0	63	104	2	0	106	753	14	6	773
Fort Baker/Cavallo Pt.	41	1	0	42	106	2	0	108	516	8	3	527
Subtotal Federal Land Locations outside SF	*103*	*2*	*1*	*105*	*395*	*7*	*1*	*404*	*2,012*	*35*	*13*	*2,060*
Total all Federal Land Locations	***2,033***	***951***	***818***	***3,801***	***3,899***	***2,147***	***1,602***	***7,649***	***19,786***	***10,889***	***8,135***	***38,810***

[a] Column and row totals might not add up due to rounding

SOURCE: AECOM, Adavant Consulting/LCW Consulting, 2012

TABLE TRA-21: ALTERNATIVE C: NO ORGANIZED EVENTS ON NPS LANDS – PERSON TRIP GENERATION BY MODE AC34 2012 AND 2013 – WEEKDAY PM AND WEEKEND MIDDAY PEAK HOURS – LANDSIDE LOCATIONS

Analysis Year/Location	Auto	Transit	Walk/ Other	Total	Auto	Transit	Walk/ Other	Total	Auto	Transit	Walk/ Other	Total
AC34 2012	**Peak Weekday PM Peak Hour**				**High Interest Weekend Midday Peak Hour**				**Peak Weekend Midday Peak Hour**			
Presidio and Crissy Field	505	248	213	966	1,083	661	493	2,237	1,804	1,101	822	3,728
Fort Mason	22	11	9	42	152	93	69	315	254	155	116	525
Aquatic Park	110	54	46	210	305	186	139	630	508	310	231	1,050
Subtotal Federal Land Locations in SF	*637*	*313*	*269*	*1,218*	*1,540*	*940*	*701*	*3,182*	*2,567*	*1,567*	*1,169*	*5,303*
Alcatraz Island	0	0	0	0	0	0	0	0	0	0	2	2
Marin Headlands (Conzelman Rd)	38	1	0	39	142	3	0	145	243	4	2	250
Fort Baker/Cavallo Pt.	38	1	0	39	130	2	0	132	167	3	1	170
Subtotal Federal Land Locations outside SF	*76*	*1*	*1*	*78*	*272*	*5*	*0*	*277*	*410*	*7*	*5*	*422*
Total all Federal Land Locations	***713***	***314***	***269***	***1,296***	***1,812***	***945***	***702***	***3,459***	***2,977***	***1,574***	***1,174***	***5,725***
AC34 2013	**Peak Weekday PM Peak Hour**				**Average Weekend Midday Peak Hour**				**Peak Weekend Midday Peak Hour**			
Presidio and Crissy Field	439	216	185	840	940	574	428	1,943	5,083	3,103	2,314	10,500
Fort Mason	22	11	9	42	38	23	17	79	127	78	58	263
Aquatic Park	110	54	46	210	254	155	116	525	1,017	621	463	2,100
Subtotal Federal Land Locations in SF	*571*	*280*	*241*	*1,092*	*1,233*	*752*	*561*	*2,546*	*6,227*	*3,801*	*2,835*	*12,863*
Alcatraz Island	0	0	0	0	0	0	0	0	0	0	7	7
Marin Headlands (Conzelman Rd)	61	1	0	63	94	2	0	96	799	14	7	820
Fort Baker/Cavallo Pt.	41	1	0	42	94	2	0	96	548	9	3	560
Subtotal Federal Land Locations outside SF	*103*	*2*	*1*	*105*	*189*	*3*	*0*	*192*	*1,347*	*23*	*17*	*1,387*
Total all Federal Land Locations	***673***	***282***	***241***	***1,197***	***1,421***	***756***	***562***	***2,739***	***7,574***	***3,824***	***2,852***	***14,250***

[a] Column and row totals might not add up due to rounding

SOURCE: AECOM, Adavant Consulting/LCW Consulting, 2012

TABLE TRA-22: ALTERNATIVE D: MODIFIED PROGRAM ALTERNATIVE – PERSON TRIP GENERATION BY MODE AC34 2012 AND 2013 – WEEKDAY PM AND WEEKEND MIDDAY PEAK HOURS – LANDSIDE LOCATIONS

Analysis Year/Location	Auto	Transit	Walk/ Other	Total	Auto	Transit	Walk/ Other	Total	Auto	Transit	Walk/ Other	Total
AC34 2012	**Peak Weekday PM Peak Hour**				**High Interest Weekend Midday Peak Hour**				**Peak Weekend Midday Peak Hour**			
Presidio and Crissy Field	219	109	92	420	451	275	203	929	752	458	339	1,549
Fort Mason	22	11	9	42	153	93	69	315	255	155	115	525
Aquatic Park	438	218	184	840	765	466	344	1,575	1,274	777	574	2,625
Subtotal Federal Land Locations in SF	*679*	*338*	*285*	*1,302*	*1,368*	*834*	*616*	*2,819*	*2,281*	*1,391*	*1,027*	*4,699*
Alcatraz Island	0	0	0	0	0	0	0	0	0	0	2	2
Marin Headlands (Conzelman Rd)	42	1	0	43	157	3	0	160	255	5	2	262
Fort Baker/Cavallo Pt.	42	1	1	43	109	2	0	111	180	3	1	184
Subtotal Federal Land Locations outside SF	*84*	*1*	*1*	*86*	*266*	*5*	*0*	*271*	*435*	*7*	*6*	*448*
Total all Federal Land Locations	***762***	***340***	***285***	***1,388***	***1,635***	***839***	***617***	***3,091***	***2,716***	***1,398***	***1,033***	***5,147***
AC34 2013	**Peak Weekday PM Peak Hour**				**Average Weekend Midday Peak Hour**				**Peak Weekend Midday Peak Hour**			
Presidio and Crissy Field	876	437	367	1,680	1,402	855	631	2,888	7,772	4,739	3,501	16,013
Fort Mason	44	22	18	84	76	47	34	158	255	155	115	525
Aquatic Park	88	44	37	168	382	233	172	788	1,274	777	574	2,625
Subtotal Federal Land Locations in SF	*1,007*	*502*	*422*	*1,932*	*1,860*	*1,134*	*838*	*3,833*	*9,301*	*5,671*	*4,190*	*19,163*
Alcatraz Island	0	0	0	0	0	0	0	0	0	0	8	8
Marin Headlands (Conzelman Rd)	61	1	0	63	105	2	0	107	838	15	7	861
Fort Baker/Cavallo Pt.	41	1	0	42	77	1	0	78	592	9	3	604
Subtotal Federal Land Locations outside SF	*103*	*2*	*1*	*105*	*182*	*3*	*0*	*186*	*1,430*	*24*	*18*	*1,473*
Total all Federal Land Locations	***1,110***	***504***	***423***	***2,037***	***2,043***	***1,138***	***838***	***4,018***	***10,731***	***5,696***	***4,208***	***20,635***

[a] Column and row totals might not add up due to rounding

SOURCE: AECOM, Adavant Consulting/LCW Consulting, 2012

TABLE TRA-23: ALTERNATIVE E: PREFERRED ALTERNATIVE – PERSON TRIP GENERATION BY MODE AC34 2012 AND 2013 – WEEKDAY PM AND WEEKEND MIDDAY PEAK HOURS – LANDSIDE LOCATIONS

Analysis Year/Location	Auto	Transit	Walk/ Other	Total	Auto	Transit	Walk/ Other	Total
AC34 2012	**Very High-Interest Days - AC45 Race Peak Weekend Midday Peak Hour**				**High-Interest Days - AC72 Exhibition Peak Weekend Midday Peak Hour**			
Presidio and Crissy Field	1,808	1,103	817	3,728	726	443	328	1,496
Fort Mason	255	155	115	525	255	155	115	525
Aquatic Park	1,273	777	575	2,625	1,273	777	575	2,625
Subtotal Federal Land Locations in SF	*3,336*	*2,034*	*1,507*	*6,878*	*2,253*	*1,374*	*1,018*	*4,646*
Alcatraz Island	0	0	0	0	0	0	2	2
Marin Headlands (Conzelman Rd)	243	4	1	248	255	5	2	262
Fort Baker/Cavallo Pt.	178	3	2	183	180	3	1	184
Subtotal Federal Land Locations outside SF	*420*	*7*	*3*	*431*	*435*	*7*	*6*	*448*
Total all Federal Land Locations	***3,756***	***2,042***	***1,511***	***7,309***	***2,689***	***1,382***	***1,024***	***5,095***

	Auto	Transit	Walk/ Other	Total	Auto	Transit	Walk/ Other	Total	Auto	Transit	Walk/ Other	Total
AC34 2013	**Peak Weekday PM Peak Hour**				**Average Weekend Midday Peak Hour**				**Peak Weekend Midday Peak Hour**			
Presidio and Crissy Field	438	218	184	840	942	575	426	1,943	5,092	3,106	2,301	10,500
Fort Mason	22	11	9	42	38	23	17	79	127	78	58	263
Aquatic Park	131	65	55	252	637	388	288	1,313	2,037	1,242	921	4,200
Subtotal Federal Land Locations in SF	*591*	*294*	*249*	*1,134*	*1,617*	*986*	*731*	*3,334*	*7,257*	*4,426*	*3,280*	*14,963*
Alcatraz Island	0	0	0	0	0	0	0	0	0	0	8	8
Marin Headlands (Conzelman Rd)	61	1	0	63	97	2	0	99	838	15	7	861
Fort Baker/Cavallo Pt.	41	1	0	42	77	1	1	79	592	9	3	604
Subtotal Federal Land Locations outside SF	*103*	*2*	*1*	*105*	*173*	*3*	*1*	*178*	*1,430*	*24*	*18*	*1,473*
Total all Federal Land Locations	***694***	***296***	***249***	***1,239***	***1,790***	***989***	***732***	***3,511***	***8,687***	***4,451***	***3,298***	***16,435***

[a] Column and row totals might not add up due to rounding

SOURCE: AECOM, Adavant Consulting/LCW Consulting, 2012

TABLE TRA-24: VEHICLE TRIP GENERATION BY ALTERNATIVE AC34 2012 AND AC34 2013 – WEEKDAY PM AND WEEKEND MIDDAY PEAK HOURS – LANDSIDE LOCATIONS

Analysis Year/Location	Alternative B: Sponsor Proposed Project			Alternative C: No Organized Events on NPS Lands			Alternative D Modified Program Alternative			Alternative E Preferred Alternative		
AC34 2012	**Peak Weekday**	**High Interest Weekend**	**Peak Weekend**	**Peak Weekday**	**High Interest Weekend**	**Peak Weekend**	**Peak Weekday**	**High Interest Weekend**	**Peak Weekend**	**Very High-Interest Days - Peak AC45 Boat Race Weekend**		**High-Interest Days - Peak AC72 Boat Exhibition Weekend**
Presidio and Crissy Field	625	915	1,526	221	296	493	95	123	205	494		198
Fort Mason	10	42	69	10	42	69	10	42	70	70		70
Aquatic Park	48	166	277	48	83	139	191	209	348	348		348
Subtotal Federal Land Locations in SF	*682*	*1,123*	*1,872*	*279*	*421*	*701*	*296*	*374*	*623*	*911*		*615*
Alcatraz Island	0	0	0	0	0	0	0	0	0	0		0
Marin Headlands (Conzelman Rd)	19	42	68	19	38	65	21	42	68	65		68
Fort Baker/Cavallo Pt.	19	37	46	18	35	45	20	30	48	47		48
Subtotal Federal Land Locations outside SF	*38*	*128*	*180*	*37*	*73*	*110*	*41*	*72*	*117*	*113*		*117*
Total all Federal Land Locations	***720***	***1,252***	***2,053***	***316***	***494***	***811***	***337***	***445***	***739***	***1,023***		***732***
AC34 2013	**Peak Weekday**	**Average Weekend**	**Peak Weekend**	**Peak Weekday**	**Average Weekend**	**Peak Weekend**	**Peak Weekday**	**Average Weekend**	**Peak Weekend**	**Peak Weekday**	**Average Weekend**	**Peak Weekend**
Presidio and Crissy Field	769	763	4,230	192	257	1,388	381	383	2,123	191	257	1,391
Fort Mason	19	21	69	10	10	35	19	21	70	10	10	35
Aquatic Park	58	173	555	48	69	278	38	104	348	57	174	556
Subtotal Federal Land Locations in SF	*846*	*957*	*4,854*	*250*	*337*	*1,701*	*439*	*508*	*2,540*	*258*	*442*	*1,982*
Alcatraz Island	0	0	0	0	0	0	0	0	0	0	0	0
Marin Headlands (Conzelman Rd)	30	28	202	30	25	215	31	28	225	31	26	225
Fort Baker/Cavallo Pt.	20	29	138	19	25	147	20	21	158	20	20	158
Subtotal Federal Land Locations outside SF	*50*	*107*	*539*	*50*	*51*	*361*	*51*	*49*	*383*	*51*	*46*	*383*
Total all Federal Land Locations	***895***	***1,064***	***5,393***	***300***	***387***	***2,062***	***490***	***557***	***2,923***	***308***	***488***	***2,364***

[a] Column and row totals might not add up due to rounding

SOURCE: AECOM, Adavant Consulting/LCW Consulting, 2012

congestion and to preserve the right-of-way for transit, pedestrians, and bicyclists. **Table TRA-25** details the roadway and transit management assumptions for the various profile days to reflect conditions for Alternative B. **Table TRA-26** presents this information for Alternative C and Alternative D, which, due to their similar spectator levels at key NPS locations, were assumed to have the same roadway management and transit service conditions. **Table TRA-27** presents this information for Alternative E.

Consistent with the September 2011 People Plan, the transportation analysis also assumes the closure of Marina Boulevard to through traffic on AC34 peak weekend event days. Therefore, except for emergency and authorized vehicles and residents, no access onto Doyle Drive would be provided from Marina Boulevard when access north of Bay Street/Chestnut Street would be restricted. The weekday peak hour vehicles destined for Marina Boulevard were assumed to be redirected to other nearby streets, including Lombard Street, for access to and from Doyle Drive and the Golden Gate Bridge.

On peak event days, the area north of Chestnut Street between Fillmore and Lyon Streets would be closed to general vehicles; however, residents, authorized vehicles, emergency response vehicles and transit would continue to have access. Such level of traffic restrictions would occur only peak on weekend event days, and would be similar to those that occur on weekends during Fleet Week. On other days, it is anticipated that automobile restrictions would be imposed on parking, by prohibiting on-street parking, strictly enforcing regulations, and closing public parking lots or garages, except for use by authorized vehicles.

Bicycle parking demand for the AC34 events was estimated based on the number of spectators traveling to the various NPS lands, an estimate of the proportion of bicyclists that would stop at the various locations, and an average duration of stay between one and four hours. **Table TRA-28** presents the bicycle parking demand for the AC34 2012 and AC34 2013 events for each alternative and profile day.

Vehicle parking demand for the AC34 events was estimated from the total daily trips by private auto, and an average turnover rate of two vehicles per space.[7] **Table TRA-29** presents the vehicle parking demand for the AC34 2012 and AC34 2013 events for each alternative and analysis day.

4.10.5 Assessment Methods/Thresholds

Transportation impacts were evaluated for the following modes and transportation elements: vehicular traffic (intersections), transit, bicycles, pedestrians, parking, facility access, and access travel times. Analysis of the transportation network on AC34 event days was conducted assuming implementation of the September 2011 People Plan. To the extent that the elements of the transportation plan are known, they were incorporated into the analysis; however, when details of the plan have not yet been finalized, they have been included as transportation enhancement measures and not included in the analysis assumptions.

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[7] A turnover of two vehicles per space means that, on average, each parking space is used sequentially by two vehicles during the study period. A turnover of one vehicle per space means that a vehicle arrives and stays in the parking space for the entire length of the study period. The estimated turnover of two vehicles per space for visitors was derived from the detailed visitation analysis conducted by ORCA for this EA, which indicated that the average stay per AC34 visitor would be four hours.

TABLE TRA-25: ROADWAY MANAGEMENT AND TRANSIT SERVICE ASSUMPTIONS – ALTERNATIVE B: SPONSOR PROPOSED PROJECT

Feature	Scenario / Profile Day					
	AC34 2012[a]			AC34 2013[b]		
	Peak Race Weekdays (2 days)	High Interest Weekend Race Days (4 days)	Peak Weekend Race Days (2 days)	Peak and Non-Peak Race Weekdays (20 days)	Average Weekend Race Days (13 days)	Peak and Medium-High Interest Race Weekend Days (11 days)
ROADWAYS[c]						
Area north of Bay St, east of Van Ness Ave	No change from typical condition	Might be restricted north of North Point St or north of Beach St except for emergency and residents / permitted vehicles	Restricted except for emergency and residents / permitted vehicles	No change from typical condition	Might be restricted north of North Point St or north of Beach St except for emergency and residents / permitted vehicles	Restricted except for emergency and residents / permitted vehicles
Access to Upper Fort Mason	No change from typical condition	Generally open; might be restricted at peak periods	Managed access including NPS authorized vehicles, staff, residents, and program participants	No change from typical condition	Generally open; might be restricted at peak periods	Managed access including NPS authorized vehicles, staff, residents, and program participants
Marina Blvd, from Laguna St to Divisadero St	No change from typical condition	Restricted except for emergency and residents / permitted vehicles, and lower Ft. Mason permitted vehicles (via Buchanan St)	Restricted except for emergency and residents / permitted vehicles, and lower Ft. Mason permitted vehicles (via Buchanan St)	No change from typical condition	Restricted except for emergency and residents / permitted vehicles, and lower Ft. Mason permitted vehicles (via Buchanan St)	Restricted except for emergency and residents / permitted vehicles, and lower Ft. Mason permitted vehicles (via Buchanan St)
Marina Blvd, from Divisadero St to Lyon St	No change from typical condition	Restricted except for emergency and residents / permitted vehicles	Restricted except for emergency and residents / permitted vehicles	No change from typical condition	Restricted except for emergency and residents / permitted vehicles	Restricted except for emergency and residents / permitted vehicles
Mason St, from Lyon St to Warming Hut	No change from typical condition	Restricted, except for emergency vehicles, transit, staff, permitted tenants, and scheduled program participants.	Restricted, except for emergency vehicles, transit, staff, permitted tenants, and scheduled program participants.	No change from typical condition	Restricted, except for emergency vehicles, transit, staff, permitted tenants, and scheduled program participants.	Restricted on peak weekends, except for emergency vehicles, transit, staff, permitted tenants, and scheduled program participants; restricted at peak times only on high interest weekends.
Long Ave; access to Fort Point	No change from typical condition	Restricted, except for emergency vehicles and staff.	Restricted, except for emergency vehicles and staff.	No change from typical condition	Restricted, except for emergency vehicles and staff.	Restricted, except for emergency vehicles and staff.
Halleck St/Marshall St	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction

TABLE TRA-25: ROADWAY MANAGEMENT AND TRANSIT SERVICE ASSUMPTIONS – ALTERNATIVE B: SPONSOR PROPOSED PROJECT (CONTINUED)

Feature	Scenario / Profile Day					
	AC34 2012[a]			AC34 2013[b]		
	Peak Race Weekdays (2 days)	High Interest Weekend Race Days (4 days)	Peak Weekend Race Days (2 days)	Peak and Non-Peak Race Weekdays (20 days)	Average Weekend Race Days (13 days)	Peak and Medium-High Interest Race Weekend Days (11 days)
ROADWAYS[c] (cont.)						
McDowell Ave, from Lincoln Blvd to Mason St	No change from typical condition	Restricted, except for emergency vehicles, transit, staff, permitted tenants, and scheduled program participants.	Restricted, except for emergency vehicles, transit, staff, permitted tenants, and scheduled program participants.	No change from typical condition	Restricted, except for emergency vehicles, transit, staff, permitted tenants, and scheduled program participants.	Restricted, except for emergency vehicles, transit, staff, permitted tenants, and scheduled program participants.
Conzelman Rd, between Alexander Ave and McCullough Rd	No change from typical condition	No change from typical condition	Restricted, except for emergency vehicles	No change from typical condition	Open; access could be restricted at peak times	Restricted, except for emergency vehicles
Access to Fort Baker	No change from typical condition	No change from typical condition	Open; access could be restricted at peak times	No change from typical condition	Open; access could be restricted at peak times	Managed intersections; access could be restricted at peak times, except for emergency vehicles, residents, staff, and permitted tenants
Barry-Baker tunnel	No change from typical condition	No change from typical condition	Open; access could be restricted at peak times	No change from typical condition	Open; access could be restricted at peak times	Managed intersections; access could be restricted at peak times, except for emergency vehicles, residents, staff, and potentially permitted tenants
TRANSIT						
Enhanced service on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays	Yes	Not Applicable	Not Applicable	Yes	Not Applicable	Not Applicable
Enhanced service on the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends	Not Applicable	Yes	Yes	Not Applicable	Yes	Yes

TABLE TRA-25: ROADWAY MANAGEMENT AND TRANSIT SERVICE ASSUMPTIONS – ALTERNATIVE B: SPONSOR PROPOSED PROJECT (CONTINUED)

Feature	Scenario / Profile Day					
	AC34 2012[a]			AC34 2013[b]		
	Peak Race Weekdays (2 days)	High Interest Weekend Race Days (4 days)	Peak Weekend Race Days (2 days)	Peak and Non-Peak Race Weekdays (20 days)	Average Weekend Race Days (13 days)	Peak and Medium-High Interest Race Weekend Days (11 days)
TRANSIT (cont.)						
Augmented 22-Fillmore, 28-19th Avenue, and the 43-Masonic on weekends	Not Applicable	Yes	Yes	Not Applicable	Yes	Yes
Expanded Shuttle Service from/to Presidio to/from downtown on weekdays	Yes	Not Applicable	Not Applicable	Yes	Not Applicable	Not Applicable
New Shuttle Service from/to Presidio to/from downtown on weekends	Not Applicable	Yes	Yes	Not Applicable	Yes	Yes
Expanded Shuttle Service within Presidio serving Crissy Field	No	Yes	Yes	No	Yes	Yes
GGT 4 Route Stops at Conzelman Rd southbound and Vista Point northbound	No	No	Yes	No	No	Yes

[a] On the 11 medium-interest and low-interest weekday event days in 2012, all roadways in San Francisco, the Presidio, and in Marin County would remain open, and unchanged from typical weekday conditions. Transit service would be the same as under existing conditions.
[b] On the 40 non-race weekday event days in 2013, roadway conditions and transit service would be unchanged from typical weekday conditions.
[c] Roadway management strategies presented in the table are for the expected visitation estimates presented in **Table TRA-15A**; their implementation would be subject to field conditions expected or experienced on the actual event day.

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-26: ROADWAY MANAGEMENT AND TRANSIT SERVICE ASSUMPTIONS – ALTERNATIVE C: NO ORGANIZED EVENTS ON NPS LANDS AND ALTERNATIVE D: MODIFIED PROGRAM ALTERNATIVE

Features	Scenario / Profile Day					
	AC34 2012[a]			AC34 2013[b]		
	Peak Race Weekdays (2 days)	High Interest Weekend Race Days (4 days)	Peak Weekend Race Days (2 days)	Peak and Non-Peak Race Weekdays (20 days)	Average Weekend Race Days (13 days)	Peak and Medium-High Interest Race Weekend Days (11 days)
ROADWAYS[c]						
Area north of Bay St, east of Van Ness Ave	No change from typical condition	Might be restricted north of North Point St or north of Beach St except for emergency and residents / permitted vehicles	Restricted except for emergency and residents/ permitted vehicles	No change from typical condition	Might be restricted north of North Point St or north of Beach St except for emergency and residents / permitted vehicles	Restricted except for emergency and residents/ permitted vehicles
Access to Upper Fort Mason	No change from typical condition	No change from typical condition	Managed access including NPS authorized vehicles, staff, residents, and program participants	No change from typical condition	No change from typical condition	Managed access including NPS authorized vehicles, staff, residents, and program participants
Marina Blvd, from Laguna St to Divisadero St	No change from typical condition	Restricted except for emergency and residents / permitted vehicles, and lower Ft. Mason permitted vehicles (via Buchanan St)	Restricted except for emergency and residents / permitted vehicles, and lower Ft. Mason permitted vehicles (via Buchanan St)	No change from typical condition	Restricted except for emergency and residents / permitted vehicles, and lower Ft. Mason permitted vehicles (via Buchanan St)	Restricted except for emergency and residents / permitted vehicles, and lower Ft. Mason permitted vehicles (via Buchanan St)
Marina Blvd, from Divisadero St to Lyon St	No change from typical condition	Generally open; might be restricted at peak periods	Generally open; might be restricted at peak periods	No change from typical condition	Generally open; might be restricted at peak periods	Restricted except for emergency and residents/ permitted vehicles
Mason St, from Lyon St to Warming Hut	No change from typical condition	Open; access could be restricted at peak times	Open; access could be restricted at peak times	No change from typical condition	Open; access could be restricted at peak times	Restricted on peak weekends, except for emergency vehicles, transit, staff, permitted tenants, and scheduled program participants; restricted at peak times only on high interest weekends.
Long Ave; access to Fort Point	No change from typical condition	Open; access could be restricted at peak times	Restricted, except for emergency vehicles and staff.	No change from typical condition	Open; access could be restricted at peak times	Restricted, except for emergency vehicles and staff.
Halleck St/Marshall St	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction

TABLE TRA-26: ROADWAY MANAGEMENT AND TRANSIT SERVICE ASSUMPTIONS – ALTERNATIVE C: NO ORGANIZED EVENTS ON NPS LANDS AND ALTERNATIVE D: MODIFIED PROGRAM ALTERNATIVE (CONTINUED)

Features	Scenario / Profile Day					
	AC34 2012[a]			AC34 2013[b]		
	Peak Race Weekdays (2 days)	High Interest Weekend Race Days (4 days)	Peak Weekend Race Days (2 days)	Peak and Non-Peak Race Weekdays (20 days)	Average Weekend Race Days (13 days)	Peak and Medium-High Interest Race Weekend Days (11 days)
ROADWAYS[c] (cont.)						
McDowell Ave, from Lincoln Blvd to Mason St	No change from typical condition	Open; access could be restricted at peak times	Open; access could be restricted at peak times	No change from typical condition	Open; access could be restricted at peak times	Restricted, except for emergency vehicles, transit, staff, permitted tenants, and scheduled program participants.
Conzelman Rd., between Alexander Ave. and McCullough Rd.	No change from typical condition	No change from typical condition	Open; access could be restricted at peak times except for emergency vehicles	No change from typical condition	Open; access could be restricted at peak times	Open; access could be restricted at peak times, except for emergency vehicles
Access to Fort Baker	No change from typical condition	No change from typical condition	Open; access could be restricted at peak times	No change from typical condition	Open; access could be restricted at peak times	Managed intersections; access could be restricted at peak times, except for emergency vehicles, residents, staff, and permitted tenants
Barry-Baker tunnel	No change from typical condition	No change from typical condition	Open; access could be restricted at peak times	No change from typical condition	Open; access could be restricted at peak times	Managed intersections; access could be restricted at peak times, except for emergency vehicles, residents, staff, and potentially permitted tenants
TRANSIT						
Enhanced service on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays	Yes	Not Applicable	Not Applicable	Yes	Not Applicable	Not Applicable

TABLE TRA-26: ROADWAY MANAGEMENT AND TRANSIT SERVICE ASSUMPTIONS – ALTERNATIVE C: NO ORGANIZED EVENTS ON NPS LANDS AND ALTERNATIVE D: MODIFIED PROGRAM ALTERNATIVE (CONTINUED)

Features	Scenario / Profile Day					
	AC34 2012[a]			AC34 2013[b]		
	Peak Race Weekdays (2 days)	High Interest Weekend Race Days (4 days)	Peak Weekend Race Days (2 days)	Peak and Non-Peak Race Weekdays (20 days)	Average Weekend Race Days (13 days)	Peak and Medium-High Interest Race Weekend Days (11 days)
TRANSIT (cont.)						
Enhanced service on the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends	Not Applicable	Yes	Yes	Not Applicable	Yes	Yes
Augmented 22-Fillmore, 28-19th Avenue, and the 43-Masonic on weekends	Not Applicable	Yes	Yes	Not Applicable	Yes	Yes
Expanded Shuttle Service from/to Presidio to/from downtown on weekdays	No	Not Applicable	Not Applicable	No	Not Applicable	Not Applicable
New Shuttle Service from/to Presidio to/from downtown on weekends	Not Applicable	Yes	Yes	Not Applicable	Yes	Yes
Expanded Shuttle Service within Presidio serving Crissy Field	No	Yes	Yes	No	Yes	Yes
GGT 4 Route Stops at Conzelman Rd southbound and Vista Point northbound	No	No	Yes	No	No	Yes

[a] On the 11 medium-interest and low-interest weekday event days in 2012, all roadways in San Francisco, the Presidio, and in Marin County would remain open, and unchanged from typical weekday conditions. Transit service would be the same as under existing conditions.
[b] On the 40 non-race weekday event days in 2013, roadway conditions and transit service would be unchanged from typical weekday conditions.
[c] Roadway management strategies presented in the table are for the expected visitation estimates presented in **Table TRA-15A**; their implementation would be subject to field conditions expected or experienced on the actual event day.

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-27: ROADWAY MANAGEMENT AND TRANSIT SERVICE ASSUMPTIONS – ALTERNATIVE E: PREFERRED ALTERNATIVE

Feature	Scenario / Profile Day					
	AC34 2012[a]			AC34 2013[b]		
	Peak AC45 Boat Race Weekend – August (1 day)	Peak AC72 Boat Exhibition Weekend – September (2 days)	Fleet Weekend October (2 days)	Peak and Non-peak Race Weekdays (20 days)	Average Weekend Race Days (13 days)	Peak and Medium-High Interest Weekend Race Days (11 days)
ROADWAYS[c]						
Area north of Bay St, east of Van Ness Ave	Might be restricted north of North Point St or north of Beach St except for emergency and residents / permitted vehicles	Might be restricted north of North Point St or north of Beach St except for emergency and residents / permitted vehicles	Restricted except for emergency and residents/ permitted vehicles	No change from typical condition	Might be restricted north of North Point St or north of Beach St except for emergency and residents / permitted vehicles	Restricted except for emergency and residents/ permitted vehicles
Access to Upper Fort Mason	Managed access including NPS authorized vehicles, staff, residents, and program participants	Managed access including NPS authorized vehicles, staff, residents, and program participants	Managed access including NPS authorized vehicles, staff, residents, and program participants	No change from typical condition	No change from typical condition	Managed access including NPS authorized vehicles, staff, residents, and program participants
Marina Blvd, from Laguna St to Divisadero St	Restricted except for emergency and residents / permitted vehicles, and lower Ft. Mason permitted vehicles (via Buchanan St)	Restricted except for emergency and residents / permitted vehicles, and lower Ft. Mason permitted vehicles (via Buchanan St)	Restricted except for emergency and residents / permitted vehicles, and lower Ft. Mason permitted vehicles (via Buchanan St)	No change from typical condition	Restricted except for emergency and residents / permitted vehicles, and lower Ft. Mason permitted vehicles (via Buchanan St)	Restricted except for emergency and residents / permitted vehicles, and lower Ft. Mason permitted vehicles (via Buchanan St)
Marina Blvd, from Divisadero St to Lyon St	Restricted westbound travel except for emergency vehicles; eastbound travel allowed	Restricted westbound travel except for emergency vehicles; eastbound travel allowed	Restricted except for emergency and residents/ permitted vehicles	No change from typical condition	Generally open; might be restricted at peak periods	Restricted except for emergency and residents/ permitted vehicles
Mason St, from Lyon St to Warming Hut	Open for eastbound travel only, except for emergency vehicles	Open for eastbound travel only, except for emergency vehicles	Restricted, except for emergency vehicles, staff, permitted tenants, and scheduled program participants	No change from typical condition	Open; access could be restricted at peak times	Restricted, except for emergency vehicles, transit, staff, permitted tenants, and scheduled program participants; restricted at peak times only on high interest weekends.
Long Ave; access to Fort Point	Restricted, except for emergency vehicles and staff.	Restricted, except for emergency vehicles and staff.	Restricted, except for emergency vehicles and staff.	No change from typical condition	Open; access could be restricted at peak times	Restricted, except for emergency vehicles and staff.
Halleck St/Marshall St	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction	Closed to all vehicles due to Presidio Parkway construction
McDowell Ave, from Lincoln Blvd to Mason St	Open; access could be restricted at peak times	Open; access could be restricted at peak times	Restricted, except for emergency vehicles, transit, staff, permitted tenants, and scheduled program participants.	No change from typical condition	Open; access could be restricted at peak times	Restricted, except for emergency vehicles, transit, staff, permitted tenants, and scheduled program participants.

TABLE TRA-27: ROADWAY MANAGEMENT AND TRANSIT SERVICE ASSUMPTIONS – ALTERNATIVE E: PREFERRED ALTERNATIVE (CONTINUED)

Feature	Scenario / Profile Day					
	AC34 2012[a]			AC34 2013[b]		
	Peak AC72 Boat Exhibition Weekend – September (1 day)	Peak AC45 Boat Race Weekend – August (2 days)	Fleet Weekend October (2 days)	Peak and Non-peak Race Weekdays (20 days)	Average Weekend Race Days (13 days)	Peak and Medium-High Interest Weekend Race Days (11 days)
ROADWAYS[c] (cont.)						
Conzelman Rd., between Alexander Ave. and McCullough Rd.	No change from typical condition	No change from typical condition	Restricted, except for emergency vehicles	No change from typical condition	No change from typical condition	Open; access could be restricted at peak times, except for emergency vehicles
Access to Fort Baker	No change from typical condition	No change from typical condition	Managed intersections; access could be restricted at peak times, except for emergency vehicles, residents, staff, and permitted tenants	No change from typical condition	No change from typical condition	Managed intersections; access could be restricted at peak times, except for emergency vehicles, residents, staff, and permitted tenants
Barry-Baker tunnel	No change from typical condition	No change from typical condition	Managed intersections; access could be restricted at peak times, except for emergency vehicles, residents, staff, and potentially permitted tenants	No change from typical condition	No change from typical condition	Managed intersections; access could be restricted at peak times, except for emergency vehicles, residents, staff, and potentially permitted tenants
TRANSIT						
Enhanced service on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays	Not Applicable	Not Applicable	Not Applicable	Yes	Not Applicable	Not Applicable
Enhanced service on the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends	Yes	Yes	Yes	Not Applicable	Yes	Yes
Augmented 22-Fillmore, 28-19th Avenue, and the 43-Masonic on weekends	Yes	Yes	Yes	Not Applicable	Yes	Yes

TABLE TRA-27: ROADWAY MANAGEMENT AND TRANSIT SERVICE ASSUMPTIONS – ALTERNATIVE E: PREFERRED ALTERNATIVE (CONTINUED)

Feature	Scenario / Profile Day					
	AC34 2012[a]			AC34 2013[b]		
	Peak AC72 Boat Exhibition Weekend – September (1 day)	Peak AC45 Boat Race Weekend – August (2 days)	Fleet Weekend October (2 days)	Peak and Non-peak Race Weekdays (20 days)	Average Weekend Race Days (13 days)	Peak and Medium-High Interest Weekend Race Days (11 days)
TRANSIT (cont.)						
Expanded Shuttle Service from/to Presidio to/from downtown on weekdays	Not Applicable	Not Applicable	Not Applicable	No	Not Applicable	Not Applicable
New Shuttle Service from/to Presidio to/from downtown on weekends	Yes	Yes	Yes	Not Applicable	Yes	Yes
Expanded Shuttle Service within Presidio serving Crissy Field	Yes	Yes	Yes	No	Yes	Yes
GGT 4 Route Stops at Conzelman Rd southbound and Vista Point northbound	No	No	Yes	No	No	Yes

[a] On the seven weekday event days in 2012, all roadways in San Francisco, the Presidio, and in Marin County would remain open, and unchanged from typical weekday conditions. Transit service would be the same as under existing conditions.
[b] On the 40 non-race weekday event days in 2013, roadway conditions and transit service would be unchanged from typical weekday conditions.
[c] Roadway management strategies presented in the table are for the expected visitation estimates presented in **Table TRA-15B**; their implementation would be subject to field conditions expected or experienced on the actual event day.

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-28: BICYCLE PARKING DEMAND FOR NPS SITES BY ALTERNATIVE – AC34 2012 AND AC34 2013

Analysis Year/Location	Alternative B Sponsor Proposed Project			Alternative C No Organized Events on NPS Lands			Alternative D Modified Program Alternative			Alternative E Preferred Alternative		
AC34 2012	**Peak Weekday PM Peak Hour**	**High Weekend Midday Peak Hour**	**Peak Weekend Midday Peak Hour**	**Peak Weekday PM Peak Hour**	**High Weekend Midday Peak Hour**	**Peak Weekend Midday Peak Hour**	**Peak Weekday PM Peak Hour**	**High Weekend Midday Peak Hour**	**Peak Weekend Midday Peak Hour**	**Peak AC45 Boat Race Weekend Midday Peak Hour**		**Peak AC72 Boat Exhibition Weekend Midday Peak Hour**
Crissy Field	574	1,242	1,960	431	886	1,280	327	787	1,040	554		1,280
Fort Mason	7	29	40	7	29	40	7	29	40	29		40
Aquatic Park	25	87	130	44	95	130	32	86	130	131		130
Fort Point	52	131	170	56	141	150	60	130	140	131		150
Golden Gate Bridge Overlook	33	53	60	17	50	50	17	42	50	50		50
Fort Baker/Cavallo Pt.	44	188	100	44	88	100	44	88	100	101		100
Total all Federal Land Locations	***736***	***1,630***	***2,460***	***599***	***1,288***	***1,750***	***486***	***1,161***	***1,500***	***997***		***1,750***
AC34 2013	**Peak Weekday PM Peak Hour**	**Average Weekend Midday Peak Hour**	**Peak Weekend Midday Peak Hour**	**Peak Weekday PM Peak Hour**	**Average Weekend Midday Peak Hour**	**Peak Weekend Midday Peak Hour**	**Peak Weekday PM Peak Hour**	**Average Weekend Midday Peak Hour**	**Peak Weekend Midday Peak Hour**	**Peak Weekday PM Peak Hour**	**Average Weekend Midday Peak Hour**	**Peak Weekend Midday Peak Hour**
Crissy Field	587	859	4,070	281	514	2,190	354	607	2,790	264	514	2,190
Fort Mason	10	18	40	12	22	40	10	18	40	12	22	40
Aquatic Park	32	95	270	60	111	310	69	117	310	32	95	270
Fort Point	37	69	220	42	90	160	42	84	180	42	90	160
Golden Gate Bridge Overlook	25	35	60	14	36	50	19	38	50	14	36	50
Fort Baker/Cavallo Pt.	41	79	110	41	79	110	41	79	110	41	79	110
Total all Federal Land Locations	***733***	***1,155***	***4,770***	***451***	***853***	***2,860***	***535***	***943***	***3,480***	***405***	***837***	***2,820***

SOURCE: ORCA Consulting, LLC, 2012

TABLE TRA-29: VEHICLE PARKING DEMAND FOR NPS SITES BY ALTERNATIVE – AC34 2012 AND AC34 2013

Analysis Year/Location	Alternative B Sponsor Proposed Project			Alternative C No Organized Events on NPS Lands			Alternative D Modified Program Alternative			Alternative E Preferred Alternative	
AC34 2012	**Peak Weekday PM Peak Hour**	**High Weekend Midday Peak Hour**	**Peak Weekend Midday Peak Hour**	**Peak Weekday PM Peak Hour**	**High Weekend Midday Peak Hour**	**Peak Weekend Midday Peak Hour**	**Peak Weekday PM Peak Hour**	**High Weekend Midday Peak Hour**	**Peak Weekend Midday Peak Hour**	**Peak AC45 Boat Race Weekend Midday Peak Hour**	**Peak AC72 Boat Exhibition Weekend Midday Peak Hour**
Presidio and Crissy Field	783	924	1,539	279	299	497	120	125	209	500	202
Fort Mason	13	42	70	13	42	70	12	43	71	71	71
Aquatic Park	61	168	280	61	84	140	239	211	351	351	351
Subtotal Federal Land Locations in SF	*857*	*1,134*	*1,889*	*353*	*425*	*707*	*371*	*379*	*631*	*922*	*624*
Alcatraz Island[a]	0	42	69	0	0	0	0	0	0	0	0
Marin Headlands (Conzelman Rd)	24	42	69	24	42	69	25	42	69	69	69
Fort Baker/Cavallo Pt.	24	29	49	24	29	49	25	29	48	48	48
Subtotal Federal Land Locations outside SF	*48*	*113*	*187*	*48*	*71*	*118*	*50*	*71*	*117*	*117*	*117*
Total all Federal Land Locations[b]	***905***	***1,247***	***2,076***	***401***	***496***	***825***	***421***	***450***	***748***	***1,039***	***741***
AC34 2013	**Peak Weekday PM Peak Hour**	**Average Weekend Midday Peak Hour**	**Peak Weekend Midday Peak Hour**	**Peak Weekday PM Peak Hour**	**Average Weekend Midday Peak Hour**	**Peak Weekend Midday Peak Hour**	**Peak Weekday PM Peak Hour**	**Average Weekend Midday Peak Hour**	**Peak Weekend Midday Peak Hour**	**Peak Weekday PM Peak Hour**	**Average Weekend Midday Peak Hour**	**Peak Weekend Midday Peak Hour**
Presidio and Crissy Field	964	770	4,267	243	259	1,400	478	388	2,142	240	262	1,405
Fort Mason	25	21	70	13	11	35	24	22	71	12	11	36
Aquatic Park	73	175	560	61	70	280	48	106	351	72	176	561
Subtotal Federal Land Locations in SF	*1,062*	*966*	*4,897*	*317*	*340*	*1,715*	*550*	*516*	*2,564*	*324*	*449*	*2,002*
Alcatraz Island[a]	0	42	69	0	0	0	0	0	0	0	0	0
Marin Headlands (Conzelman Rd)	36	28	69	36	28	69	37	28	69	37	28	69
Fort Baker/Cavallo Pt.	24	21	69	24	21	69	25	21	69	25	21	69
Subtotal Federal Land Locations outside SF	*60*	*91*	*207*	*60*	*49*	*138*	*62*	*49*	*138*	*62*	*49*	*138*
Total all Federal Land Locations[b]	***1,122***	***1,057***	***5,104***	***377***	***389***	***1,853***	***612***	***565***	***2,702***	***386***	***498***	***2,140***

[a] Parking demand associated with Alcatraz Island has been assigned to Northeast Embarcadero
[b] Column totals might not add up due to rounding

SOURCE: AECOM, Adavant Consulting/LCW Consulting, 2012

For all transportation elements – traffic, transit, pedestrians, bicyclists, parking, and access – local impacts would occur on the local transportation network within or in the immediate vicinity of NPS and Presidio sites. Regional impacts would occur on the regional transportation network and in the surrounding community. Short-term impacts would be temporary in duration, but would recur on a somewhat regular basis during the course of AC34. Short-term impacts would not occur at the conclusion of AC34. Long-term impacts would have a permanent effect on the performance of the transportation system, parking, traffic flow, bicycles, and pedestrians, including after the AC34 race has concluded. All transportation impacts would be short-term (i.e., temporary). The duration and intensity of impact are considered in the determination of whether impacts are significant. See page 4-1 for an explanation of the relationship of impact thresholds to significance.

4.10.5.1 Analysis Thresholds - Intersections

The following thresholds reflect intersection LOS impacts at the study intersections during weekday p.m. and Saturday midday peak hour conditions.

Negligible: The existing LOS at study intersections would not be changed by the AC34 event.

Minor: The intersection LOS during AC34 events would change, but would remain LOS D or better. Intersections operating at LOS E or LOS F would continue operating at the same LOS, with minimal changes in average delay.

Moderate: The intersection LOS during AC34 events would:

- Change from LOS D or better to LOS E,
- Change from LOS E or better to LOS F for less than 15 percent of event (race and non race) days, or
- Substantially increase average delay per vehicle at intersections already operating at LOS F without AC34 events for less than 15 percent of event (race and non race) days.

Major: The intersection LOS during AC34 events would change from LOS E or better to LOS F for 15 percent or more of event (race and non race) days or, for intersections operating at LOS F without AC34 events, the intersection would experience a substantial increase in average delay per vehicle for 15 percent or more of event (race and non race) days.

An improvement in intersection LOS would be a beneficial impact, and a degradation in intersection LOS would be an adverse impact.

4.10.5.2 Analysis Thresholds – Transit

The following thresholds reflect ridership and capacity utilization impacts at the screenlines (as developed for *The 34th America's Cup and James R. Herman Cruise Terminal and Northeast Wharf Plaza EIR*) for conditions to all primary and secondary sites within San Francisco and the Marin Counties.

Negligible: The ridership and transit mobility would not appreciably change.

Minor: The ridership increases, but capacity utilization would remain at less than 100 percent for Muni screen lines and at less than 85 percent for all other operators.

Moderate: The ridership increases such that capacity utilization would exceed 100 percent for Muni and exceed 85 percent for all other operators, for no more than three event (race and non race) days in any one month.

Major: The ridership increases such that capacity utilization would exceed 100 percent for Muni and exceed 85 percent for all other operators, for more than three event (race and non race) days in any one month.

An increase in transit service frequency such that transit capacity utilization does not increase on event (race and non race) days would be a beneficial impact, and an increase in transit capacity utilization (regardless of service frequency increases) would be an adverse impact.

4.10.5.3 Analysis Thresholds – Pedestrians

The following thresholds were used to evaluate the magnitude of impact experienced by pedestrians accessing the NPS and Presidio sites.

Negligible: Pedestrian conditions during AC34 events would be affected in the following ways:

- Pedestrian accessibility would not change.
- Walkway pedestrian flow volumes and PAOT counts at key indicator locations would be no higher, on average, than volumes that have been documented at key indicator locations on typical busy days.

Minor: Pedestrian conditions during AC34 events would be affected in the following ways:

- Changes in pedestrian accessibility would be slightly detectable to the user population.
- Walkway pedestrian flow volumes at key indicator locations would be no more than 50 percent higher, on average, than volumes that have been documented at key indicator locations on typical busy days. PAOT counts would be no more than 100 percent higher, on average, than the documented counts in the indicator areas, but these areas would still have ample capacity to absorb the increased crowds.
- Walkway and PAOT LOS would not exceed LOS C.

Moderate: Pedestrian conditions during AC34 events would be affected in the following ways:

- Changes in pedestrian accessibility would be readily apparent and could lead to changed patterns in pedestrian circulation, or changes in pedestrian accessibility would be substantial and would lead to changed patterns in pedestrian circulation for less than 15 percent of event (race and non race) days.

- Walkway pedestrian flow volumes at key indicator locations would be more than 50 percent higher, or PAOT counts at key indicator locations would be more than 100 percent higher, on average, than volumes that have been documented at key indicator locations on typical busy days. However, spectator crowds would be readily accommodated in designated event viewing areas, with the need for occasional crowd control management to keep the main circulation paths cleared of spectators for less than 15 percent of event (race and non race) days.

- Walkway and PAOT LOS would exceed LOS C for less than 15 percent of event (race and non race) days.

Major: Pedestrian conditions during AC34 events would be affected in the following ways:

- Changes in pedestrian accessibility would be substantial, and would lead to changed patterns in pedestrian circulation for 15 percent or more of event (race and non race) days.

- Walkway pedestrian flow volumes at key indicator locations would be more than 50 percent higher, or PAOT counts at key indicator locations would be more than 100 percent higher than volumes documented at key indicator locations on typical busy days. Crowd control management would be required to keep the main circulation paths cleared of spectators for 15 percent or more of event (race and non race) days, or capacity constraints at the designated event viewing areas are forecasted to result in the ongoing spillover of spectators into non-designated areas, including the circulation paths on any event (race and non race) day, even with the presence of crowd control management.

- Walkway and PAOT LOS would exceed LOS C for 15 percent or more of event (race and non race) days.

Enhanced pedestrian accessibility would be a beneficial impact, and reduced or impaired accessibility would be an adverse impact.

4.10.5.4 Analysis Thresholds – Bicycles

The following thresholds were used to evaluate the magnitude of impact experienced by bicyclists accessing the NPS and Presidio sites.

Negligible: Bicycle accessibility would not change.

Minor: Changes in bicycle accessibility would be slightly detectable to the user population. Bicycle parking would be adequate and conveniently located. Minor increases in conflicts between bicycles and pedestrians would occur.

Moderate: Changes in bicycle accessibility and conflicts between bicycles and pedestrians would be readily apparent and could lead to changed patterns in bicycle circulation, or changes in bicycle accessibility would be substantial and would lead to changed patterns in bicycle circulation for less than 15 percent of event (race and non race) days. Bicycle parking would be adequate and conveniently located. Conflicts between bicycles and pedestrians would be considerably higher than typical, especially at major path intersections.

Major: Changes in bicycle accessibility and conflicts between bicycles and pedestrians would be substantial, and would lead to changed patterns in bicycle circulation for 15 percent or more of event (race and non race) days. Bicycle parking supply would not be adequate to meet projected demand and would not be conveniently located. Conflicts between bicycles and pedestrians would be considerably higher than typical, especially at major path intersections.

Enhanced bicycle accessibility would be a beneficial impact, and reduced or impaired accessibility would be an adverse impact.

4.10.5.5 Analysis Thresholds – Parking

The following thresholds reflect parking supply and utilization impacts at NPS and Presidio sites that provide parking, as well as parking sites for AC34 events generally within a ½ mile radius of spectator sites.

Negligible: The parking supply and parking demand would not be affected.

Minor: The parking occupancy would be no more than 100 percent of non-attended supply.

Moderate: The parking occupancy would be between 101 and 125 percent of non-attended supply, or the parking occupancy would increase to more than 125 percent of non-attended supply for less than 15 percent of event (race and non race) days.

Major: The parking occupancy would increase to more than 125 percent of non-attended supply for 15 percent or more of event (race and non race) days.

A reduction in parking occupancy would be a beneficial impact, and an increase in parking occupancy would be an adverse impact.

4.10.5.6 Analysis Thresholds – NPS and Presidio Facility Access

The following intensity thresholds reflect changes to accessibility to existing businesses and facilities within NPS and Presidio sites.

Negligible: Access for NPS and Presidio sites would not change.

Minor: The change in access would be slightly detectable to users and visitors to existing businesses and facilities at NPS and Presidio sites.

Moderate: The change in access would be readily apparent, and could lead to changed patterns for access to existing businesses at NPS and Presidio sites, although access would still be maintained.

Major: The change in access would be substantial, and would restrict access for existing businesses at NPS and Presidio sites on some event (race and non race) days.

An improvement in accessibility would be a beneficial impact, and a decrease in accessibility would be an adverse impact.

4.10.5.7 Analysis Thresholds – Programmatic Access to NPS and Presidio Sites

The following thresholds reflect impacts to travel times to NPS and Presidio sites based on traffic and transit impact thresholds described above.

Negligible: Travel times to NPS and Presidio sites would not change.

Minor: The change in travel time would be slightly detectable to users and visitors to existing businesses and facilities at NPS and Presidio sites.

Moderate: The change in travel time would be readily apparent, and could lead to changed patterns for access to the NPS and Presidio sites.

Major: The change in travel time would be substantial, and would lead to changed patterns for access to the NPS and Presidio sites.

A decrease in travel time would be a beneficial impact, and an increase in travel time would be an adverse impact.

4.10.6 Impacts of Alternative A—No Action Alternative

Under the No Action Alternative, no AC34 events would occur in either 2012 or 2013 that would increase the travel demand along the San Francisco waterfront or on federal parklands in San Francisco or Marin. Conditions would be similar to those described in Chapter 3 for existing conditions. Therefore, there would be no long-term, short-term, or cumulative impacts to traffic, transit, bicycles, pedestrians, parking, access, or access travel times as a result of this alternative.

4.10.7 Impacts Common to All Action Alternatives

Transportation impacts resulting from the travel demand generated by the proposed project would be similar for all action alternatives, and would vary only in the location and intensity of impacts at spectator venues and secondary viewing areas within NPS and Presidio sites. Potential impacts would be temporary (i.e., short-term), only occurring on the event days in 2012 and 2013, and would include increased traffic congestion at intersections, increase in transit ridership on existing and augmented bus routes, increased pedestrian crowding, changes in pedestrian and bicycle accessibility, increased

parking occupancy, changes in accessibility to existing businesses and facilities within NPS and Presidio sites, and increased travel times to NPS and Presidio sites.

4.10.8 Impacts of Alternative B—Sponsor Proposed Project

4.10.8.1 Traffic

Table TRA-30A presents the intersection LOS conditions at the study intersections for Existing plus Alternative B events conditions for the weekday p.m. peak hour, while **Table TRA-30B** presents the intersection LOS for the Saturday midday peak hour.

San Francisco Locations

2012 Event Conditions

On the two peak weekday event days in 2012, there would be about 7,100 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park (generating about 682 p.m. peak hour vehicle trips), and substantially fewer spectators on the 11 medium-interest and low-interest weekdays. Due to the increase in vehicles destined to and from Crissy Field during the weekday p.m. peak hour, one or more approach at intersections along Mason Street in the Presidio would operate at LOS E or LOS F (Mason/Crissy Field Parking Entrance, Mason/Crissy Field Parking Exit, Mason/Crissy Field Avenue East), as would the intersections at the entrances to the Presidio (Marina/Lyon and Mason/Yacht, Lyon/Lombard), and the intersection of Lombard/Divisadero. In general, the remaining study intersections within the Presidio along Lincoln Boulevard would operate at LOS D or better during the p.m. peak hour, although the average delay per vehicle would increase from existing conditions.

The two study intersections of Pacific/Presidio and Lincoln/25th south of the Presidio would continue to operate at LOS D or better during the weekday p.m. peak hour, although average delays per vehicle would increase, and the intersection of Jackson/Arguello would operate at LOS E. With the exception of the intersection of Marina/Cervantes/Scott, which would operate at LOS E during peak weekday events (the AC Village would be located at the Marina Green in 2012), study intersections along Bay Street and Marina Boulevard would operate at LOS D or better during the weekday p.m. peak hour.

On the six weekend event days in 2012, access to Mason Street would be restricted to vehicular traffic except for emergency vehicles; permitted tenants/visitors would be able to enter via McDowell Avenue and exit via eastbound Mason Street. Vehicular access to the area north of Chestnut Street between Fillmore and Lyon Streets would also be restricted; however, residents, authorized vehicles, emergency response vehicles and transit would continue to have access. On high-interest weekend days in 2012 (four days with about 16,200 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park generating about 1,123 Saturday midday peak hour vehicle trips), the intersection of Lincoln/Merchant within the Presidio would operate at LOS F conditions during the Saturday midday peak hour. On peak weekend days (two days with 27,000 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park generating about 1,872 Saturday midday peak hour vehicle trips), the intersection of Lincoln/Lombard within the Presidio would operate at LOS F, and the

TABLE TRA-30A: ALTERNATIVE B: SPONSOR-PROPOSED PROJECT – INTERSECTION LOS AC34 2012 AND AC34 2013 – WEEKDAY PM PEAK HOUR

			Existing		Existing Plus Alternative B			
					AC34 2012		AC34 2013	
#	Intersection		Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS
1	Mason St	Yacht Rd	13.8 (wb)	C	**47.9 (wb)**	**E**	**47.0 (wb)**	**E**
2	Marina Blvd	Lyon St	32.6	C	**>80**	**F**	**>80**	**F**
3	Mason St	Enter Crissy Field Parking	14.0 (eb)	B	**45.9 (eb)**	**E**	**44.2 (eb)**	**E**
4	Mason St	Exit Crissy Field Parking	12.9 (sb)	B	**>50 (sb)**	**F**	**>50 (sb)**	**F**
5	Mason St	Crissy Field Ave East	17.9 (wb)	C	**>50 (wb)**	**F**	**>50 (wb)**	**F**
6	Mason St	Crissy Field Ave West	10.7 (sb)	B	21.2 (sb)	C	**>50 (wb)**	**F**
7	Lincoln Ave	Long Ave (Ft. Pt Rd)	12.3 (sb)	B	13.2 (sb)	B	13.4 (sb)	B
8	Lincoln Ave	25th Ave	14.2 (wb)	B	16.5 (wb)	C	17.2 (wb)	C
9	Lincoln Blvd	Merchant Rd	19.4 (sb)	C	27.5 (sb)	D	30.5 (sb)	D
10	Lincoln Blvd	McDowell Ave	8.8 (eb)	A	10.0 (eb)	B	10.3 (eb)	B
11	Lincoln Blvd	Bowley St – North	23.0 (wb)	C	25.3 (wb)	D	25.9 (wb)	D
12	Lincoln Blvd	Bowley St – South	16.9 (wb)	C	18.1 (wb)	C	18.3 (wb)	C
13	Jackson St	Arguello Blvd	28.1 (sb)	D	**38.5 (sb)**	**E**	**41.7 (sb)**	**E**
14	Pacific Ave	Presidio Blvd	20.3 (sb)	C	25.7 (sb)	D	27.4 (sb)	D
15	Lombard St	Lyon St	33.6 (eb)	D	**38.9 (eb)**	**E**	**40.7 (eb)**	**E**
16	Lombard St	Divisadero St	36.4	D	**76.4**	**E**	**>80**	**F**
17	Bay St	Laguna St	19.7	B	25.9	C	25.0	C
18	Bay St	Franklin St	10.8	B	11.0	B	11.0	B
19	Bay St	Van Ness Ave	16.4	B	18.5	B	19.5	B
20	Bay St	Hyde St	6.3	A	6.3	A	6.2	A
21	Marina Blvd	Buchanan St	11.2	B	16.4	B	15.5	B
22	Marina Blvd	Cervantes Blvd/Scott St	11.8	B	**59.7**	**E**	**51.3**	**E**
23	Alexander Ave	U.S. 101 NB ramps	10.9 (wb)	B	11.1 (wb)	B	11.1 (wb)	B
24	Alexander Ave	Danes Dr	12.0 (eb)	B	12.3 (eb)	B	12.3 (eb)	B
25	Alexander Ave	Ft. Baker (East) Rd	10.1 (wb)	B	10.5 (wb)	B	10.4 (wb)	B
26	Conzelman Rd	U.S. 101 entrance	12.9 (eb)	B	13.6(eb)	B	13.8 (eb)	B
27	Conzelman Rd	McCullough Rd	9.0 (sb)	A	9.1 (sb)	A	9.1 (sb)	A
28	Bunker Rd	Danes Dr	10.1 (sb)	B	10.3 (sb)	B	10.3 (sb)	B

[a] Delay presented in seconds per vehicle. For unsignalized intersections, delay and LOS presented for worst approach. Worst approach indicated by ( ).

[b] Intersections operating at LOS E or LOS F conditions highlighted in bold.

SOURCE: Adavant Consulting / LCW Consulting, 2012

TABLE TRA-30B: ALTERNATIVE B: SPONSOR PROPOSED PROJECT – INTERSECTION LOS AC34 2012 AND AC34 2013 – SATURDAY MIDDAY PEAK HOUR

					Existing plus Alternative B							
					AC34 2012				AC34 2013			
			Existing		High Interest		Peak		Average		Peak	
#	Intersection		Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS
1	Mason St	Yacht Rd	18.0 (eb)	C	--	N/A	--	N/A	--	N/A	--	N/A
2	Marina Blvd	Lyon St	46.2	D	--	N/A	--	N/A	--	N/A	--	N/A
3	Mason St	Enter Crissy Field Parking	23.8 (eb)	C	--	N/A	--	N/A	--	N/A	--	N/A
4	Mason St	Exit Crissy Field Parking	15.7 (nb)	C	--	N/A	--	N/A	--	N/A	--	N/A
5	Mason St	Crissy Field Ave East	27.1 (wb)	D	--	N/A	--	N/A	--	N/A	--	N/A
6	Mason St	Crissy Field Ave West	11.5 (wb)	B	--	N/A	--	N/A	--	N/A	--	N/A
7	Lincoln Ave	Long Ave (Ft. Pt Rd)	14.4 (nb)	B	15.2 (nb)	C	14.7 (nb)	C	13.0 (nb)	B	24.9 (nb)	D
8	Lincoln Ave	25th Ave	18.6 (nb)	C	19.5 (nb)	C	25.1 (nb)	D	18.5 (nb)	C	**>50 (nb)**	**F**
9	Lincoln Blvd	Merchant Rd	31.3 (nb)	D	**>50 (nb)**	**F**	**>50 (nb)**	**F**	**49.2 (nb)**	**E**	**>50 (nb)**	**F**
10	Lincoln Blvd	McDowell Ave	10.9 (eb)	B	15.9 (eb)	C	34.7 (eb)	D	14.1 (eb)	B	**>50 (eb)**	**F**
11	Lincoln Blvd	Bowley St – North	27.9 (eb)	D	26.6 (eb)	D	29.8 (eb)	D	25.8 (eb)	D	**>50 (wb)**	**F**
12	Lincoln Blvd	Bowley St – South	18.2 (wb)	C	18.1 (wb)	C	19.6 (wb)	C	17.8 (wb)	C	28.4 (wb)	D
13	Jackson St	Arguello Blvd	13.6 (nb)	B	14.7 (nb)	B	17.6 (nb)	C	14.2 (nb)	B	**>50 (nb)**	**F**
14	Pacific Ave	Presidio Blvd	12.7 (sb)	B	13.5 (nb)	B	15.6 (nb)	C	13.1 (nb)	B	**>50 (sb)**	**F**
15	Lombard St	Lyon St	19.4 (eb)	C	16.5 (eb)	C	17.5 (eb)	C	16.3 (eb)	C	23.2 (eb)	C
16	Lombard St	Divisadero St	14.6	B	52.3	D	**>80**	**F**	**64.2**	**E**	**>80**	**F**
17	Bay St	Laguna St	13.4	B	49.0	D	**68.4**	**E**	40.0	D	**>80**	**F**
18	Bay St	Franklin St	9.5	A	9.3	A	10.7	B	9.3	A	10.7	B
19	Bay St	Van Ness Ave	20.7	C	15.4	B	>80	F	15.1	B	**>80**	**F**
20	Bay St	Hyde St	7.3	A	7.1	A	6.3	A	7.1	A	7.0	A
21	Marina Blvd	Buchanan St	12.1	B	--	N/A	--	N/A	--	N/A	--	N/A
22	Marina Blvd	Cervantes Blvd/Scott St	11.6	B	--	N/A	--	N/A	--	N/A	--	N/A
23	Alexander Ave	U.S. 101 NB ramps	**>50 (wb)**	**F**	**>50 (wb)**	**F**	**>50 (wb)**	**F**	**>50 (wb)**	**F**	**>50 (wb)**	**F**
24	Alexander Ave	Danes Dr	21.3 (eb)	C	23.4 (eb)	D	29.1 (eb)	D	23.3 (eb)	D	**>50 (eb)**	**F**
25	Alexander Ave	Ft. Baker (East) Rd	13.9 (wb)	B	14.6 (wb)	C	16.7 (wb)	C	14.7 (wb)	C	21.9 (wb)	C
26	Conzelman Rd	U.S. 101 entrance	17.4 (eb)	C	18.7 (eb)	C	--	N/A	18.7 (eb)	C	--	N/A
27	Conzelman Rd	McCullough Rd	8.9 (sb)	A	9.1 (sb)	A	8.3 (sb)	A	9.0 (sb)	A	8.3 (sb)	A
28	Bunker Rd	Danes Dr	10.9 (sb)	B	11.0 (sb)	B	11.2 (sb)	B	11.0 (sb)	B	11.7 (sb)	B

[a] Delay presented in seconds per vehicle. For unsignalized intersections, delay and LOS presented for worst approach. Worst approach indicated by ( ).
[b] Intersections operating at LOS E or LOS F conditions highlighted in bold.

SOURCE: Adavant Consulting/LCW Consulting, 2012

intersections of Lombard/Divisadero and Bay/Laguna would operate at LOS E or LOS F during the Saturday midday peak hour.

2013 Event Conditions

In 2013, on the ten peak weekday event days, there would be about 8,800 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park (generating about 846 p.m. peak hour vehicle trips), and substantially fewer on the non-peak weekday event days (50 days). During the weekday p.m. peak hour, the number of vehicles destined to and from the NPS sites would increase, and average vehicle delays at the study intersections would increase over existing conditions. The nine study intersections that would operate at LOS E or LOS F during the weekday p.m. peak hour on 2012 event days would also operate at LOS E or LOS F on 2013 event days. In addition, a fifth intersection on Mason Street in the Presidio would operate at LOS F (Mason/Crissy Field Avenue West).

In 2013, on average weekend event days (13 days with about 13,800 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park generating about 957 Saturday midday peak hour vehicle trips), the intersection of Lincoln/Merchant within the Presidio, and the intersection of Lombard/Divisadero would operate at LOS E conditions during the Saturday midday peak hour. On the five peak and six medium-high event days, the number of spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park would increase, and would range between 31,000 and 70,000 daily spectators (generating up to 4,853 Saturday midday peak hour vehicle trips). On these 11 days, the majority of intersections where access restrictions would not be implemented would experience substantially increased congestion. Within the Presidio, one or more approaches of Lincoln/Merchant, Lincoln/McDowell, and Lincoln/Bowley (north) would operate at LOS F during the Saturday midday peak hour. South of the Presidio, the intersections of Pacific/Presidio, Lincoln/25th, and Jackson/Arguello would also operate at LOS F during the Saturday midday peak hour. To the east of the Presidio, the intersections of Lombard/Divisadero, Bay/Laguna, and Bay/Van Ness would operate at LOS F during the Saturday midday peak hour.

Marin Headlands and Fort Baker Locations

Under Alternative B, it is anticipated that access to Conzelman Road between Alexander Avenue and McCullough Road would be restricted on peak weekend event days in 2012 and 2013. In addition, on peak weekend event days in 2013, access through the Barry-Baker tunnel would be restricted to vehicles, except for emergency and authorized vehicles.

2012 Event Conditions

In 2012, up to 200 spectators are estimated to travel to the Marin Headlands and Fort Baker on the 13 weekday event days (generating up to 38 p.m. peak hour vehicle trips), and between 510 and 850 spectators on the six weekend event days (generating between 79 and 114 Saturday midday peak hour vehicle trips). During the weekday p.m. peak hour, the six study intersections in the Marin Headlands and Fort Baker would continue to operate at LOS C or better on all weekday event days. On weekend events, the intersection of Alexander Avenue/U.S. 101 northbound off-ramp would continue to operate at LOS F conditions, as under existing conditions (on six weekend event days). Due to the increase in

Saturday midday peak hour traffic volumes over existing conditions, delays at this intersection would increase and queues could spill back onto U.S. 101 northbound. Implementation of **Transportation Protection Measure TRA-5**, which would station CHP officers at the intersection of the northbound and southbound U.S. 101 ramps to Alexander Avenue on peak weekend event days, would facilitate traffic flow through these unsignalized intersections and reduce potential for queue spillback onto U.S. 101.

2013 Event Conditions

In 2013, up to 250 spectators are estimated to travel to the Marin Headlands and Fort Baker on the 60 weekday (race and non-race) event days (generating up to 80 p.m. peak hour vehicle trips), and between 350 and 1,000 spectators on the 24 weekend event days (generating between 57 and 340 Saturday midday peak hour vehicle trips). During the weekday p.m. peak hour, the six study intersections in the Marin Headlands and Fort Baker would continue to operate at LOS C or better on all weekday event days.

On the 24 weekend event days in 2013, the intersection of Alexander Avenue/U.S. 101 northbound off-ramp would continue to operate at LOS F conditions during the Saturday midday peak hour, as under existing conditions. Due to the increase in Saturday midday peak hour traffic volumes over existing conditions, delays at this intersection would increase and queues could spill back onto U.S. 101 northbound. As noted above, Implementation of **Transportation Protection Measure TRA-5**, which would station CHP officers at the intersection of the northbound and southbound U.S. 101 ramps to Alexander Avenue on peak weekend event days, would facilitate traffic flow through these unsignalized intersections and reduce potential for queue spillback onto U.S. 101.

In addition, the intersection of Alexander/Danes would operate at LOS F conditions during the Saturday midday peak hour on the 11 peak weekend and high-interest weekend event days in 2013.

It should be noted that the *Marin Headlands and Fort Baker Infrastructure and Management Plan* identifies a traffic mitigation measure which involves operating a one-way loop within Fort Baker. Under this configuration, vehicles enter Fort Baker at East Road, and travel on Center Road to Bunker Road, and exit on Danes Drive. This configuration allows for additional parking to be accommodated the northbound lane on East Road, and allows for two-way travel for bicyclists. The one-way loop configuration has been implemented by NPS on high visitor demand days, such as on Independence Day. If determined appropriate, NPS could implement the one-way loop operation within Fort Baker on one or more AC34 peak weekend event days in 2012 or 2013.

Intersection Impact Determination

Based on the intersection LOS results presented in **Tables TRA-30A** and **TRA-30B** (Alternative B), **TRA-41A** and **TRA-41B** (Alternative C), **TRA-47A** and **TRA-47B** (Alternative D), and **TRA-53A** and **TRA-53B** (Alternative E), a summary of the action alternatives by intersection and profile day was developed to determine whether the addition of vehicular traffic generated by the AC34 events in 2012

and 2013 would result in minor, moderate, or major impacts (see **Appendix I**).[8] **Table TRA-31** summarizes the results of the assessment by intersection, by event year, and by alternative.

Under Alternative B, AC34 events in 2012 and 2013 would result in short-term impacts. Under AC34 2012 conditions, Alternative B would result in minor adverse impacts at 15 intersections, moderate adverse impacts at 10 intersections, and major adverse impacts at three intersections. Under AC34 2013 conditions, Alternative B would result in minor adverse impacts at ten intersections, moderate adverse impacts at seven intersections, and major adverse impacts at 11 intersections.

The various strategies in **Transportation Protection Measure TRA-1** (People Plan for National Park Areas) and **Transportation Protection Measure TRA-2** (People Plan) would serve to manage travel demand during the AC34 events, and to encourage walking, bicycling, and transit for access to the sites. **Transportation Protection Measure TRA-4** (Presidio and NPS Sites Roadway Management Strategies) and **Transportation Protection Measure TRA-5** (Traffic Control Officers at Intersections) would serve to reduce delays associated with the additional vehicle trips generated by the AC34 events by restricting vehicle access to areas with projected high concentrations of pedestrians. Traffic control officers at intersections would facilitate vehicle, bicycle, and pedestrian flows, and would reduce overall delays at intersections. Implementation of transportation protection measures would reduce the intensity of the identified minor, moderate, and major adverse impacts.

4.10.8.2 Transit

The proposed AC34 events would result in a temporary increase in the number of transit trips to and from the various AC34 event venues and secondary viewing areas on event days. As described above, the September 2011 People Plan (**Transportation Protection Measure TRA-2**) identifies service increases on AC34 event days to accommodate the increased transit demand. For Muni, enhanced service include increased frequencies on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays, and on the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends (see **Figure TRA-7**). The September 2011 People Plan identified planned weekend service enhancements by Golden Gate Transit, AC Transit, SamTrans, BART, Caltrain, WETA, and Blue & Gold, and the additional capacity was incorporated into the regional screenline analysis.

The September 2011 People Plan also describes enhanced service to the Presidio and Crissy Field on 22-Fillmore, 28-19th Avenue, and the 43-Masonic. **Transportation Protection Measure TRA-6** describes the routes and preliminary service plan for these lines. Because the service plans for these routes are pending resource availability and funding, the additional capacity associated with this enhanced service was not included in the screenline analysis in **Tables TRA-32A** through **TRA-32C**. Similarly, the September 2011 People Plan includes service enhancements to the PresidiGo shuttle service on AC34 event days, however, because service levels have not yet been finalized, the additional service was not included in the analysis. See **Transportation Protection Measure TRA-7** for discussion of potential service and routes. The impact of the additional service provided as part of

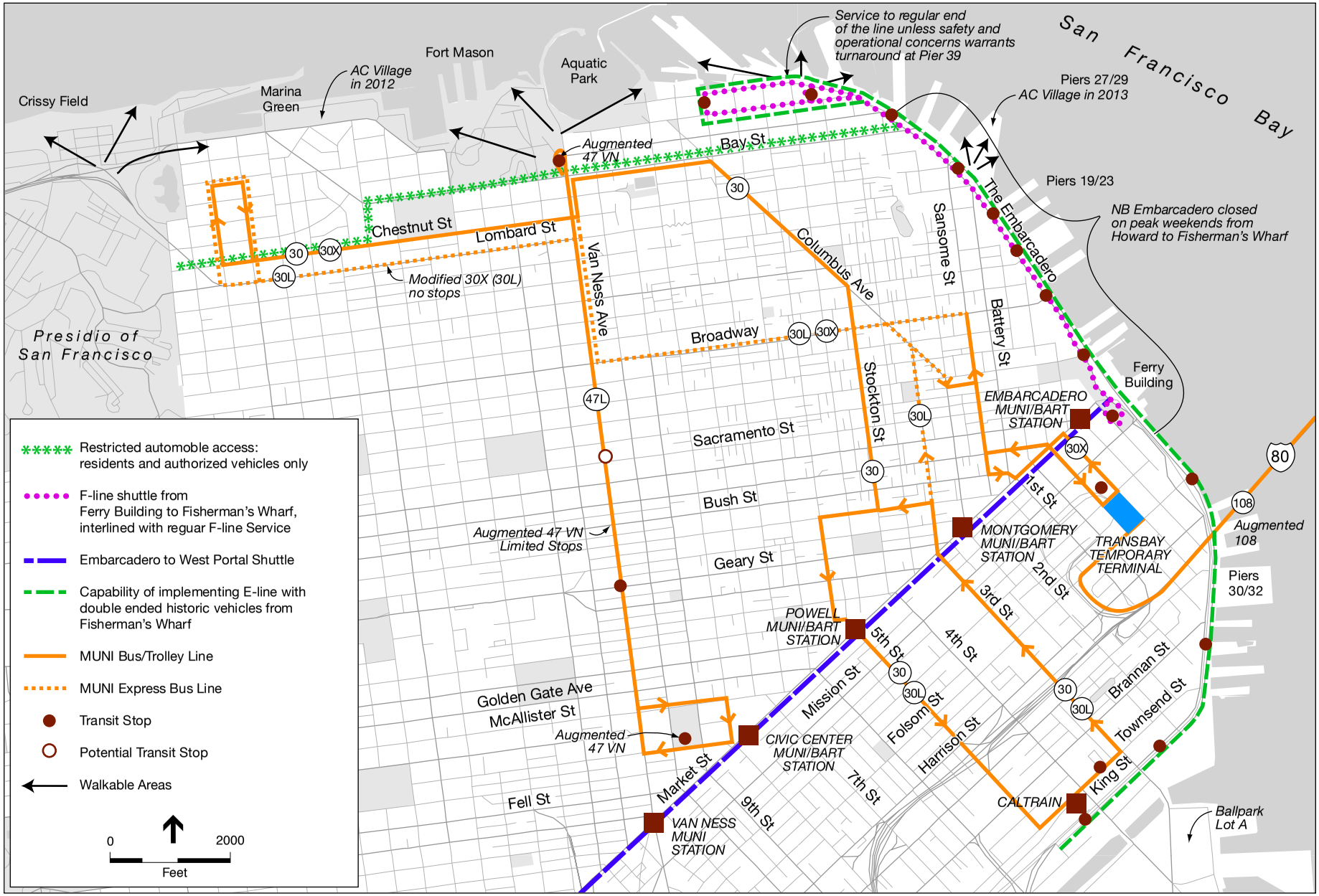
[8] Because all study intersections would be affected by additional travel demand generated by the AC34 events, none of the Action Alternatives would have a negligible impact.

TABLE TRA-31: SUMMARY OF INTERSECTION LOS IMPACTS BY ALTERNATIVE AC34 2012 AND AC34 2013

#	Intersection		AC34 2012				AC34 2013			
			Alt B	Alt C[a]	Alt D[a]	Alt E[a]	Alt B	Alt C	Alt D	Alt E
1	Mason St	Yacht Rd	Moderate	MAJOR	MAJOR	Minor	MAJOR	MAJOR	MAJOR	MAJOR
2	Marina Blvd	Lyon St	Moderate	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR
3	Mason St	Enter Crissy Field Parking	Moderate	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR
4	Mason St	Exit Crissy Field Parking	Moderate	Moderate	Moderate	Minor	MAJOR	Minor	MAJOR	Minor
5	Mason St	Crissy Field Ave East	Moderate	MAJOR	Moderate	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR
6	Mason St	Crissy Field Ave West	Minor	Minor	Minor	Minor	MAJOR	Minor	Minor	Minor
7	Lincoln Ave	Long Ave (Ft. Pt Rd)	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
8	Lincoln Ave	25th Ave	Minor	Minor	Minor	Minor	Moderate	Minor	Minor	Minor
9	Lincoln Blvd	Merchant Rd	MAJOR	Minor	Minor	Minor	MAJOR	Moderate	Moderate	Moderate
10	Lincoln Blvd	McDowell Ave	Minor	Minor	Minor	Minor	Moderate	Minor	Moderate	Moderate
11	Lincoln Blvd	Bowley St – North	Minor	Minor	Minor	Minor	Moderate	Minor	Minor	Minor
12	Lincoln Blvd	Bowley St – South	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
13	Jackson St	Arguello Blvd	Moderate	Minor	Minor	Minor	MAJOR	Minor	Minor	Minor
14	Pacific Ave	Presidio Blvd	Minor	Minor	Minor	Minor	Moderate	Minor	Minor	Minor
15	Lombard St	Lyon St	Moderate	Moderate	Minor	Minor	MAJOR	MAJOR	MAJOR	MAJOR
16	Lombard St	Divisadero St	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR
17	Bay St	Laguna St	Moderate	Moderate	Moderate	MAJOR	Moderate	Moderate	Moderate	Moderate
18	Bay St	Franklin St	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
19	Bay St	Van Ness Ave	Moderate	Moderate	Moderate	Minor	Moderate	Moderate	Moderate	Moderate
20	Bay St	Hyde St	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
21	Marina Blvd	Buchanan St	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
22	Marina Blvd	Cervantes Blvd/Scott St	Moderate	Minor	Minor	Minor	Minor	Minor	Minor	Minor
23	Alexander Ave	U.S. 101 NB ramps (Marin)	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR
24	Alexander Ave	Danes Dr (Marin)	Minor	Minor	Minor	Minor	Moderate	Moderate	Moderate	Moderate
25	Alexander Ave	Ft. Baker (East) Rd (Marin)	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
26	Conzelman Rd	U.S. 101 entrance (Marin)	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
27	Conzelman Rd	McCullough Rd (Marin)	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
28	Bunker Rd	Danes Dr (Marin)	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor

[a] Four of the MAJOR impacts occur at intersections within and at the edge of the Presidio that are assumed to be restricted to general traffic under Alternative B, while they are open to all traffic under Alternatives C, D and E. Implementation of Transportation Protection Measure TRA-4 (Presidio and NPS Sites Roadway Management Strategies) would result in Moderate, rather than MAJOR impacts at these locations.

SOURCE: Adavant Consulting/LCW Consulting, 2012



SOURCE: San Francisco Planning Department; SFMTA

Figure TRA-7

AC34 People Plan - Proposed Augmented Local Transit Routes

Transportation Protection Measure TRA-6 and **Transportation Protection Measure TRA-7** during AC34 weekend event days on capacity utilization is provided on **Table TRA-33**.

Table TRA-19 (page 4.10-16) presents the total peak hour transit trips for Alternative B for AC34 2012 and AC34 2013 conditions for the various analysis scenarios. **Table TRA-32A** presents the capacity utilization analysis for the weekday p.m. (outbound from the waterfront) conditions for AC34 2012 and AC34 2013 peak weekday conditions. **Table TRA-32B** presents the Saturday midday (towards the waterfront) analysis for AC34 2012 high-interest weekend and peak weekend days, while **Table TRA-32C** presents the Saturday midday analysis for AC34 2013 conditions for average weekend and peak weekend event days.[9] The analysis includes existing transit service levels plus service increases proposed as part of the People Plan, summarized in **Transportation Protection Measure TRA-2**.

2012 Event Conditions

In 2012, Alternative B would generate about 2,700 transit trips during the weekday p.m. peak hour on a peak weekday event day, 10,400 transit trips during the Saturday midday peak hour on a high-interest weekend day, and 17,500 transit trips during the Saturday midday peak hour on a peak weekend day.

On peak weekday event days, the p.m. peak hour capacity utilization at all screenlines would be less than 100 percent (see **Table TRA-32A**). While the capacity utilization at the Presidio/Crissy/ Marina and Fisherman's Wharf screenlines, which serve the NPS sites in San Francisco, would be less than 100 percent, a capacity utilization of 89 percent at this screenline indicates crowded conditions. This cordon includes six Muni bus routes, of which only three serve Crissy Field East (28-19th Avenue, 30-Stockton, and the 43-Masonic) and one route serves Crissy Field West (28-19th Avenue). Visitors destined to Aquatic Park would be served by the 28-19th Avenue, 30-Stockton and 49-Van Ness included in the Presidio/Crissy/Marina screenline, and the 19-Polk, 47 Van Ness, F-Market & Wharves Historic Streetcar, and the Powell-Hyde Cable Car, and these lines are included in the Fisherman's Wharf screenline. Visitors destined to Fort Mason would be served by all six routes (22-Fillmore, 28-19th Avenue, 30-Stockton, 43 Masonic, 45-Union-Stockton, and the 49-Van Ness).

On high-interest and peak weekend days in 2012, the Saturday midday peak hour capacity utilization of the Presidio/Crissy/Marina screenline would exceed 100 percent (see **Table TRA-32B**). The Saturday midday peak hour shortfall would range between 2,500 to 5,500 passengers per hour. Faced with this shortfall, passengers would need to wait for one or more buses before being able to board, some passengers may decide to take an alternate, less convenient bus, some passengers may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days. As indicated in **Table TRA-33**, the additional capacity provided by the augmented service on the 22S-Fillmore Short, 28S-19th Avenue Short, and on the 43L-Masonic Limited, as well as the expanded downtown shuttle service on peak weekend days, would increase peak hour capacity by up to 1,400 riders and hour on the Presidio/Crissy/Marina screenline, and the Saturday midday peak hour capacity utilization at this screenline would decrease on peak weekend

[9] The transit ridership and capacity utilization analysis accounts for all AC34 spectators, including those destined to NPS and Presidio sites, to other spectator viewing sites and secondary viewing locations, as well as to existing riders.

TABLE TRA-32A: ALTERNATIVE B: SPONSOR PROPOSED PROJECT – TRANSIT ANALYSIS AC34 2012 AND AC34 2013 – WEEKDAY PM PEAK HOUR

	Existing			Existing Plus Alternative B 2012 Peak Day			Existing Plus Alternative B 2013 Peak Day		
Outbound	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
San Francisco									
Presidio/Crissy/Marina	2,891	1,820	63%	3,521	3,139	89%	3,521	3,177	90%
Fisherman's Wharf	4,049	3,309	82%	4,613	3,347	73%	4,613	3,354	73%
East Bay									
BART	24,150	20,067	83%	24,150	20,655	86%	24,150	21,056	87%
AC Transit	4,193	2,517	60%	4,193	2,607	62%	4,193	2,667	64%
Ferries	1,519	702	46%	1,519	731	48%	1,519	752	50%
Total	*29,862*	*23,286*	*78%*	*29,862*	*23,992*	*80%*	*29,862*	*24,475*	*82%*
North Bay									
Buses	2,205	1,397	63%	2,205	1,478	67%	2,205	1,533	70%
Ferries	1,706	906	53%	1,706	965	57%	1,706	1,004	59%
Total	*3,911*	*2,303*	*59%*	*3,911*	*2,442*	*62%*	*3,911*	*2,537*	*65%*
South Bay									
BART	16,800	10,202	61%	16,800	10,680	64%	16,800	11,006	65%
Caltrain	3,250	1,986	61%	3,250	2,079	64%	3,250	2,142	66%
SamTrans	940	575	61%	940	602	64%	940	620	66%
Total	*20,990*	*12,763*	*61%*	*20,990*	*13,361*	*64%*	*20,990*	*13,768*	*66%*

[a] Existing capacity
[b] Capacity includes Muni and Regional transit provider service enhancements included in the Protection Measure TRA-2b. Service enhancements on Muni include increased frequencies on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays, and the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends.

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-32B: ALTERNATIVE B: SPONSOR PROPOSED PROJECT – TRANSIT ANALYSIS AC34 2012 – SATURDAY MIDDAY PEAK HOUR

	Existing			Existing Plus Alternative B High Interest			Existing Plus Alternative B Peak		
Outbound	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
San Francisco									
Presidio/Crissy/Marina	2,738	1,827	67%	**3,872**	**6,351**	**164%**	**3,872**	**9,368**	**242%**
Fisherman's Wharf	3,119	2,339	75%	3,683	2,590	70%	3,683	2,758	75%
East Bay									
BART	8,064	3,900	48%	16,128	6,135	38%	16,128	7,614	47%
AC Transit	200	117	56%	464	177	38%	464	224	48%
Ferries	688	560	81%	1,464	785	54%	1,464	936	64%
Total	*8,952*	*4,577*	*51%*	*18,056*	*7,097*	*39%*	*18,056*	*8,774*	*49%*
North Bay									
Buses	205	62	30%	509	223	44%	509	330	65%
Ferries	2,580	691	27%	3,380	1,835	54%	3,380	2,599	77%
Total	*2,785*	*753*	*27%*	*3,389*	*2,059*	*53%*	*3,389*	*2,929*	*75%*
South Bay									
BART	8,547	2,340	27%	17,094	4,552	27%	17,094	6,036	35%
Caltrain	650	543	84%	1,300	760	58%	1,300	893	69%
SamTrans	40	32	80%	480	90	19%	480	130	27%
Total	*9,237*	*2,915*	*32%*	*18,874*	*5,401*	*29%*	*18,874*	*7,059*	*37%*

[a] Existing capacity
[b] Capacity includes Muni and Regional transit provider service enhancements included in Protection Measure TRA-2b. Service enhancements on Muni include increased frequencies on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays, and the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends.
[c] Conditions exceeding 100 percent capacity utilization are highlighted in **bold**

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-32C: ALTERNATIVE B: SPONSOR PROPOSED PROJECT – TRANSIT ANALYSIS AC34 2013 – SATURDAY MIDDAY PEAK HOUR

	Existing			Existing Plus Alternative B Average			Existing Plus Alternative B Peak		
Outbound	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
San Francisco									
Presidio/Crissy/Marina	2,738	1,827	67%	3,872	2,848	74%	**3,872**	**13,976**	**361%**
Fisherman's Wharf	3,119	2,339	75%	3,683	2,404	65%	3,683	3,177	86%
East Bay									
BART	8,064	3,900	48%	16,128	4,602	29%	16,128	12,955	80%
AC Transit	200	117	56%	464	137	30%	464	384	83%
Ferries	688	560	81%	1,464	631	43%	1,464	1,480	101%
Total	*8,952*	*4,577*	*51%*	*18,056*	*5,370*	*30%*	*18,056*	*14,819*	*82%*
North Bay									
Buses	205	62	30%	509	113	22%	509	721	142%
Ferries	2,580	691	27%	3,380	1,052	31%	3,380	5,334	158%
Total	*2,785*	*753*	*27%*	*3,389*	*1,164*	*30%*	***3,389***	***6,055***	***156%***
South Bay									
BART	8,547	2,340	27%	17,094	3,038	18%	17,094	11,344	66%
Caltrain	650	543	84%	1,300	609	47%	1,300	1,403	108%
SamTrans	40	32	80%	480	50	11%	480	265	55%
Total	*9,237*	*2,915*	*32%*	*18,874*	*3,698*	*20%*	*18,874*	*13,012*	*69%*

[a] Existing capacity
[b] Capacity includes Muni and Regional transit provider service enhancements included in Protection Measure TRA-2b. Service enhancements on Muni include increased frequencies on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays, and the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends.
[c] Conditions exceeding 100 percent capacity utilization are highlighted in **bold**

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-33: ALTERNATIVE B: SPONSOR PROPOSED PROJECT – TRANSIT ANALYSIS AC34 2012 AND AC34 2013 – SATURDAY MIDDAY PEAK HOUR – PRESIDIO/CRISSY FIELD/MARINA SCREENLINE WITH IMPLEMENTATION OF PROTECTION MEASURES TRA-6 AND TRA-7

	Existing plus AC34 with Protection Measure TRA-2b			Existing plus AC34 with Protection Measures TRA-2b, TRA-6 and TRA-7		
	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
2012						
High Interest	3,872	6,351	164%	5,246	6,351	121%
Peak Race Day	3,872	9,368	242%	5,246	9,368	179%
2013						
Peak Race Day	3,872	13,976	361%	5,246	13,976	266%

[a] Capacity includes additional Muni service as described in the **Transportation Protection Measure TRA-2b**.
[b] Capacity includes augmented Muni service and expanded downtown shuttle service as included in **Transportation Protection Measure TRA-2b, TRA-6 and TRA-7.**

SOURCE: Adavant Consulting/LCW Consulting, 2012

event days in 2012 and 2013. In order to accommodate the additional Saturday midday demand at 100 percent capacity utilization, between 12 and 18 additional buses per hour would need to be provided (depending on whether 63 or 94 passenger buses are used) on high-interest weekend days, and between 44 and 66 additional buses per hour on the peak weekend days. SFMTA has indicted that additional transit service beyond what is identified in **Transportation Protection Measure TRA-6** is not feasible.

The AC34 2012 events would generate a substantial number of transit trips destined to the Presidio, Crissy Field, and the Marina Green (where the AC34 Village would be located), particularly on weekend days. While shuttle service within the Presidio would be supplemented on weekends (see **Transportation Protection Measure TRA-7**), the additional demand associated with the AC34 2012 events would result in the PresidiGo shuttle service exceeding their capacity, which would result in a short-term, major, adverse impact to the PresidiGo shuttle service.

As described in ***Section 3.14,Transportation and Circulation***, transit service to the Marin Headlands and Fort Baker is extremely limited, and include the Muni 76-Marin Headlands on Sundays and holidays, and the Golden Gate Transit Route 10 along Alexander Avenue on weekdays (which does not directly serve Fort Baker or the Marin Headlands). On AC34 weekday and weekend event days, a very limited number of spectators would be anticipated to access Marin Headlands, Fort Baker/Cavallo Point by transit, and impacts on these lines would be short-term, minor, adverse impacts. Implementation of **Transportation Protection Measure TRA-8**, under which the augmented Golden Gate Transit bus service included in the September 2011 People Plan would stop at Conzelman Road in the southbound

direction and at Vista Point in the northbound direction, would enhance public transit access to the Fort Baker and Marin Headlands area on peak weekend event days.[10]

2013 Event Conditions

In 2013, Alternative B would generate a total of 4,600 transit trips during the weekday p.m. peak hour on a peak weekday event day, 13,200 transit trips during the Saturday midday peak hour on a high-interest weekend day, and 46,700 transit trips during the Saturday midday peak hour on a peak weekend day.

On peak weekday event days, the capacity utilization at the Presidio/Crissy/Marina and Fisherman's Wharf screenline would be less than 100 percent (see T**able TRA-32A**). The weekday p.m. capacity utilization of the Presidio/Crissy/Marina screenline would be 90 percent, indicating crowded conditions.

During the Saturday midday peak hour, the capacity utilization of the Presidio/Crissy/Marina screenline would exceed 100 percent on the peak weekend days (see **Table TRA-31C**). Even with implementation of additional Muni transit service and downtown shuttle service on peak weekend event days, as indicated in **Table TRA-31D**, the ridership demand would still exceed available capacity. The Saturday midday peak hour shortfall would be about 8,700 passengers per hour. In order to accommodate the additional Saturday midday demand at 100 percent capacity utilization, between 93 and 139 additional buses per hour would need to be provided (depending on whether 63 or 94 passenger buses are used) on peak weekend days. Faced with a shortfall in transit capacity, passengers would need to wait for one or more buses before being able to board, some passengers may decide to take an alternate, less convenient bus, some passengers may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days.

On peak weekend days, the capacity utilization of the North Bay screenline would exceed 100 percent for both buses and ferries, and a greater increase in transit service enhancements in the form of increased frequencies or additional service would be required. As mentioned above, with implementation of **Transportation Protection Measure TRA-8**, on peak weekend event days, the augmented Golden Gate Transit Route 4 service would stop at Conzelman Road when traveling southbound, and at the Golden Gate North Vista Point when traveling northbound. This would allow spectators approaching San Francisco from the North Bay on public transit to more easily view the races from Marin County, rather than having to cross the Golden Gate Bridge into San Francisco, decreasing transit demand across the bridge.

Similar to conditions described above for 2012, the additional demand associated with the AC34 2013 events would result in the PresidiGo shuttle service exceeding its capacity, which would result in a short-term, major, adverse impact to the PresidiGo shuttle service. On weekday and weekend event days in 2013, a very limited number of spectators would be anticipated to access Marin Headlands, Fort Baker/Cavallo Point by transit, and impacts on these lines would be short-term, minor, adverse impacts.

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[10] As part of the People Plan, an augmented Golden Gate Transit Route 4 would operate on peak weekend event days between the Manzanita park-and-ride lot and San Francisco. See **Transportation Protection Measure TRA-8**.

Transit Impact Determination

Table TRA-34A presents the impact determinations for transit impacts based on the number of times per month that transit capacity utilization exceeds 100 percent for Alternatives B, C and D, while **Table TRA-34B** presents the transit impact determination for Alternative E. For Alternative B, on six of the 19 event days in 2012, the capacity utilization of the Presidio/Crissy Field/Marina screenline would exceed 100 percent capacity utilization. Capacity utilization of other Muni screenlines would be less than 100 percent, and the regional service provider East Bay, North Bay and South Bay screenlines would be less than 85 percent capacity utilization on all event days in 2012. Because the capacity utilization of the Presidio/Crissy Field/Marina screenline would exceed 100 percent for more than three event days per month (four days in August), in 2012 Alternative B would result in short-term, major, adverse impacts to transit service.

TABLE TRA-34A: SUMMARY OF TRANSIT IMPACTS AC34 2012 AND AC34 2013 – ALTERNATIVES B, C &D

Event Year/ Spectator Attendance Level	AC34 Event Days Per Month				Capacity Utilization Summary		
	July	August	September	Total	Alt B	Alt C	Alt D
AC34 2012							
Peak Very High-Interest Weekend	0	1	1	2	***>100%***	***>100%***	***>100%***
High-Interest Weekend	0	3	1	4	***>100%***	***>100%***	***>100%***
High-Interest Weekday	0	2	0	2	<100%	<100%	<100%
Medium-interest Weekday	0	7	0	7	<100%	<100%	<100%
Low-interest Weekday	0	4	0	4	<100%	<100%	<100%
Total Days	0	17	2	19			
Impact Determination					***Major***	***Major***	***Major***
AC34 2013							
Peak Race Day Weekend	0	0	5	5	***>100%***	***>100%***	***>100%***
Medium High Weekend/Holiday	1	4	1	6	***>100%***	***>100%***	***>100%***
Average Weekend/Holiday	7	5	1	13	<100%	<100%	<100%
Peak Race Day Weekday	1	6	3	10	<100%	<100%	<100%
Non Peak Race Day	6	4	0	10	<100%	<100%	<100%
Non Race Day	12	12	16	40	<100%	<100%	<100%
Total Days	27	31	26	84			
Impact Determination					***Major***	***Major***	***Major***

[a] Shaded indicates days during which the travel demand associated with AC34 would exceed 100 percent capacity utilization for three or more days per month.

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-34B: SUMMARY OF TRANSIT IMPACTS AC34 2012 AND AC34 2013 – ALTERNATIVE E

Event Year/ Spectator Attendance Level	AC34 Event Days Per Month				Capacity Utilization Summary
	August	September	October	Total	
AC34 2012					
Peak Very High-Interest Weekend	1	0	1	2	***>100%***
High-Interest Weekend	1	1	1	3	***>100%***
High-Interest Weekday	1	0	1	2	<100%
Medium-interest Weekday	1	0	4	5	<100%
Low-interest Weekday	2	0	0	2	<100%
Total Days	6	1	7	14	
Impact Determination					***Moderate***
	July	August	September	Total	Capacity Utilization Summary
AC34 2013					
Peak Race Day Weekend	0	0	5	5	***>100%***
Medium High Weekend/Holiday	1	4	1	6	***>100%***
Average Weekend/Holiday	7	5	1	13	<100%
Peak Race Day Weekday	1	6	3	10	<100%
Non Peak Race Day	6	4	0	10	<100%
Non Race Day	12	12	16	40	<100%
Total Days	27	31	26	84	
Impact Determination					***Major***

[a] Shaded indicates days during which the travel demand associated with AC34 would exceed 100 percent capacity utilization for three or more days per month.

SOURCE: Adavant Consulting/LCW Consulting, 2012

On 11 of the 84 event days in 2013, the capacity utilization of the Presidio/Crissy Field/Marina screenline would exceed 100 percent capacity utilization, and the regional service provider North Bay screenlines would be more than 100 percent capacity utilization for the same 11 event days. Because the capacity utilization of the Presidio/Crissy Field/Marina screenline and North Bay screenline would exceed 100 percent for more than 3 event days per month (four days in August, and six days in September), in 2013 Alternative B would result in short-term, major, adverse impacts to transit service.

For both AC34 2012 and AC34 2013 conditions, the following transportation protection measures are identified to lessen the severity of this temporary major adverse impact to transit service, but these temporary impacts would remain major or moderate adverse impacts.

As describe above, **Transportation Protection Measure TRA-6** would provide additional service on three Muni bus routes that most directly serve the NPS and Presidio sites, including the 22S-Fillmore Short, the 28S-19th Avenue Short, and the 43L-Masonic Limited. Additional peak period service

would provide additional capacity, which would minimize the adverse impacts in 2012 on high-interest and peak weekend days, and in 2013 on peak weekend days. SFMTA's preliminary planning for these lines includes ten-minute headways on the short/limited routes.

Under Alternative B, **Transportation Protection Measure TRA-7** would increase shuttle service between the Presidio and downtown San Francisco on weekdays and weekends. Downtown shuttle service at ten-minute headways between buses would accommodate between 200 and 300 passengers per hour.

Under **Transportation Protection Measure TRA-8** the augmented Golden Gate Transit bus service included in the September 2011 People Plan would stop at Conzelman Road in the southbound direction and at Vista Point in the northbound direction, and would enhance public transit access to the Fort Baker and Marin Headlands area on peak weekend event days.

Transportation Protection Measure TRA-3 would include the preparation of a Public Information Program to facilitate access to and from venues and spectator viewing area by all modes. Implementation of the Public Information Program is anticipated to alert the public to the possibilities of delays as a result of the AC34 events. **Transportation Protection Measure TRA-2** also includes a Traffic Monitoring and Management Program for the AC34 events citywide, which would implement measures, such as barricades and traffic control officers, so that crowds associated with event activities do not impede transit operations, so as to ensure that additional capacity on peak event days are provided.

4.10.8.3 Pedestrians

Under Alternative B, travel demand associated with the AC34 events would increase the number of visitors traveling to and from NPS and Presidio sites from existing conditions. **Table TRA-35** summarizes the results of the LOS conditions at the walkway and PAOT locations for Alternative B. Supporting detailed technical information is included in **Appendix I**. Under Alternative B, most walkway locations would operate at LOS D or worse on the five peak weekend event days in 2013, and LOS C or better on other event days. In 2012, walkway conditions would generally be LOS C or better, with the exception of Jefferson Street in Aquatic Park, the intersection of Mason-Crissy-McDowell, and at the Crissy Field East Class I multi-use trail. In addition, conditions at the Fort Mason pinch point would be LOS D or worse on all 2012 and 2013 event days. PAOT conditions at all locations would be LOS D or worse on most weekend event days in 2013 and 2013.

2012 Event Conditions

Under Alternative B, the number of spectators destined to and from the NPS and Presidio spectator sites and secondary viewing areas would range depending on the event day. As presented on **Table TRA-17A**, for the NPS and Presidio analysis areas, which include Crissy Field and the Presidio, Fort Mason, and Aquatic Park, a total of about 7,100 daily spectators are anticipated on the two peak weekdays, 16,200 daily spectators on the four high-interest weekend days, and about 27,000 daily spectators on the two peak weekend days.[11] Travel conditions in the vicinity of NPS and Presidio sites in San Francisco would

[11] The AC34 2012 events would also include seven medium-interest weekday event days and 4 low-interest weekday event days, for a total of 19 event days. See **Table TRA-15**.

TABLE TRA-35: ALTERNATIVE B: SPONSOR PROPOSED PROJECT – WALKWAY AND PAOT LOS AC34 2012 AND AC34 2013

Analysis Location			AC34 2012			AC34 2013		
			Peak Wkday	High Wkend	Peak Wkend	Peak Wkday	Avg Wkend	Peak Wkend
Walkway Analysis Locations								
1	Aquatic Park	Jefferson St NE entry into Aquatic Park	B	C	**D/C**	B	C	**D/C**
2	Aquatic Park	Promenade at Bath House	C	C	C	C	C	**D/C**
3	Aquatic Park	Promenade at west end of Aquatic Park	C	C	C	C	C	C
4	Fort Mason	Promenade at east end of Fort Mason	B	C	C	C	C	C
5	Fort Mason	Fort Mason Pinch Point on Laguna St	C	**E/D**	**F/D**	C	**E/D**	**F/D**
6	Crissy Field E.	Class I Multi-use Trail	B	C	**D/C**	C	C	**E/E**
7	Crissy Field E.	Waterfront Entry	B	B	C	B	B	C
8	Crissy Field E.	Promenade at Wetlands	B	B	C	B	C	C
9	Crissy Field W.	East End of Airfield	A	B	C	B	B	**D/C**
10	Crissy Field W.	West End of Airfield	B	B	C	B	B	**E/D**
11	Crissy Field W.	Picnic Promenade - East of Picnic Area	B	C	C	B	C	**D/C**
12	Crissy Field W.	Picnic Promenade – near Warming Hut	B	B	C	B	B	**D/C**
13	Fort Point	Marine Drive to Fort Point	B	C	C	B	C	**D/C**
14	Presidio - Other	Crissy/Mason/McDowell Intersection	C	**D/C**	**D/D**	C	**D/C**	**E/E**
15	Presidio - Other	Long Ave/Lincoln Blvd Intersection	B	C	**D/C**	B	C	**E/D**
16	Presidio - Other	Coastal Trail on West Side of Bridge	B	B	B	B	B	C
17	Presidio - Other	Coastal Trail on East Side of Bridge	C	C	**D/C**	C	C	**D/C**
18	Marin Headlands	Battery Spencer Main Walkways	A	B	B	A	A	B
19	Fort Baker	Center Road	B	B	C	B	B	C
20	Fort Baker	Moore Road	B	B	C	B	B	C
21	Fort Baker	Sommerville Road	A	B	B	A	B	C
PAOT Analysis Sites								
1	Aquatic Park		B	C	C	B	C	**E**
2	Fort Mason		B	**E**	**F**	C	D	**F**
3	Crissy Field East		C	C	**D**	C	C	**E**
4	Crissy Field West		C	C	**D**	C	C	**F**
5	Crissy Field West Picnic Area		B	C	**D**	B	C	**E**
6	Fort Point		C	C	**D**	C	C	**E**
7	Golden Gate Bridge Toll Plaza Overlook		C	**D**	**D**	C	D	**E**
8	Marin Headlands - Battery Spencer		A	C	C	C	C	**D**
9	Fort Baker		B	C	C	B	C	C

[a] LOS represents conditions during the peak hour of the day for each location, which may vary by location. Typically, the peak walkway period would be between noon and 2:00 p.m., and the peak PAOT would occur between 1:00 and 4:00 p.m.

[b] Walkway analysis locations or PAOT sites operating at LOS D, LOS E or LOS F conditions highlighted in bold.

SOURCE: ORCA Consulting LLC, 2012

also be affected by spectators at the Marina Green. In 2012, the AC Village would be located at the Marina Green and about 11,000 daily spectators are anticipated on peak weekdays, 30,000 daily spectators on high-interest weekend days, and about 50,000 daily spectators on peak weekend days.

In anticipation of the large increase in visitors to the NPS and Presidio sites on the six peak weekend event days, vehicular traffic on Mason Street between Lyon Street and the Warming Hut would be restricted to emergency vehicles, permitted tenants, and PresidiGo shuttle service. In addition, vehicular access would be restricted on streets connecting with Mason Street, as well as on streets north of Chestnut Street and Bay Street. [12] Restrictions to vehicular access are not anticipated for weekday event days.

Table TRA-35 presents the level of service at the 21 walkway locations and nine PAOT locations for three of the five AC34 2012 spectator profile days. Due to the increase in visitors to the area, the walkway and PAOT LOS would worsen from existing conditions. As described in ***Section 3.14, Transportation and Circulation***, walkways and PAOT locations currently operate at LOS C or better conditions; the exception is the walkway at the Fort Mason pinch point at Laguna Street, which currently operates at LOS D conditions on weekends. Because the number of visitors at the majority of the analysis locations is limited under existing conditions, the additional pedestrians and bicyclists associated with the AC34 events would be accommodated without a substantial adverse effect on the walkway operations. However, at some locations the large increase in pedestrians and bicyclists would worsen conditions to undesirable LOS D, LOS E or LOS F conditions. Requiring bicyclists to walk their bicycles would improve walkway conditions, and the improved LOS are indicated for these locations in **Table TRA-35**. On the six weekend event days when vehicular access on Mason Street would be restricted, bicyclists would be directed to travel within the bicycle lanes on Mason Street, and on these days, the Crissy Field multi-use trail would be for pedestrians only. Additional visitor use management strategies described in **Transportation Protection Measure TRA-9** would further improve the walkway operating conditions. While conditions on the Class I path would improve, during peak weekend event days, pedestrian conditions on the Class I path would be LOS D. At locations where PAOT LOS is worse than LOS C conditions, visitor use management strategies that would be implemented would include closing off the spectator viewing areas when visitor saturation is reached, requiring reservations for access to the viewing areas at peak times, providing real-time information to spectators regarding crowd levels at the viewing areas and alternate locations. Visitor use management strategies are described in **Transportation Enhancement Measure TRA-9**.

Aquatic Park – Walkway conditions in the vicinity of Aquatic Park generally would be adequate on event days, with the exception of the east side of Aquatic Park at Jefferson Street. On peak weekend event days (for two of 19 event days), walkway conditions would be LOS D. Requiring bicyclists to walk, rather than ride their bicycle, at this location would improve walkway conditions at this location to LOS C. The PAOT LOS at Aquatic Park would be LOS C or better on all event days in 2012.

[12] The area north of Bay Street between The Embarcadero and Fillmore Street, and north of Chestnut Street between Fillmore Street and Lyon Street is proposed for restricted access on peak weekend days. Residents, authorized vehicles (e.g., business deliveries, transit vehicles, event staff), and emergency response vehicles would continue to have access into and within the restricted access area; parking would be strictly enforced.

Fort Mason – In 2012, walkway conditions on the Bay Trail at the east end of Fort Mason would be LOS C or better on all event days in 2012. However, the increase in visitor trips to Fort Mason and the Marina at the Fort Mason pinch point at Laguna Street would result in LOS E or LOS F conditions on the six weekend event days. Requiring bicyclists to dismount and walk their bicycles at this location would not be adequate to substantially improve conditions. Even with this measure, on peak weekend event days, walkway conditions at the pinch point would be LOS D, and additional visitor use control measures would be required. **Transportation Protection Measure TRA-10** includes the provision of temporary bicycle lanes within the curb parking lane of Bay Street and Cervantes Street on peak weekend days, which would provide a dedicated bicycle area around most of Fort Mason and would remove a substantial number of bicyclists from sharing the walkway with pedestrians, resulting in improved walkway LOS conditions. The PAOT LOS at Fort Mason would be LOS E or LOS F on the six peak weekend event days, and LOS C or better on the other 13 event days in 2012.

Crissy Field East and West – With the exception of the walkway location at the Class I multi-use trail on the east side of Crissy Field (which would be LOS D on the peak weekend event days), walkway conditions at the seven analysis locations in Crissy Field would be LOS C or better on all event days in 2012. As part of **Transportation Protection Measure TRA-9**, on the peak weekend event days when vehicular traffic would be restricted on Mason Street bicyclists would be directed to travel within the bicycle lane on Mason Street, rather than on the Class I multi-use trail, which would improve to LOS C.

The PAOT LOS at the three Crissy Field locations would be LOS C or better except on peak weekend event days. The PAOT at Crissy Field East and at the Crissy Field West Picnic Area would be LOS D on the two peak weekend event days. **Transportation Protection Measure TRA-7** would increase service within the Presidio to provide service on 10 minute headways between shuttles. This increase level of shuttle service would serve to distribute spectators along Crissy Field and reduce spectator concentration/crowding at Crissy Field East.

Fort Point – Walkway conditions in Fort Point would generally be adequate on all event days (at LOS C or better). The PAOT LOS at Fort Point would be LOS D on the two peak weekend event days.

Other Presidio Locations – Walkway conditions at key intersections and along the Coastal Trail at the Golden Gate Bridge would generally be adequate on all event days. The exception would be the intersection of Mason Street at Crissy Field Avenue, where the walkway conditions would be LOS D on the six peak weekday event days, and at the sidewalks at the intersections of Long/Lincoln and the Coastal Trail on the east side of the Golden Gate Bridge on the peak weekend event days. Requiring bicyclists to walk, rather than ride their bicycle at this location would improve walkway conditions to LOS C on two of the six weekend event days. The PAOT LOS at the Golden Gate Bridge Toll Plaza Overlook would be LOS D on the six weekend event days.

Marin Headlands and Fort Baker – The number of spectators projected to travel to the Marin Headlands and Fort Baker would range between 200 spectators on peak weekdays, and between 510 and 850 spectators on weekends, with the majority of spectators destined to Fort Baker and Cavallo Point. Walkway conditions at Battery Spencer and Fort Baker walkways would be adequate on all

event days, with walkway conditions of LOS C or better. The PAOT LOS at Battery Spencer and Fort Baker would be LOS C or better on all event days.

2013 Event Conditions

The overall number of spectators projected to attend the AC34 2013 events would increase over AC34 2012 conditions, and the total number of race and non-race days would increase from 19 days in 2012, to 84 days in 2013 (45 race and 40 non-race days). In 2013, the AC34 Village would be located at Piers 27-29 on The Embarcadero, rather than at the Marina Green.

As presented in **Table TRA-17A**, for the analysis area including Crissy Field and the Presidio, the Marina Green and Fort Mason, and Aquatic Park, a total of about 8,800 daily spectators are anticipated on a peak weekday (10 days), 13,800 daily spectators on an average weekend day (13 days), and about 70,000 daily spectators on a peak weekend day (five days).[13] At the Marina Green about 10,000 daily spectators are anticipated on peak weekdays, 28,000 daily spectators on high-interest weekend days, and 55,000 daily visitors on peak weekend days. While the number of spectators projected for the NPS and Presidio areas on weekdays would be similar to conditions during 2012, the number of spectators on peak weekends would increase substantially (i.e., from 27,000 daily spectators in 2012, to 70,000 daily spectators in 2013).

Aquatic Park – Walkway conditions in the vicinity of Aquatic Park would be LOS D on 11 of the 84 event days (on peak weekend days) at the analysis location on the east side of Aquatic Park at Jefferson Street, and LOS D on five peak weekend days on the Aquatic Park Promenade at the Bath House. Requiring bicyclists to walk, rather than ride their bicycle at this location would improve walkway conditions at these two locations to LOS C. Conditions on the Aquatic Park Promenade at the west end of Aquatic Park would be LOS C or better on all event days in 2013. The PAOT LOS at Aquatic Park would be LOS D or LOS E for 11 event days, and LOS C or better on the other 73 event days.

Fort Mason – Walkway conditions on the B**ay Trail** at the east end of Fort Mason would be LOS C or better on all event days in 2013. However, the increase in visitor trips to Fort Mason and the Marina at the Fort Mason pinch point at Laguna Street would result in LOS E or LOS F conditions on the 24weekend event days. Requiring bicyclists to dismount and walk their bicycles at this location would not be adequate to substantially reduce impacts, and additional measures would be required. **Transportation Protection Measure TRA-10** includes the provision of temporary bicycle lanes within the parking lane of Bay Street and continuing along the Cervantes Street, which would provide a dedicated bicycle area around most of Fort Mason and would remove a substantial number of bicyclists from sharing the walkway with pedestrians, resulting in improved walkway LOS conditions. The PAOT LOS at Fort Mason would be LOS D to LOS F on the 24 weekend event days, and LOS C or better on the other 60 weekend (race and non-race) event days in 2013.

[13] In addition to the 28 event days noted above, the AC34 2013 events would also include six medium-interest weekend event days, 10 non-peak weekday race days, and 40 non-race days, for a total of 84 event days. See **Table TRA-15**.

Crissy Field East and West – The walkway location at the Class I multi-use trail on the east side of Crissy Field would operate at LOS D or LOS E for 11 event days, and LOS C or better on the remaining 83 event days. At the Crissy Field East Waterfront Entry and Crissy Field East Promenade at the Wetlands, the walkway conditions would be LOS C or better on all event days. Walkway conditions at the Crissy Field West Promenade locations would be LOS D on the five peak weekend events, and LOS C or better on the remaining 79 event days. As described for 2012 event conditions, on the peak weekend event days when vehicular traffic would be restricted on Mason Street, it is anticipated that bicyclists would be directed to travel within the bicycle lane on Mason Street, rather than on the Class I multi-use trail. Conditions would improve, however, on the five peak weekend event days, conditions would remain LOS D, and additional visitor use management strategies outlined in **Transportation Protection Measure TRA-9** would need to be implemented to further improve walkway conditions.

The PAOT LOS at the Crissy Field East would be LOS E on the two peak weekend event days, and LOS C or better on the other 82 event days. The PAOT at Crissy Field West and at the Crissy Field West Picnic Area would be LOS D to LOS E for 11 weekend event days, and LOS C or better on the other 73 event days.

As described for 2012 event conditions, **Transportation Protection Measure TRA-7** would expand shuttle service to Crissy Field on peak weekend event days. This shuttle service would serve to distribute spectators along Crissy Field and reduce spectator concentration/crowding at Crissy Field East.

Fort Point – Walkway conditions in Fort Point would be LOS D on the five peak weekend event days, and LOS C or better on the remaining 79 event days. Requiring bicyclists to dismount and walk their bicycles at this location on the five peak weekend event days would improve walkway conditions to LOS C. The PAOT LOS at Fort Point would be LOS D or LOS E on 11 weekend event days, and LOS C or better on the other 73 event days.

Other Presidio Locations – Walkway conditions at key intersections and along the Coastal Trail at the Golden Gate Bridge would generally be adequate on all event days. The exception would be the intersection of Mason Street at Crissy Field Avenue, where the walkway conditions would be LOS D to LOS E on the 24 weekday event days and at the sidewalks at the intersections of Long/Lincoln and the Coastal Trail on the east side of the Golden Gate Bridge on the 11 peak weekend event days. The PAOT LOS at the Golden Gate Bridge Toll Plaza Overlook would be LOS D or LOS E on the 24 weekend event days, and LOS C or better on the other 60 weekend (race and non-race) event days.

Marin Headlands and Fort Baker – The number of spectators projected to travel to the Marin Headlands and Fort Baker would range be about 250 spectators on peak weekdays and between 350 and 1,000 spectators on weekends, with the majority of spectators destined to Fort Baker and Cavallo Point. Walkway conditions at Battery Spencer and Fort Baker walkways would be adequate on all event days, with walkway conditions of LOS C or better.

The PAOT LOS at Battery Spencer would be LOS D on 11 weekend event days, and LOS C or better on the other 73 event days. The PAOT LOS at Fort Baker would be LOS C or better on all event days in 2013.

Pedestrian Impact Determination

In addition to the LOS summary in **Table TRA-35**, the percentage increase in pedestrian flows and PAOT volumes used in the pedestrian impact determination are summarized in **Appendix I**. As shown in the appendix, under Alternative B, pedestrian flow volumes would increase over existing conditions, and would be greater than a 50 percent increase on walkways on the majority of event days in 2012 and 2013. PAOT pedestrian volume increases would be more than 100 percent over existing conditions on most event days in 2012 and 2013 at Aquatic Park, Fort Mason, Crissy Field East, and Crissy Field West.

Due to the combination of increased pedestrian flows, frequency of LOS D or worse conditions at the study locations, and the need to implement visitor use management strategies on more than 15 percent of event days, Alternative B would result in short-term, minor to major, adverse impacts on pedestrians at NPS and Presidio sites in San Francisco and Marin.

The impact determination for the various walkway locations is presented in **Table TRA-36**. Under AC34 2012 conditions, Alternative B would result in minor adverse impacts at 10 of the 30 analysis locations, moderate adverse impacts at five locations, and major adverse impacts at 15 locations. Under AC34 2013 conditions, Alternative B would result in minor adverse impacts at seven of the 30 analysis locations, moderate adverse impacts at 8 locations, and major adverse impacts at 15 locations.

As indicated on **Table TRA-37**, requiring bicyclists to walk their bicycle through congested locations would improve conditions at a number of locations for many of the event days, and would change the overall impact determination at one location in 2012. Additional visitor use management strategies measures would lessen the level and intensity of adverse impacts.

Transportation Protection Measure TRA-9 described the visitor use management strategies would be implemented to ensure that circulation areas are available for pedestrian flows. Visitor use control strategies would be employed at the Promenade, pathways, lawn areas, and seating including monitors and restrictions from sensitive areas, redirection of crowds, and/or closures when capacity is reached. Bicycle and pedestrian traffic would be separated on the Promenade, and, on weekend event days when vehicular access on Mason Street is restricted, bicyclists would be directed to use the bicycle lane within Mason Street, and on these days, the multi-use trail would be for pedestrians only. Implementation of visitor use management strategies would also include message signs to call attention to key services and entry points, and to provide visitors with wayfinding options. In addition, information stations would offer general information and recommend viewing times and locations with expected low crowding levels, which would shift spectators away from this area. With implementation of these crowd management strategies, Alternative B adverse impacts related to crowding would be reduced.

Transportation Protection Measure TRA-10 would provide temporary bicycle lanes within the curb parking lane of Bay Street and Cervantes Street. The temporary bicycle lane would provide an exclusive lane for bicyclists traveling westbound, and would thereby reduce the number of bicyclists sharing the Promenade and multi-use trails with pedestrians. Implementation of **Transportation Protection Measure TRA-7**, expanded shuttle service to Crissy Field on peak weekend event days, would serve to distribute spectators along Crissy Field and reduce spectator concentrations/crowding at Crissy Field East.

TABLE TRA-36: SUMMARY OF WALKWAY AND PAOT LOS IMPACTS BY ALTERNATIVE AC34 2012 AND AC34 2013

Analysis Location			AC34 2012 [a]				AC34 2013			
			Alt B	Alt C	Alt D	Alt E	Alt B	Alt C	Alt D	Alt E
Walkway Analysis Locations										
1	Aquatic Pk	Jefferson St NE entry Aquatic Pk	Moderate	Minor	MAJOR	MAJOR	Moderate	Moderate	Moderate	Moderate
2	Aquatic Pk	Promenade at Bath House	MAJOR	Minor	MAJOR	MAJOR	MAJOR	Moderate	Moderate	Moderate
3	Aquatic Pk	Prom. at w. end of Aquatic Pk	Moderate	Minor	MAJOR	MAJOR	Moderate	Minor	Moderate	Moderate
4	Ft Mason	Prom. at e. end of Ft Mason	Minor	Minor	Moderate	MAJOR	Minor	Minor	Minor	Moderate
5	Ft Mason	Fort Mason Pinch Pt on Laguna St	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR
6	Crissy Field E.	Class I Multi-use Trail	MAJOR	MAJOR	Moderate	MAJOR	MAJOR	Moderate	MAJOR	MAJOR
7	Crissy Field E.	Waterfront Entry	Minor	Minor	Minor	Minor	Minor	Minor	Moderate	Moderate
8	Crissy Field E.	Promenade at Wetlands	Minor	Minor	Minor	Minor	Moderate	Minor	Moderate	Moderate
9	Crissy Field W.	East End of Airfield	MAJOR	Minor	Minor	Minor	MAJOR	Minor	Moderate	Moderate
10	Crissy Field W.	West End of Airfield	MAJOR	Minor	Minor	Minor	MAJOR	Moderate	Moderate	Moderate
11	Crissy Field W.	Picnic Prom. - East of Picnic Area	MAJOR	Minor	Minor	Minor	Moderate	Moderate	Moderate	Moderate
12	Crissy Field W.	Picnic Prom. – near Warming Hut	MAJOR	Moderate	Minor	Moderate	MAJOR	Moderate	Moderate	Moderate
13	Fort Point	Marine Dr to Ft Point	Minor	Minor	Minor	Minor	Moderate	Minor	Moderate	Minor
14	Presidio	Crissy/Mason/McDowell	MAJOR	MAJOR	Minor	MAJOR	MAJOR	Moderate	Moderate	Moderate
15	Presidio	Long/Lincoln Intersection	MAJOR	Minor	Minor	Minor	MAJOR	Moderate	Moderate	Moderate
16	Presidio	Coastal Trail on W. Side of Bridge	Moderate	Minor	Minor	Minor	Moderate	Minor	Minor	Minor
17	Presidio	Coastal Trail on E. Side of Bridge	Moderate	Minor	Minor	Minor	Moderate	Minor	Minor	Minor
18	Headlands	Battery Spencer	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
19	Ft Baker	Center Road	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
20	Ft Baker	Moore Road	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
21	Ft Baker	Sommerville Road	Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor
PAOT Analysis Sites										
1	Aquatic Park		MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR
2	Fort Mason		MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	Moderate	MAJOR	Moderate
3	Crissy Field East		MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR
4	Crissy Field West		MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR
5	Crissy Field West Picnic Area		MAJOR	Minor	Minor	Minor	MAJOR	Moderate	Moderate	Moderate
6	Fort Point		Moderate	Minor	Minor	Minor	MAJOR	Moderate	Moderate	Moderate
7	Golden Gate Bridge Toll Plaza Overlook		MAJOR	Minor	Minor	Minor	MAJOR	Moderate	Moderate	Moderate
8	Marin Headlands - Battery Spencer		Minor	Minor	Minor	Minor	Moderate	Moderate	Moderate	Moderate
9	Fort Baker		Minor	Minor	Minor	Minor	Minor	Minor	Minor	Minor

[a] The greater number of major impacts under AC34 2012 than AC34 2013 conditions is due to the fewer number of days of AC34 2012 events (19 days for Alternatives B, C and D, and 14 days for Alternative E) than AC34 2013 events (a total of 84 race and non-race days). With a lower number of AC34 2012 event days, the impact thresholds related to the percentage of event days during which LOS D, LOS E or LOS F conditions would be experienced are met with a very low number of days.

SOURCE: ORCA Consulting LLC, 2012

TABLE TRA-37: CHANGES IN WALKWAY IMPACTS BY ALTERNATIVE WITH IMPLEMENTATION OF MEASURES REQUIRING BICYCLIST TO WALK THEIR BICYCLES THROUGH CONGESTED WALKWAY LOCATIONS AC34 2012 AND AC34 2013

Analysis Location			AC34 2012				AC34 2013			
			Alt B	Alt C	Alt D	Alt E	Alt B	Alt C	Alt D	Alt E
1	Aquatic Pk	Jefferson St NE entry Aquatic Pk	***Minor***	Minor	MAJOR	MAJOR	Moderate	***Minor***	Moderate	Moderate
2	Aquatic Pk	Promenade at Bath House	MAJOR	Minor	MAJOR	MAJOR	MAJOR	Moderate	Moderate	Moderate
13	Fort Point	Marine Dr to Ft Point	Minor	Minor	Minor	Minor	Moderate	Minor	***Minor***	Minor
14	Presidio	Crissy/Mason/McDowell	MAJOR	MAJOR	Minor	MAJOR	MAJOR	***Minor***	Moderate	Moderate
15	Presidio	Long/Lincoln Intersection	MAJOR	Minor	Minor	Minor	MAJOR	Moderate	Moderate	Moderate
17	Presidio	Coastal Trail on E. Side of Bridge	Moderate	Minor	Minor	Minor	Moderate	Minor	Minor	Minor

[a] LOS represents conditions during the peak hour of the day for each location, which may vary by location. Typically, the peak walkway period would be between noon and 2:00 p.m., and the peak PAOT would occur between 1:00 and 4:00 p.m.

[b] Walkway analysis locations where impact determination changed due to measure requiring bicyclists to walk their bicycles through congested walkway locations highlighted in italics and shaded.

SOURCE: ORCA Consulting LLC, 2012

4.10.8.4 Bicycles

Under both AC34 2012 and AC34 2013 conditions, bicycle access to NPS and Presidio sites under Alternative B would remain relatively unchanged from existing conditions. On weekend event days, the substantial number of spectators estimated to travel to the waterfront between Aquatic Park and Crissy Field would increase the potential for bicycle-vehicle and pedestrian-bicycle interactions in the area.

As noted above, due to the large number of pedestrians and bicyclists that would pass through the Fort Mason pinch point on Laguna Street, operating conditions during weekend event days in 2012 and 2013 would be LOS E or LOS F. Requiring bicyclists to walk their bicycle through this area would improve conditions, however, on high attendance weekend days, the walkway LOS conditions would remain LOS D or worse. As noted above, on high-attendance weekend event days when vehicular access north of Bay Street/Chestnut Street would be restricted to Muni, residents, and emergency and authorized vehicles, **Transportation Protection Measure TRA-10** would create temporary bicycle lanes on portions of Bay Street and Cervantes Street by restricting on-street parking. The temporary curb bicycle lane would provide an exclusive lane for bicyclists traveling westbound and would reduce the number of bicyclists at the Laguna Street pinch point, and would allow for a continuous bicycle lane between The Embarcadero and Crissy Field (while also providing access to SAFR and Fort Mason).

The northeast entry to Aquatic Park at Jefferson Street is projected to operate at LOS D conditions on the peak weekend event days in 2012 and 2013. To minimize the potential for bicycle-pedestrian conflicts, an alternate bicycle route would be provided that would direct bicyclists traveling

westbound to the bicycle lane on North Point Street. At Van Ness Avenue, a temporary bicycle lane would be provided along the west curb of Van Ness Avenue between North Point Street and Bay Street, which would connect with the temporary bicycle lane on Bay Street, as described above.

As indicated in **Table TRA-35**, the walkway analysis identified a number of locations along the Crissy Field Promenade where walkway conditions would be LOS D, LOS E or LOS F on the peak weekend days in 2013. Requiring bicyclists to walk their bicycle through these areas would improve conditions. In some instances, implementation of the visitor use management strategies may result in restricting bicyclists from portions of the Crissy Field Class I multi-use trail. This could occur, for example, on the five peak weekend event days in 2013, when up to 61,000 spectators are estimated for the Crissy Field area.

For those spectators arriving by bicycle, temporary valet bicycle stations (e.g., similar to the service operated at AT&T Park for San Francisco Giants games) would be provided to meet the projected demand identified in **Table TRA-28**, page 4.10-32 (see **Transportation Protection Measure TRA-11**). Under Alternative B, the AC34 2012 events would generate the need for up to 730 bicycle parking spaces on weekdays and up to 2,500 bicycle parking spaces on weekends on the NPS sites. The AC34 2013 events would generate the need for up to 720 bicycle parking spaces on weekdays and up to 4,760 bicycle parking spaces on weekends. Because the NPS sites currently provide about 430 spaces (see **Table TRA-8** in Section 3.14), the majority of the AC34 event-related parking demand would need to be accommodated in temporary valet stations. The bicycle parking stations would be secure and conveniently located.

Bicycle Impact Determination

Under Alternative B, on up to six weekend days in 2012 and up to 24 weekend days in 2013, bicycle access would become more difficult at some locations due to heavier pedestrian and bicycle volumes and would lead to changed patterns in bicycle circulation. Therefore, Alternative B would result in short-term, major, adverse, impacts to bicyclists. **Transportation Protection Measures TRA-9** through **TRA-11** (i.e., visitor use management strategies, temporary bicycle lanes, increased shuttle service, and bicycle parking supply) have been identified to lessen the severity of the impact. These measures would serve to minimize the potential for bicycle conflicts with pedestrians and vehicles, and ensure that adequate bicycle parking is provided on event days.

4.10.8.5 Parking

Table TRA-38 presents the vehicle parking demand for Alternative B for the weekday and weekend event days analyzed for 2012 and 2013 conditions for the NPS sites defined on **Figures TRA-6A** and **TRA-6B**, while **Table TRA-39** presents the projected parking deficits for each scenario. The projected parking deficit was calculated by comparing the projected demand to the parking supply identified for each NPS area in **Tables TRA-10** through **TRA-12** (in Section 3.14).

TABLE TRA-38: ALTERNATIVE B: SPONSOR PROPOSED PROJECT – PARKING DEMAND (NUMBER OF SPACES) NEAR NPS SITES – AC34 2012 AND AC34 2013

Study Area	AC34 2012[a]			AC34 2013[a]		
	Peak Weekday	High Interest Weekend	Peak Weekend	Peak Weekday	Average Weekend	Peak Weekend
Presidio and Crissy Field	783	924	1,539	964	770	4,267
Fort Mason	13	42	70	25	21	70
Aquatic Park	61	168	280	73	175	560
Subtotal Federal Land Locations in SF	*857*	*1,134*	*1,889*	*1,062*	*966*	*4,897*
Alcatraz Island[a]	0	42	69	0	42	69
Marin Headlands (Conzelman Rd)	24	42	69	36	28	69
Fort Baker/Cavallo Pt.	24	29	49	24	21	69
Subtotal Federal Land Locations outside SF	*48*	*113*	*187*	*60*	*91*	*207*
Total all Federal Land Locations[b]	**905**	**1,247**	**2,076**	**1,122**	**1,057**	**5,104**

[a] Parking demand associated with Alcatraz Island has been assigned to Northeast Embarcadero
[b] Column totals might not add up due to rounding

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-39: ALTERNATIVE B: SPONSOR PROPOSED PROJECT – VEHICLE PARKING DEFICITS (NUMBER OF SPACES) AND UTILIZATION NEAR NPS SITES – AC34 2012 AND AC34 2013

Study Area	Existing Utilization		AC34 2012[a]			AC34 2013[a]		
	Weekday	Weekend	Peak Weekday	High Interest Weekend	Peak Weekend	Peak Weekday	Average Weekend	Peak Weekend
Presidio and Crissy Field	72%	78%	620 131%	760 137%	1,380 168%	800 139%	610 130%	4,110 303%
Aquatic Park	83%	88%	No deficit	90 112%	200 127%	No deficit	100 114%	480 165%
Conzelman Rd. and Fort Baker	80%[a]	80%[a]	No deficit	No deficit	24[b] 105%	No deficit	No deficit	44[b] 109%

[a] Estimated value.
[b] Temporary overflow parking can be made available at Fort Baker along East Road (see **Transportation Protection Measure TRA-4**) to accommodate this deficit

SOURCE: Adavant Consulting/LCW Consulting, 2012

Under Alternative B, it is anticipated that a portion of the increased parking demand associated with AC34 2012 and AC34 2013 events would be accommodated on-street in the vicinity of the Presidio and NPS sites in San Francisco. Because most streets are subject to RPP parking regulations (i.e., Areas "M" and "K" in the Marina, and area "A" in Fisherman's Wharf/Telegraph Hill neighborhoods), which are enforceable on weekdays and Saturdays, the extent to which a substantial number of spectators

attempt to park and could be accommodated in these areas would be limited. However, on peak weekend event days, it is possible that even with the RPP restrictions, residents arriving to these areas after drivers have started arriving for the AC34 events would have difficulty parking.

The transportation protection measures identified in section 4.10.12 would serve to enhance and encourage access to the waterfront by transit, walking, and bicycling, while discouraging access by private auto. These measures, combined with implementation of measures directed at managing the parking supply (such as **Transportation Protection Measure TRA-12** which includes the development of a parking management plan for parking within NPS sites, **Transportation Protection Measure TRA-3** which would encourage use of other modes of transportation by alerting potential visitors ahead of time that parking would be scarce, and **Transportation Protection Measure TRA-2** which would increase enforcement and temporary parking restrictions on selected streets to facilitate bus travel, provide for pedestrian-only streets, provide additional vehicle capacity, and reduce localized congestion) would discourage visitor access by auto and associated parking demand.

As part of the AC34 People Plan, SFMTA would develop a program for notifying residents and visitors of on-street parking restrictions that would be required on event days. In addition, **Transportation Protection Measure TRA-4** (Presidio and Other NPS Sites Roadway Management Strategies) includes the possibility for the NPS and U.S. Park Police to manage East Road within Fort Baker as a one-way inbound roadway providing additional temporary parking during peak demand weekends.

2012 Event Conditions

In 2012, the AC Village would be located at the Marina Green, and the parking demand generated during both the weekday and weekend peak events would generally exceed the parking supply between the Presidio/Crissy Field and Aquatic Park. The parking shortfall would be greatest during weekend events, which are projected to attract a substantially greater number of visitors.

On the two peak weekday event days in 2012, there would be about 860 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 620 spaces in the Presidio/Crissy Field area, while there would be no deficit near the Aquatic Park area. On the four high-interest weekend event days in 2012, there would be about 1,130 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 760 spaces in the Presidio/Crissy Field area, and 90 spaces near the Aquatic Park area. On the two peak weekend event days in 2012, there would be almost 1,900 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of about 1,400 spaces in the Presidio/Crissy Field area, and 200 spaces in the vicinity of the Aquatic Park area.

AC34 parking demand related to Alcatraz Island would be minimal, between 40 and 70 vehicles per day, representing about four percent of the overall AC34 parking demand expected in the Northeast Embarcadero area in 2012 (about 1,000 to 1,600 spaces), and would therefore not substantially alter any overall parking deficits in the area. AC34 parking demand in the Marin Headlands and in Fort Baker in 2012 would be between 50 and 70 additional vehicles, resulting in a parking deficit of about 24 spaces on the two peak weekend event days. On such days, the NPS would be expected to close Conzelman Road to general automobile traffic and convert East Road into an inbound only road,

making most of the parking spaces along Conzelman Road unavailable except for early arrivals, but also creating additional parking along East Road that would eliminate the expected parking deficit.

2013 Event Conditions

In 2013, the AC Village would be located at Piers 27-29, and the focus of the spectator viewing would shift to The Embarcadero. During weekdays, the parking demand generated by visitors to the Presidio and Crissy Field areas would exceed the available supply to a similar extent as during the 2012 events, in spite of the larger overall number of AC34 spectators. On peak weekend events, however, the parking demand generated would be much larger and would exceed the parking supply for the viewing areas between the Presidio/Crissy Field and Aquatic Park.

On the ten peak weekday event days in 2013, there would be about 1,060 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 800 spaces in the Presidio/Crissy Field area, while there would be no deficit near the Aquatic Park area. On the 13 average weekend/holiday days in 2013, there would be about 970 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 610 spaces in the Presidio/Crissy Field area, and 100 spaces near the Aquatic Park area. On the five peak weekend event days in 2013, there would be almost 4,900 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of about 4,100 spaces in the Presidio/Crissy Field area, and 480 spaces in the vicinity of the Aquatic Park area.

AC34 parking demand related to Alcatraz Island would be minimal, between 40 and 70 vehicles per day, similar to the 2012 parking demand, representing less than two percent of the overall AC34 parking demand in the Northeast Embarcadero area in 2013 (about 2,600 to 7,700 spaces), and would therefore not substantially alter any expected overall parking deficits in the area. AC34 parking demand in the Marin Headlands and in Fort Baker in 2013 would be between 50 and 140 additional vehicles, resulting in a parking deficit of about 44 spaces on the five peak weekend days. On such days, the NPS would be expected to close Conzelman Road to general automobile traffic and convert East Road into an inbound only road, making most of the parking spaces along Conzelman Road unavailable except for early arrivals, but also creating additional parking along East Road that would eliminate the expected parking deficit.

Parking Impact Determination

Based on parking utilization results presented in **Table TRA-39** (Alternative B), **Table TRA-46** (Alternative C), **Table TRA-52** (Alternative D), and **Table TRA-58** (Alternative E), a summary of impacts of the action alternatives by profile day was developed to determine whether the addition of vehicular travel demand generated by the AC34 events in 2012 and 2013 would result in minor, moderate, or major parking impacts (see **Appendix I**).[14] **Table TRA-40** summarizes the results of the assessment by event year and by alternative.

[14] Because all NPS sites would be affected by additional parking demand generated by the AC34 events, none of the Action Alternatives would have a negligible impact.

TABLE TRA-40: SUMMARY OF VEHICLE PARKING IMPACTS BY NPS SITE BY ALTERNATIVE

Study Area	AC34 2012[a]				AC34 2013[a]			
	Alt B	Alt C	Alt D	Alt E	Alt B	Alt C	Alt D	Alt E
Presidio and Crissy Field	MAJOR	Moderate	Moderate	Moderate	MAJOR	Moderate	Moderate	Moderate
Fort Mason	n.a.[a]	n.a.[a]	n.a.	n.a.[a]	n.a.[a]	n.a.[a]	n.a.[a]	n.a.[a]
Aquatic Park	Moderate	Moderate	Moderate	MAJOR	Moderate	Moderate	Moderate	Moderate
Conzelman Rd/ Fort Baker	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

[a] n.a. -= not applicable; general parking assumed not available on AC34 event days

SOURCE: Adavant Consulting/LCW Consulting, 2012

Alternative B would result in short-term, major, adverse parking impacts at the Presidio/Crissy Field under AC34 2012 and AC34 2013 conditions; parking impacts at Aquatic Park and the Marin Headlands/Fort Baker would be short-term, moderate, adverse impacts.

Transportation Protection Measure TRA-12, which includes the development of a parking management plan, for parking within NPS sites, would serve to reduce the intensity of adverse impacts at the NPS sites. As part of **Transportation Protection Measure TRA-2**, SFMTA would develop a program for notifying visitors of availability of public parking facilities, including public and private off-street facilities, on-street parking, and satellite parking facilities that would be required on high-spectator event days. The provision of satellite parking facilities, and shuttles to the Presidio, Crissy Field, Marina Green, Fort Mason, and Aquatic Park would serve to further reduce adverse impacts on parking.

4.10.8.5 NPS and Presidio Facility Access

Under Alternative B, on weekday event days in both 2012 and 2013, access to NPS and Presidio facilities would remain relatively unchanged from existing conditions. As indicated on **Table TRA-30A** and **Table TRA-30B**, on peak weekdays (two peak weekdays in 2012, and 10 peak weekdays in 2013), intersection delays at the unsignalized intersections within the Presidio would increase over existing conditions due to increased traffic volumes, and one or more approaches would experience increased delays. On non-peak weekdays (11 non-peak weekdays in 2012, and 50 non-peak weekdays in 2013), the number of spectators destined to spectator sites and secondary viewing areas would be substantially lower, and therefore, increased traffic volumes and delays at intersections would be correspondingly lower. Therefore, on weekday event days, vehicular access to facilities within the Presidio, the Marin Headlands, and Fort Baker would not be restricted and would not be substantially different from existing conditions.

On weekend event days, vehicular access on Mason Street would be restricted to authorized vehicles, such as the PresidiGo shuttles, emergency vehicles, and tenants and visitors to some of these facilities along Crissy Field (e.g., La Petite Baleen swim school, the Sports Basement store). Tenants and visitors to some of these facilities would be notified in advance of temporary roadway restrictions, and would be granted special parking access permits for short-term use of the facilities. Access to Mason Street would be controlled at the intersection of Crissy/Mason/McDowell, and only vehicles with permits would be permitted to access Mason Street. Vehicles leaving the facilities would continue eastbound on Mason Street and exit at the Marina Gate. On the five peak weekend days in 2013 when up to 61,000 spectators are estimated for Crissy Field, vehicular access to these businesses may be restricted.

Access to other businesses and residents within the Presidio and at Fort Mason would also need to be managed on weekend event days in 2012 and 2013. Tenants, vendors, and residents would be notified in advance of all event days and of any roadway restrictions that would be implemented. **Transportation Protection Measure TRA-13** would develop strategies to ensure that access to SAFR, Fort Mason, Fort Baker/Marin Headlands, and Crissy Field for NPS staff, Park Partners, residents, deliveries and registered program participants is reasonably maintained on AC34 event days.

On weekend event days, when vehicular access restrictions would be implemented on Mason Street, emergency vehicle access would be provided in a manner consistent with the Public Safety Plan that would be prepared for the AC34 events. The Public Safety Plan and management strategies would address all reasonable safety and security measures, including Advanced Life Support emergency and rescue services. Visitor use management strategies developed as part of **Transportation Protection Measure TRA-9** would be employed to ensure that all San Francisco Fire Department emergency access lanes are maintained at a minimum of 14 feet wide at all times and that a minimum of three feet of clear space is maintained around fire hydrants (SFFD, 2012). In addition, **Resource Protection Measure FAC-4** involves staging of emergency response vehicles (i.e., fire and medical) in key areas to meet response times due to congested roads on peak weekend event days. Vehicular access to Crissy Field would not be possible via the Crissy/Mason/McDowell intersection on these peak days; however, controlled vehicular access could be maintained from the Presidio via McDowell Avenue. Vehicular access to other facilities within the Presidio, the Marin Headlands, and Fort Baker would be maintained.

Alcatraz Island Access/Loading - Ferry service for visitors traveling to Alcatraz Island is currently located at Hornblower Alcatraz Landing at Pier 33. A limited number of parking spaces (26 spaces) are provided on Pier 31 ½ for NPS staff and disabled Alcatraz Island Cruise customers only, but an "accessibility drop off zone" is located at the entrance to Hornblower Alcatraz Landing for visitors with special needs arriving by automobile. On-site parking is not provided for customers, and customers purchasing tickets at the Hornblower Cruises website are informed that parking in the area is difficult, and customers are encouraged to use public transportation to reach the Pier 33 area.

Access to Pier 33 would remain generally unchanged during weekday events in 2012 and 2013. On weekend days when the northbound right lane and the parking lane of northbound The Embarcadero is closed to private vehicles for a portion of the day between Howard Street and Jefferson Street (to be used for a multi-purpose corridor for pedestrians and bicyclists), the available northbound travel lane would be signed for local access only. Therefore, visitors to Pier 33 would continue to be able to use

the existing accessibility drop-off zone. However, during peak weekend events, monitoring of the passenger drop-off zone may be warranted to reduce the potential for pedestrian-bicycle-vehicle conflicts. As indicated above, while additional transit service capacity would be provided on multiple Muni bus, light rail, and historic streetcar lines, it is anticipated that most lines serving the waterfront on weekends would be congested, and therefore, it would take longer to access Pier 33 by transit. Pedestrian access to Pier 33 would remain unchanged on weekends, although pedestrian volumes along The Embarcadero Promenade would be greater than under existing conditions.

Alcatraz Island ferry service would be maintained during AC34 2012 and AC34 2013 events. Alcatraz ferry service would also receive an escort every half hour to the island on event days in 2013, throughout the race day program in the afternoons, by an escort boat provided by either America's Cup Race Management or the U.S. Coast Guard, to avoid conflicts with the race while also providing NPS visitors continued, regular public access to Alcatraz Island.

NPS and Presidio Facility Access Impact Determination

Because access to NPS and Presidio sites, including the Alcatraz Island ferry service at Pier 33, would be maintained on event days, the impacts to access to NPS and Presidio facilities would be a short-term, minor, adverse impact. However, on the five peak weekend days in 2013, when up to 61,000 spectators per day are estimated at Crissy Field, access to businesses north of Mason Street may be restricted, and impacts to these facilities would be a short-term, major, adverse impact.

4.10.8.6 Programmatic Access to NPS and Presidio Sites

Based on the analysis of traffic, transit, bicycle, pedestrian, and parking conditions described above, an assessment of the overall impact on existing accessibility and travel times for visitors and employees to access the NPS and Presidio sites during AC34 was conducted. Under Alternative B, existing means of access to the NPS and Presidio sites would be maintained or expanded on AC34 event days, but ease of access and access travel times would vary by event day and expected spectator attendance.

As indicated in section 3.10.2.2, the Presidio Trust currently operates three shuttle routes serving residents, employees and visitors to the Presidio: the PresidiGo Downtown (between the Presidio and the temporary Transbay Terminal), and the PresidiGo Crissy Field (serving the northern area of the Presidio), and the PresidiGo Presidio Hills (serving the southern area of the Presidio). As part of **Transportation Protection Measure TRA-7**, the shuttle service to downtown and Crissy Field would be enhanced. On peak weekend event days in 2012 and 2013, particularly when access to Mason Street and the Crissy Field surface parking lots would be restricted, the expanded shuttle routes would enhance motorized visitor accessibility to Crissy Field destinations. All existing PresidiGo shuttle stops would be maintained during AC34 events.

- Riders would have to make at most one transfer (from one of the around the Park routes to the Downtown route). Riders can board the Downtown shuttle service at the temporary Transbay Terminal, the Embarcadero BART/Muni Metro Station or at the intersection of Union Street and Van Ness Avenue. The shuttle provides direct drop-off to several sites within the park such as the Lombard Gate, the Letterman Digital Arts center, the YMCA and the Main Post Transit Center. The Downtown Shuttle is currently available only to Presidio residents and

employees with an appropriate boarding pass as well as to members of the general public with a Muni Passport during weekday commute hours, and open to the general public with no pass required midday on weekdays. As part of **Transportation Protection Measure TRA-7**, shuttle service to downtown would be expanded on peak weekend event days.

- Additional shuttle service to Crissy Field could be interlined with the PresidiGo Crissy Field Route, connecting with the Muni 28-19th Avenue and 76-Marin Headlands bus routes and the Golden Gate Transit at the Golden Gate Bridge Toll Plaza, with the 43-Masonic on Letterman Drive, and with Golden Gate Transit and the 28-19th Avenue on Richardson Avenue. As part of **Transportation Protection Measure TRA-7**, shuttle routes serving Crissy Field would be expanded on peak weekend event days.

2012 Event Conditions

On the 13 weekday event days in 2012, access to NPS and Presidio sites would remain similar to existing conditions. On event days, additional Muni service would be provided on the 30L-Marina and on a supplemental 47L-Van Ness Limited, which would also serve the NPS and Presidio sites, and transit capacity would generally be available to meet the projected ridership. Some overcrowding on lines serving the Presidio would occur, which could result in passengers needing to wait for one or more buses before being able to board, increasing visitor and employee travel times. Those driving to the NPS and Presidio sites would experience somewhat increased delays at intersections within the Presidio, and visitor parking availability would be very limited, above existing supply which is close to capacity; those parking at reserved/designated spaces would be unaffected. On peak weekday event days, visitors may need to park farther from their destinations, or change travel modes, thereby increasing travel times from existing conditions. Pedestrian conditions on weekdays would generally be acceptable, with the exception of walkway conditions at the Fort Mason pinch point on Laguna Street, and at the intersection of Mason/Crissy/McDowell in the Presidio. Closure of Halleck Street and Marshall Street as part of the ongoing construction of Presidio Parkway would result in increased pedestrian flows at this already constrained intersection. The recent restructuring of the PresidiGo Around the Park shuttle service into two routes, one of which directly serves Crissy Field, would facilitate access due to the roadway closures, at the expense of increased travel times for pedestrians. As part of AC34, the shuttle service to downtown and within the Presidio would be expanded on peak weekend event days. On weekday event days, bicycle access would remain unchanged from existing conditions. On weekday event days in 2012, the number of spectators destined to the Marin Headlands and Fort Baker is expected to be relatively small (up to 400 spectators per day), and vehicular, pedestrian, and bicycle travel conditions would therefore remain similar to existing conditions. Overall, on the 13 weekday event days in 2012, Alternative B impacts on visitor access to NPS and Presidio sites would be short term, minor to moderate, adverse impacts.

On the six weekend event days in 2012, the number of spectators destined to NPS and Presidio sites, as well as to other nearby spectator venues and viewing areas (e.g., the AC Village in the Marina Green), would increase over weekday conditions. On the six weekend event days, vehicular access on Mason Street would be restricted, except for emergency and authorized vehicles; permitted tenants/visitors could potentially enter via McDowell Avenue and exit eastbound via Mason Street. Increases in the number of pedestrians and bicyclists on Crissy Field, Fort Mason, and Aquatic Park would result in increased crowding at the Fort Mason pinch point and intersection of Mason/Crissy/McDowell, and,

on peak weekend event days, pedestrians would also experience increased crowding at additional locations including on Jefferson Street at Aquatic Park, and at the Crissy Field East Class I multi-use trail. Parking availability in the vicinity of NPS sites in the Presidio would be more limited due to the temporary closure of parking areas on East Beach. On the six weekend event days, additional transit service would be provided on the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited bus route that would serve the Presidio, but this additional service would not be adequate to accommodate the AC34 transit ridership demand. Enhanced service on the 22 Fillmore, 28-19th Avenue, and the 43-Masonic bus routes that directly serve the Presidio, and the expanded shuttle service to downtown San Francisco, would serve to reduce overcrowding and minimize travel time delays. Faced with the shortfall in transit capacity, reduced parking availability, and increase intersection delays, those traveling to the Presidio, Fort Mason and Aquatic Park would have increased travel times. Visitors traveling by transit may need to wait for one or more buses before being able to board, some may decide to take an alternate, less convenient bus route, some may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days.

On weekend event days in 2012, the number of spectators destined to the Marin Headlands and Fort Baker would increase from weekday conditions, but would still be relatively small (between 200 and 850 daily spectators). On the two peak weekend event days (and not on the four high-interest weekend event days), vehicular access to Conzelman Road between Alexander Avenue and McCullogh Road would be restricted to emergency and authorized vehicles during peak periods, similar to conditions that currently occur on special event days, such as Fourth of July. Therefore, on most weekend event days in 2012, vehicular, pedestrian, and bicycle travel conditions in the Marin Headlands and Fort Baker would remain similar to existing conditions. Overall, on the six weekend event days in 2012, the intensity of travel time and access impacts would depend on the spectator attendance levels. In 2012, there would be two days with up to 28,350 daily spectators at the NPS and Presidio sites, and four days with up to 17,010 daily spectators at the NPS and Presidio sites. Therefore, on the six weekend event days in 2012, Alternative B impacts on visitor access to NPS and Presidio sites would be short term, moderate to major, adverse impacts.

2013 Event Conditions

On the 60 weekday event (race and non-race) days in 2013, access to the NPS and Presidio sites would remain similar to existing conditions. As described above for 2012 weekday event conditions, additional transit service would be provided on lines that serve the Presidio, although overcrowding would occur on more days than in 2012. Those driving, bicycling and walking to the NPS and Presidio sites would experience congestion at similar locations as in 2012, but the congestion would occur on more days than in 2012. On the 60 weekday event days in 2013, the number of spectators destined to the Marin Headlands and Fort Baker is projected to be relatively small (up to 500 spectators per day), and travel conditions would therefore remain similar to existing conditions. Overall, on the 60 weekday event days in 2013, Alternative B impacts on visitor access to NPS and Presidio sites would be short term, minor to moderate, adverse impacts.

On the 24 weekend events in 2013, the number of spectators destined to the NPS and Presidio sites would substantially increase over weekday conditions. These weekend events would occur on most

weekends between July and the end of September 2013. On peak weekend event days, vehicular access on Mason Street would be restricted, except for emergency and authorized vehicles; permitted tenants/visitors could potentially enter via McDowell Avenue and exit eastbound via Mason Street. On peak and medium high-interest weekend event days, intersection delays at unrestricted roadways within the Presidio and at intersections to the south would increase over existing conditions. Additional traffic control and management strategies would be implemented by SFPD, U.S. Park Police, and SFMTA traffic control officers to reduce congestion at the key intersections. Increases in the number of pedestrians and bicyclists on Crissy Field, Fort Mason, and Aquatic Park would result in increased crowding at numerous locations at Crissy Field, within the Presidio, as well as at locations in Aquatic Park and at the Fort Mason pinch point. These conditions would primarily occur on the five peak weekend event days, and the most aggressive visitor use management strategies would be required to maintain pedestrian flows on these peak AC34 event days. The strategies would include temporary alternate bicycle routes using curb parking or travel lanes on Van Ness Avenue, and Bay, and Cervantes streets. Parking availability in the vicinity of NPS sites in the Presidio would be more limited due to increased demands, and the temporary closure of parking areas on East Beach.

On the 13 average weekend event days (i.e., 13 of 24 weekend event days) in 2013, the additional transit service on the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited bus routes that would serve the Presidio would be adequate to accommodate the increased demand, because in 2013 the AC Village would be located at Piers 27-29 (rather than at the Marina Green), and the overall number of spectators destined to the waterfront between Aquatic Park and Crissy Field in 2013 would be less than on the six weekend event days in 2012. On the 11 peak and medium-high weekend event days in 2013 (with about 180,000 to 300,000 daily spectators at all locations), the additional transit service in San Francisco, and enhanced service on the 22-Fillmore, 28-19th Avenue, the 43-Masonic bus routes, and the expanded downtown shuttle would not be adequately accommodated demand. Faced with the shortfall in transit capacity, reduced parking availability, and increase intersection delays, those traveling to the Presidio, Fort Mason and Aquatic Park would have substantially increased travel times. Visitors traveling by transit may need to wait for one or more buses before being able to board, some may decide to take an alternate, less convenient bus route, some may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days. Overall, on the 24 weekend event days, the effect on visitor access and travel times to NPS and Presidio sites in San Francisco would be short-term, moderate to major, adverse impacts.

On weekend event days in 2013, the number of spectators destined to the Marin Headlands and Fort Baker would increase from weekday conditions, but would still be relatively small (between 700 and 2,500 daily spectators). On the 13 peak and medium-high-interest weekend event days (and not on the 11 high-interest weekend event days), vehicular access to Conzelman Road between Alexander Avenue and McCullogh Road would be restricted to emergency and authorized vehicles during peak periods, similar to conditions that currently occur on special event days, such as Fourth of July. The Golden Gate Transit Route 4 would run on peak weekend event days, between the Manzanita park-and-ride facility and San Francisco, and would stop at Conzelman Road in the southbound direction and Vista Point in the northbound direction, and would enhance transit access to the Marin Headlands and Fort Baker. On the 24 weekend event days in 2013, pedestrian and bicycle access

would remain similar to existing conditions, although the number of visitors would increase, and some visitors may experience increased travel times.

Programmatic Access to NPS and Presidio Sites Impact Determination

Overall, on the 24 weekend event days in 2013, the intensity of travel time and access impacts would be most noticeable. In 2013, there would be 13 days with up to 14,450 daily spectators at the NPS and Presidio sites, six days with up to 31,550 daily spectators, and five days with up to 71,500 daily spectators. Therefore, on the 24 weekend event days in 2013, Alternative B impacts on visitor access to NPS and Presidio sites would be short term, moderate to major, adverse impacts. Implementation of **Transportation Protection Measures TRA-1** through **TRA-13** would serve to facilitate access to the NPS and Presidio sites on events days, and would minimize impacts.

4.10.8.7 Cumulative

The transportation impacts described above for Alternative B (i.e., traffic, transit, pedestrians, bicycles, parking, access) are cumulative in nature in that they assess the potential impacts of the AC34 project in combination with conditions that would affect the transportation network in 2012 and 2013. Implementation of the Marin Headlands and Fort Baker and Management Plan (Project Headlands), which includes improvements to 11 miles of roads in the Marin Headlands and Fort Baker and will improve safety and access by all transportation modes, is currently underway and is expected to be completed by the end of 2013. The Alexander Avenue/Danes Drive Intersection Improvement Project, which would correct existing deficiencies and substandard roadway conditions at the Alexander Avenue left turn to Danes Drive is currently under environmental review, and construction of this project would occur sometime after 2014. Therefore, this project was not assumed to be completed in time for AC34 2012 or AC34 2013 events. Construction of the Presidio Parkway (i.e., the replacement for Doyle Drive) is ongoing and would continue throughout the AC34 2012 and AC34 2013 events. The impact analysis presented above reflects the known construction roadway closures that would be in place at the time of the events, including the recent closure of Halleck Street and Marshall Street, and the modifications to the PresidiGo shuttle services.

Therefore, the analysis above represents a cumulative impact analysis for purposes of transportation impacts. In addition, Alternative B would be a temporary event occurring over no more than four months in a two year period after which travel demand associated with AC34 would cease, and travel demand generated by Alternative B would not contribute to travel demand generated by future development that may occur subsequent to the proposed events.

However, since the AC34 events would occur over four months in a two-year period, it is likely that the some AC34 event days would be concurrent with other special events. Annual special events are typical in San Francisco. Generally, special events lead to an increase in parking demand in their vicinity, as event attendees try to park within walking distance of their final destination. Special events also lead to a temporary increase in vehicle trips and a temporary increase in transit demand. Depending on the type of special event, day of week, venue location, number of attendees, and whether increased transit is provided for these events, special events concurrent with AC34 event days

could increase the number of spectators, vehicles, bicyclists, and affect LOS operating conditions over those reported for just AC34 events above.

4.10.8.8 Conclusion

Alternative B would have short-term and temporary transportation impacts ranging from minor adverse to major adverse impacts, varying by event day and the number of spectators traveling to and from the spectator venues and secondary viewing areas. However, overall, potential major adverse impacts would result from the additional travel demand generated by the AC34 events in both 2012 and 2013. **Transportation Protection Measures TRA-1** through **TRA-13** have been identified to manage and reduce the severity of the major adverse impacts, and reduce major impacts at some locations to moderate adverse or minor adverse.

4.10.9 Impacts of Alternative C – No Organized Events on NPS Lands

4.10.9.1 Traffic

Table TRA-41A presents the intersection LOS conditions at the study intersections for Existing plus Alternative C events conditions for the weekday p.m. peak hour, while **Table TRA-41B** presents the intersection LOS for the Saturday midday peak hour.

San Francisco Locations

Under Alternative C, because there would not be any organized events on NPS lands in either 2012 or 2013, the number of spectators destined to Aquatic Park, Fort Baker, Crissy Field and the Presidio would be less than under Alternative B on both weekday and weekend event days.

Under Alternative C, Mason Street would remain open on all event days, except on 11 peak weekend event days in 2013, when access would be restricted, except for emergency vehicles, transit, staff, permitted tenants, and scheduled program participants.

2012 Event Conditions

On the two peak weekday event days in 2012, there would be about 2,900 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park (generating about 279 p.m. peak hour vehicle trips), and substantially fewer spectators on 11 medium-interest and low-interest weekdays. During the weekday p.m. peak hour, intersection delay would be less than under Alternative B, and LOS would generally be LOS D or better. The exceptions would be at the intersections of Mason/Yacht, Marina/Lyon, Lombard/Lyon, and Lombard/Divisadero, which would operate at LOS E or LOS F conditions on the two peak weekday event days. On the 11 medium-interest and low-interest day weekday event days, all study intersections would continue to operate similar to existing conditions.

Under Alternative C, on high-interest weekend days in 2012 (four days with about 6,060 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park generating about 421 Saturday

TABLE TRA-41A: ALTERNATIVE C: NO ORGANIZED EVENTS ON NPS LANDS – INTERSECTION LOS – AC34 2012 AND AC34 2013 – WEEKDAY PM PEAK HOUR

			Existing		AC34 2012		AC34 2013	
#	Intersection		Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS
1	Mason St	Yacht Rd	13.8 (wb)	B	**36.2 (wb)**	**E**	31.7 (wb)	D
2	Marina Blvd	Lyon St	32.6	C	**>80**	**F**	**>80**	**F**
3	Mason St	Enter Crissy Field Parking	14.0 (eb)	B	34.4 (eb)	D	29.8 (eb)	D
4	Mason St	Exit Crissy Field Parking	12.9 (sb)	B	34.4 (sb)	D	29.2 (sb)	D
5	Mason St	Crissy Field Ave East	17.9 (wb)	C	23.1 (wb)	C	22.2 (wb)	C
6	Mason St	Crissy Field Ave West	10.7 (sb)	B	12.7 (sb)	B	12.4 (wb)	B
7	Lincoln Ave	Long Ave (Ft. Pt Rd)	12.3 (sb)	B	12.6 (sb)	B	12.6 (sb)	B
8	Lincoln Ave	25th Ave	14.2 (wb)	B	14.9 (wb)	B	14.8 (wb)	B
9	Lincoln Blvd	Merchant Rd	19.4 (sb)	C	21.6 (sb)	C	21.3 (sb)	C
10	Lincoln Blvd	McDowell Ave	8.8 (eb)	A	9.2 (eb)	A	9.2 (eb)	A
11	Lincoln Blvd	Bowley St – North	23.0 (wb)	C	23.8 (wb)	D	23.7 (wb)	C
12	Lincoln Blvd	Bowley St – South	16.9 (wb)	C	17.3 (wb)	C	17.2 (wb)	C
13	Jackson St	Arguello Blvd	28.1 (sb)	D	31.2 (sb)	D	30.8 (sb)	D
14	Pacific Ave	Presidio Blvd	20.3 (sb)	C	22.0 (sb)	C	21.8 (sb)	C
15	Lombard St	Lyon St	33.6 (eb)	D	**35.2 (eb)**	**E**	**35.2 (eb)**	**E**
16	Lombard St	Divisadero St	36.4	D	**74.9**	**E**	**>80**	**F**
17	Bay St	Laguna St	19.7	B	25.1	C	24.9	C
18	Bay St	Franklin St	10.8	B	10.8	B	11.0	B
19	Bay St	Van Ness Ave	16.4	B	18.4	B	19.2	B
20	Bay St	Hyde St	6.3	A	6.3	A	6.2	A
21	Marina Blvd	Buchanan St	11.2	B	13.2	B	15.1	B
22	Marina Blvd	Cervantes Blvd/Scott St	11.8	B	30.5	C	41.4	D
23	Alexander Ave	U.S. 101 NB ramps	10.9 (wb)	B	11.1 (wb)	B	11.2 (wb)	B
24	Alexander Ave	Danes Dr	12.0 (eb)	B	12.3 (eb)	B	12.3 (eb)	B
25	Alexander Ave	Ft. Baker (East) Rd	10.1 (wb)	B	10.5 (wb)	B	10.5 (wb)	B
26	Conzelman Rd	U.S. 101 entrance	12.9 (eb)	B	13.6 (eb)	B	13.9 (eb)	B
27	Conzelman Rd	McCullough Rd	9.0 (sb)	A	9.1 (sb)	A	9.1 (sb)	A
28	Bunker Rd	Danes Dr	10.1 (sb)	B	10.3 (sb)	B	10.3 (sb)	B

[a] Delay presented in seconds per vehicle. For unsignalized intersections, delay and LOS presented for worst approach. Worst approach indicated by ( ).

[b] Intersections operating at LOS E or LOS F conditions highlighted in bold.

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-41B: ALTERNATIVE C: NO ORGANIZED EVENTS ON NPS LANDS – INTERSECTION LOS – AC34 2012 AND AC34 2013 – SATURDAY MIDDAY PEAK HOUR

					Existing plus Alternative C							
					AC34 2012				AC34 2013			
			Existing		High Interest		Peak		Average		Peak	
#	Intersection		Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS
1	Mason St	Yacht Rd	18.0 (eb)	C	**>50 (eb)**	**F**	**>50 (eb)**	**F**	**>50 (eb)**	**F**	--	N/A
2	Marina Blvd	Lyon St	46.2	D	**>80**	**F**	**>80**	**F**	**>80**	**F**	--	N/A
3	Mason St	Enter Crissy Field Parking	23.8 (eb)	C	**>50 (eb)**	**F**	**>50 (eb)**	**F**	**45.0 (eb)**	**E**	--	N/A
4	Mason St	Exit Crissy Field Parking	15.7 (nb)	C	19.2 (sb)	C	**37.5 (sb)**	**E**	18.5 (sb)	C	--	N/A
5	Mason St	Crissy Field Ave East	27.1 (wb)	D	**>50 (wb)**	**F**	**>50 (wb)**	**F**	**>50 (wb)**	**F**	--	N/A
6	Mason St	Crissy Field Ave West	11.5 (wb)	B	16.0 (wb)	C	26.8 (wb)	D	14.8 (wb)	B	--	N/A
7	Lincoln Ave	Long Ave (Ft. Pt Rd)	14.4 (nb)	B	14.0 (nb)	B	14.4 (nb)	B	13.9 (nb)	B	14.4 (nb)	C
8	Lincoln Ave	25th Ave	18.6 (nb)	C	16.0 (nb)	C	16.9 (nb)	C	15.9 (nb)	C	23.5 (nb)	C
9	Lincoln Blvd	Merchant Rd	31.3 (nb)	D	26.0 (nb)	D	31.1 (nb)	D	25.3 (nb)	D	**>50 (nb)**	**F**
10	Lincoln Blvd	McDowell Ave	10.9 (eb)	B	11.7 (eb)	B	13.0 (eb)	B	11.5 (eb)	B	27.5 (eb)	D
11	Lincoln Blvd	Bowley St – North	27.9 (eb)	D	23.9 (eb)	C	24.7 (eb)	C	23.7 (eb)	C	29.0 (wb)	D
12	Lincoln Blvd	Bowley St – South	18.2 (wb)	C	17.2 (wb)	C	16.8 (wb)	C	16.8 (wb)	C	19.2 (wb)	D
13	Jackson St	Arguello Blvd	13.6 (nb)	B	12.8 (nb)	B	13.3 (nb)	B	12.7 (nb)	B	16.9 (nb)	C
14	Pacific Ave	Presidio Blvd	12.7 (sb)	B	11.9 (nb)	B	12.4 (nb)	B	11.8 (nb)	B	15.1 (sb)	C
15	Lombard St	Lyon St	19.4 (eb)	C	15.8 (eb)	C	16.0 (eb)	C	15.7 (eb)	C	17.2 (eb)	C
16	Lombard St	Divisadero St	14.6	B	45.0	D	**>80**	**F**	**57.6**	**E**	**>80**	**F**
17	Bay St	Laguna St	13.4	B	53.5	D	**63.6**	**E**	43.6	D	**>80**	**F**
18	Bay St	Franklin St	9.5	A	9.3	A	10.8	B	9.3	A	10.6	B
19	Bay St	Van Ness Ave	20.7	C	15.4	B	**>80**	**F**	14.9	B	**>80**	**F**
20	Bay St	Hyde St	7.3	A	7.1	A	6.2	A	7.1	A	6.6	A
21	Marina Blvd	Buchanan St	12.1	B	--	N/A	--	N/A	--	N/A	--	N/A
22	Marina Blvd	Cervantes Blvd/Scott St	11.6	B	>80	F	>80	F	28.7	C	--	N/A
23	Alexander Ave	U.S. 101 NB ramps	**>50 (wb)**	**F**	**>50 (wb)**	**F**	**>50 (wb)**	**F**	**>50 (wb)**	**F**	**>50 (wb)**	**F**
24	Alexander Ave	Danes Dr	21.3 (eb)	B	24.2 (eb)	C	25.9 (eb)	D	24.3 (eb)	C	**>50 (eb)**	**F**
25	Alexander Ave	Ft. Baker (East) Rd	13.9 (wb)	B	15.0 (wb)	B	15.6 (wb)	C	15.1 (wb)	B	21.4 (wb)	C
26	Conzelman Rd	U.S. 101 entrance	17.4 (eb)	C	18.8 (eb)	C	19.8 (eb)	C	18.5 (eb)	C	29.6 (eb)	D
27	Conzelman Rd	McCullough Rd	8.9 (sb)	A	9.0 (sb)	A	9.2 (sb)	A	9.0 (sb)	A	9.8 (sb)	A
28	Bunker Rd	Danes Dr	10.9 (sb)	B	11.0 (sb)	B	11.0 (sb)	B	11.0 (sb)	B	11.2 (sb)	B

[a] Delay presented in seconds per vehicle. For unsignalized intersections, delay and LOS presented for worst approach. Worst approach indicated by ( ).
[b] Intersections operating at LOS E or LOS F conditions highlighted in bold.

SOURCE: Adavant Consulting/LCW Consulting, 2012

midday peak hour vehicle trips), four intersections along Mason Street would operate at LOS F conditions during the Saturday midday peak hour (Mason/Yacht, Mason/Crissy Field Parking Entrance, Mason/Crissy Field Parking Exit, Mason/Crissy Field East). In addition, the intersections of Marina/Lyon and Marina/Cervantes/Scott would operate at LOS F conditions. On peak weekend days (two days with 10,100 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park generating about 701 Saturday midday peak hour vehicle trips), the above six intersections would also operate at LOS F conditions during the Saturday midday peak hour, as would the intersections of Lombard/Divisadero and Bay/Van Ness, and the intersection of Bay/Laguna would operate at LOS E.

2013 Event Conditions

In 2013, on the peak weekday event days (ten days), there would be about 2,600 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park (generating about 250 p.m. peak hour vehicle trips), and substantially fewer on the non-peak weekday event days (50 days). In 2013 the AC Village would move to Pier 27-29, and during the weekday p.m. peak hour, three of the 22 study intersections in San Francisco would operate at LOS E or LOS F (Marina/Lyon, Lombard/Lyon, and Lombard/Divisadero). However, in 2013 there would be more weekday events with higher attendance levels, and therefore, during the weekday p.m. peak hour, these three intersections would operate at LOS E or LOS F on up to 20 event days (10 peak race days, and 10 non-peak race days).

In 2013, on average weekend event days (13 days with about 4,850 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park generating about 337 Saturday midday peak hour vehicle trips), three intersections along Mason Street would operate at LOS E or LOS F conditions during the Saturday midday peak hour (Mason/Yacht, Mason/Crissy Field Parking Entrance, and Mason/Crissy Avenue East). In addition the intersections of Marina/Lyon and Lombard/Divisadero would operate at LOS E or LOS F conditions. On the six high-interest and the five peak weekend event days, the number of spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park would increase, and would range between 9,200 and 24,500 spectators (generating up to 1,701 Saturday midday peak hour vehicle trips). Vehicular access on Mason Street would be restricted to emergency vehicles only, while permitted tenants/visitors, staff, and scheduled program participants could potentially enter via McDowell Avenue and exit eastbound via Mason Street (which would be restricted to one-way, eastbound traffic only). Within the Presidio, the intersection of Lincoln/Merchant would operate at LOS F during the Saturday midday peak hour. To the east of the Presidio, the intersections of Lombard/Divisadero, Bay/Laguna, and Bay/Van Ness would operate at LOS F during the Saturday midday peak hour.

Marin Headlands and Fort Baker Locations

Under Alternative C, because there would not be any organized events on NPS lands, the number of spectators destined to the Marin Headlands and Fort Baker would be less than under Alternative B on both weekday and weekend event days. Due to the lower number of spectators under Alternative C, it is anticipated that access to Conzelman Road would not be restricted on any weekend event days in either 2012 or 2013, however, access could be restricted at peak times (except for emergency vehicles). On peak weekend event days in 2013, access could also be restricted through the Barry-Baker tunnel, except for emergency vehicles, residents, staff and potentially permitted tenants.

2012 Event Conditions

In 2012, up to 200 spectators are estimated to travel to the Marin Headlands and Fort Baker on the 13 weekday event days (generating up to 37 p.m. peak hour vehicle trips), and between 510 and 850 spectators on the six weekend event days (generating between 73 and 110 Saturday midday peak hour vehicle trips). Similar to Alternative B, during the weekday p.m. peak hour, the six study intersections in the Marin Headlands and Fort Baker would continue to operate at LOS C or better on all weekday event days. On weekend event days in 2012, the intersection of Alexander Avenue/U.S. 101 northbound off-ramp would continue to operate at LOS F conditions, as under existing conditions (six days).

2013 Event Conditions

In 2013, up to 250 spectators are estimated to travel to the Marin Headlands and Fort Baker on the 60 weekday (race and non-race) event days (generating up to 49 p.m. peak hour vehicle trips), and between 350 and 1,000 spectators on the 24 weekend event days (generating between 50 and 362 Saturday midday peak hour vehicle trips). During the weekday p.m. peak hour, the six study intersections in the Marin Headlands and Fort Baker would continue to operate at LOS C or better in 2013.

On weekend event days in 2013, the intersection of Alexander Avenue/U.S. 101 northbound off ramp would continue to operate at LOS F conditions, as under existing conditions (24 days). Similar to Alternative B, the intersection of Alexander/Danes would operate at LOS F conditions on the peak weekend and high-interest weekend events in 2013 (11 days).

It should be noted that the *Marin Headlands and Fort Baker Infrastructure and Management Plan* identifies a traffic mitigation measure which involves operating a one-way loop within Fort Baker. Under this configuration, vehicles enter Fort Baker at East Road, and travel on Center Road to Bunker Road, and exit on Danes Drive. This configuration allows for additional parking to be accommodated the northbound lane on East Road, and allows for two-way travel for bicyclists. The one-way loop configuration has been implemented by NPS on high visitor demand days, such as on Independence Day. If determined appropriate, NPS could implement the one-way loop operation within Fort Baker on one or more AC34 peak weekend event days in 2012 or 2013.

Intersection Impact Determination

Table TRA-31, page 4.10-45, presents the impact determinations for each study intersection, and presents a comparison to Alternative B. Alternative C would result in fewer moderate and major impacts than Alternative B.

Under Alternative C, AC34 events in 2012 and 2013 would result in short-term impacts. Under AC34 2012 conditions, Alternative C would result in minor adverse impacts at 18 intersections, moderate adverse impacts at four intersections, and major adverse impacts at six intersections. Under AC34 2013 conditions, Alternative C would result in minor adverse impacts at 17 intersections, moderate adverse impacts at four intersections, and major adverse impacts at seven intersections.

Transportation Protection Measures identified for Alternative B would also be applicable for Alternative C. The various strategies in **Transportation Protection Measure TRA-1** (People Plan for National Park Areas) and **Transportation Protection Measure TRA-2** (People Plan) would serve to manage travel demand during the AC34 events, and to encourage walking, bicycling, and transit for access to the sites. **Transportation Protection Measure TRA-4** (Presidio and NPS Sites Roadway Management Strategies) and **Transportation Protection Measure TRA-5** (Traffic Control Officers at Intersections) would serve to reduce delays associated with the additional vehicle trips generated by the AC34 events by restricting vehicle access to areas with projected high concentrations of pedestrians. Traffic control officers at intersections would facilitate vehicle, bicycle, and pedestrian flows, and would reduce overall delays at intersections. Implementation of transportation protection measures would reduce the intensity of the identified minor, moderate, and major adverse impacts. With implementation of additional restrictions on vehicular access than those considered in the analysis for Mason Street and other roadways in the Presidio **(Transportation Protection Measure TRA-4),** intersections along Mason Street would not experience congested conditions, and impacts would change from major adverse, to moderate adverse impacts.

4.10.9.2 Transit

Table TRA-19 (page 4.10-16) presents the total peak hour transit trips for Alternative C for AC34 2012 and AC34 2013 conditions for the various analysis scenarios. **Table TRA-42A** presents the capacity utilization analysis for the weekday p.m. (outbound from the waterfront) conditions for AC34 2012 and AC34 2013 peak weekday conditions. **Table TRA-42B** presents the Saturday midday (towards the waterfront) analysis for AC34 2012 high-interest weekend and peak weekend days, while **Table TRA-42C** presents the Saturday midday analysis for AC34 2013 conditions for average weekend and peak weekend event days.[15] The analysis includes existing transit service levels plus service increases proposed as part of the People Plan, summarized in **Transportation Protection Measure TRA-2**.

2012 Event Conditions

In 2012, Alternative C would generate a total of 2,300 transit trips during the weekday p.m. peak hour on a peak weekday event day, 8,800 transit trips during the Saturday midday peak hour on a high-interest weekend day, and 14,800 transit trips during the Saturday midday peak hour on a peak weekend day.

On peak weekday event days, the p.m. peak hour capacity utilization at all screenlines would be less than 100 percent (see **Table TRA-42A**). Capacity utilization on all Muni and regional transit screenlines would be less than 100 percent during the p.m. peak hour. The additional capacity provided as part of the September 2011 People Plan would adequately accommodate spectators destined to and from NPS and Presidio sites in San Francisco. Under Alternative C, because transit demand to NPS and Presidio sites would be accommodated on existing and enhanced/augmented Muni routes, the expansion of the shuttle service to downtown would not occur.

[15] The transit ridership and capacity utilization analysis accounts for all AC34 spectators, including those destined to NPS and Presidio sites, to other spectator viewing sites and secondary viewing locations, as well as to existing riders.

TABLE TRA-42A: ALTERNATIVE C: NO ORGANIZED EVENTS ON NPS LANDS – TRANSIT ANALYSIS AC34 2012 AND AC34 2013 – WEEKDAY PM PEAK HOUR

	Existing			Existing Plus Alternative C 2012 Peak			Existing Plus Alternative C 2013 Peak		
Outbound	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
San Francisco									
Presidio/Crissy/Marina	2,891	1,820	63%	3,521	2,823	80%	3,521	2,725	77%
Fisherman's Wharf	4,049	3,309	82%	4,613	3,347	73%	4,613	3,347	73%
East Bay									
BART	24,150	20,067	83%	24,150	20,563	85%	24,150	20,918	87%
AC Transit	4,193	2,517	60%	4,193	2,592	62%	4,193	2,646	63%
Ferries	1,519	702	46%	1,519	727	48%	1,519	744	49%
Total	*29,862*	*23,286*	*78%*	*29,862*	*23,882*	*80%*	*29,862*	*24,309*	*81%*
North Bay									
Buses	2,205	1,397	63%	2,205	1,465	66%	2,205	1,514	69%
Ferries	1,706	906	53%	1,706	955	56%	1,706	991	58%
Total	3,911	2,303	59%	3,911	2,420	62%	3,911	2,504	64%
South Bay									
BART	16,800	10,202	61%	16,800	10,605	63%	16,800	10,893	65%
Caltrain	3,250	1,986	61%	3,250	2,064	64%	3,250	2,120	65%
SamTrans	940	575	61%	940	597	64%	940	613	65%
Total	20,990	12,763	61%	20,990	13,266	63%	20,990	13,626	65%

[a] Existing capacity
[b] Capacity includes Muni and Regional transit provider service enhancements included in Protection Measure TRA-2b. Service enhancements on Muni include increased frequencies on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays, and the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends.
[c] Conditions exceeding 100 percent capacity utilization are highlighted in **bold**

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-42B: ALTERNATIVE C: NO ORGANIZED EVENTS ON NPS LANDS – TRANSIT ANALYSIS AC34 2012 – SATURDAY MIDDAY PEAK HOUR

	Existing			Existing Plus Alternative C High Interest			Existing Plus Alternative C Peak		
Outbound	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
San Francisco									
Presidio/Crissy/Marina	2,738	1,827	67%	**3,872**	**5,417**	**140%**	**3,872**	**7,810**	**202%**
Fisherman's Wharf	3,119	2,339	75%	3,683	2,465	67%	3,683	2,549	69%
East Bay									
BART	8,064	3,900	48%	**16,128**	**5,775**	**36%**	**16,128**	**7,046**	**44%**
AC Transit	200	117	56%	464	**177**	**38%**	**464**	**208**	**45%**
Ferries	688	560	81%	1,464	**753**	**51%**	**1,464**	**878**	**60%**
Total	*8,952*	*4,577*	*51%*	*18,056*	*6,704*	*37%*	*18,056*	*8,131*	*45%*
North Bay									
Buses	205	62	30%	509	**196**	**38%**	509	**289**	**57%**
Ferries	2,580	691	27%	3,380	**1,657**	**49%**	3,380	**2,304**	**68%**
Total	*2,785*	*753*	*27%*	*3,389*	*1,853*	*48%*	*3,389*	*2,593*	*67%*
South Bay									
BART	8,547	2,340	27%	17,094	4,201	25%	17,094	5,464	32%
Caltrain	650	543	84%	1,300	**718**	**55%**	1,300	839	65%
SamTrans	40	32	80%	480	**76**	**16%**	480	114	24%
Total	*9,237*	*2,915*	*32%*	*18,874*	*4,994*	*26%*	*18,874*	*6,417*	*34%*

[a] Existing capacity
[b] Capacity includes Muni and Regional transit provider service enhancements included in the People Plan (i.e., Protection Measure TRA-2b). Service enhancements on Muni include increased frequencies on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays, and the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends.
[c] Conditions exceeding 100 percent capacity utilization are highlighted in **bold**

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-42C: ALTERNATIVE C: NO ORGANIZED EVENTS ON NPS LANDS – TRANSIT ANALYSIS AC34 2013 – SATURDAY MIDDAY PEAK HOUR

	Existing			Existing Plus Alternative C High Interest			Existing Plus Alternative C Peak		
Outbound	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
San Francisco									
Presidio/Crissy/Marina	2,738	1,827	67%	3,872	2,657	69%	**3,872**	**9,685**	**250%**
Fisherman's Wharf	3,119	2,339	75%	3,683	2,365	64%	3,683	2,758	75%
East Bay									
BART	8,064	3,900	48%	16,128	4,532	28%	16,128	11,441	71%
AC Transit	200	117	56%	464	135	29%	464	340	73%
Ferries	688	560	81%	1,464	624	43%	1,464	1,317	90%
Total	*8,952*	*4,577*	*51%*	*18,056*	*5,291*	*29%*	*18,056*	*13,097*	*73%*
North Bay									
Buses	205	62	30%	509	107	21%	509	604	119%
Ferries	2,580	691	27%	3,380	1,015	30%	3,380	4,558	135%
Total	*2,785*	*753*	*27%*	*3,389*	*1,123*	*29%*	***3,389***	***5,162***	***133%***
South Bay									
BART	8,547	2,340	27%	17,094	2,968	17%	17,094	9,829	57%
Caltrain	650	543	84%	1,300	603	46%	1,300	1,257	97%
SamTrans	40	32	80%	480	48	10%	480	236	49%
Total	*9,237*	*2,915*	*32%*	*18,874*	*3,618*	*19%*	*18,874*	*11,332*	*60%*

[a] Existing capacity
[b] Capacity includes Muni and Regional transit provider service enhancements included in the People Plan (i.e., Protection Measure TRA-2b). Service enhancements on Muni include increased frequencies on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays, and the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends.
[c] Conditions exceeding 100 percent capacity utilization are highlighted in **bold**

SOURCE: Adavant Consulting/LCW Consulting, 2012

Table TRA-42B presents the weekend capacity utilization for the Saturday midday peak hour for conditions assuming additional Muni and regional transit service as included in the People Plan (i.e., **Transportation Protection Measure TRA-2**). On high-interest and peak weekend days in 2012, even with the enhanced/augmented service on Muni routes, the Saturday midday peak hour capacity utilization of the Presidio/Crissy/Marina screenline would exceed 100 percent. As presented in **Table TRA-43**, with the additional capacity provided by augmented 22S-Fillmore Short, 28S-19th Avenue Short, and the 43L-Masonic Limited (as described in **Transportation Protection Measure TRA-6**), as well as the expanded downtown shuttle service on weekends (as described in **Transportation Protection Measure TRA-7**), peak hour capacity utilization would decrease, but would still exceed 100 percent. The Saturday midday peak hour shortfall would range between 170 and 2,600 passengers per hour (see **Table TRA-43**). Faced with this shortfall passengers would need to wait for one or more buses before being able to board, some passengers may decide to take an alternate, less convenient bus, some passengers may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days.

TABLE TRA-43: ALTERNATIVE C: NO ORGANIZED EVENTS ON NPS LANDS – TRANSIT ANALYSIS AC34 2012 AND AC34 2013 – SATURDAY MIDDAY HOUR – PRESIDIO/CRISSY FIELD/MARINA SCREENLINE WITH IMPLEMENTATION OF PROTECTION MEASURES TRA-6 AND TRA-7

	Existing plus AC34 with Protection Measure TRA-2b			Existing plus AC34 with Protection Measures TRA-2b, TRA-6 and TRA-7		
	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
2012						
High Interest	3,872	5,417	140%	5,246	5,417	103%
Peak Race Day	3,872	7,810	202%	5,246	7,810	149%
2013						
Peak Race Day	3,872	9,685	250%	5,246	9,685	185%

[a] Capacity includes additional Muni service as described in the People Plan (see **Transportation Protection Measure TRA-2b**).
[b] Capacity includes augmented Muni service and expanded downtown shuttle service as included **in Transportation Protection Measure TRA-2b, TRA-6 and TRA-7.**

SOURCE: Adavant Consulting/LCW Consulting, 2012

In order to accommodate the additional Saturday midday demand at 100 percent capacity utilization, between two and three additional buses per hour would need to be provided (depending on whether 63 or 94 passenger buses are used) on high-interest weekend days, and between 28 and 41 additional buses per hour on the peak weekend days. SFMTA has indicted that additional transit service beyond what is identified in **Transportation Protection Measure TRA-6** is not feasible.

The AC34 2012 events would generate a substantial number of transit trips destined to the Presidio, Crissy Field, and the Marina Green (where the AC34 Village would be located), particularly on weekend days. While shuttle routes within to downtown would be expanded on weekends (see

Transportation Protection Measure TRA-7), the additional demand associated with the AC34 2012 events would result in the PresidiGo shuttle service exceeding their capacity, which would result in a short-term, major, adverse impact to the PresidiGo shuttle service.

As described in ***Section 3.14,Transportation and Circulation***, transit service to the Marin Headlands and Fort Baker is extremely limited, and includes the Muni 76-Marin Headlands on Sundays and holidays, and the Golden Gate Transit Route 10 on weekdays which does not directly serve Fort Baker or the Marin Headlands. On AC34 weekday and weekend event days, very limited number of spectators would be anticipated to access Marin Headlands, Fort Baker/Cavallo Point by transit and impacts on these lines would be short-term, minor, adverse impacts. Implementation of **Transportation Protection Measure TRA-8**, under which the augmented Golden Gate Transit bus service included in the People Plan would stop at Conzelman Road in the southbound direction and at Vista Point in the northbound direction, would enhance public transit access to the Fort Baker and Marin Headlands area on peak weekend event days.

2013 Event Conditions

In 2013, Alternative C would generate about 3,900 transit trips during the weekday p.m. peak hour on a peak weekday event day, 11,900 transit trips during the Saturday midday peak hour on a high-interest weekend day, and 35,500 transit trips during the Saturday midday peak hour on a peak weekend day.

On peak weekday event days, the capacity utilization at all Muni and regional transit screenlines would be less than 100 percent (see **Table TRA-42A**). The additional capacity provided as part of the September 2011 People Plan would accommodate spectators destined to and from NPS and Presidio sites in San Francisco.

During the Saturday midday peak hour, the capacity utilization of the Presidio/Crissy/Marina screenline would exceed 100 percent on the peak weekend days (see **Table TRA-42C**). The Saturday midday peak hour shortfall would be about 5,800 passengers per hour. In order to accommodate the additional Saturday midday demand at 100 percent capacity utilization, between 48 and 71 additional buses per hour would need to be provided (depending on whether 63 or 94 passenger buses are used) on peak weekend days. Faced with a shortfall in transit capacity passengers would need to wait for one or more buses before being able to board, some passengers may decide to take an alternate, less convenient bus, some passengers may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days.

As indicated on **Table TRA-43,** the additional Muni service provided as part of **Transportation Protection Measure TRA-6**, and the expanded downtown shuttle service provided as part of **Transportation Protection Measure TRA-7**, would increase capacity for trips destined to and from the Presidio and Crissy Field. Capacity utilization at the Presidio/Crissy/Marina screenline would decrease from 250 percent to 185 percent utilization.

On peak weekends, the capacity utilization of the North Bay screenline would exceed 100 percent for both buses and ferries, and a greater increase in transit service enhancements in the form of increased frequencies or additional routes would be required. As noted above, implementation of

Transportation Protection Measure TRA-8 would provide public transit service between the Fort Baker/Marin Headlands area and the Manzanita park-and-ride facility on peak weekend event days>

Similar to conditions described above for AC34 2012, the additional demand associated with the AC34 2013 events would result in the PresidiGo Crissy Field shuttle route exceeding their capacity, which would result in a short-term, major, adverse impact to the PresidiGo shuttle service. On weekday and weekend event days in 2013, very limited number of spectators would be anticipated to access Marin Headlands, Fort Baker/Cavallo Point by transit, and impacts on these lines would be short-term, minor, adverse impacts.

Transit Impact Determination

Table TRA-34, page 4.10-53, presents the impact determinations for transit impacts based on the number of times per month that transit capacity utilization exceeds 100 percent. On six of the 19 event days in 2012, the capacity utilization of the Presidio/Crissy Field/Marina screenline would exceed 100 percent capacity utilization. Capacity utilization of other Muni screenlines would be less than 100 percent, and the regional service provider East Bay, North Bay and South Bay screenlines would be less than 85 percent capacity utilization on all event days in 2012. Because the capacity utilization of the Presidio/Crissy Field/Marina screenline would exceed 100 percent for more than three event days per month (i.e., four days in August), similar to Alternative B, in 2012 Alternative C would result in short-term, major, adverse impacts to transit service, although the magnitude of the major, adverse impact would be less than for Alternative B due to lower transit demand associated with Alternative C.

On 11 of the 84 event days in 2013, the capacity utilization of the Presidio/Crissy Field/Marina screenline would exceed 100 percent capacity utilization, and the regional service provider North Bay screenlines would be more than 100 percent capacity utilization for the same 11 event days. Because the capacity utilization of the Presidio/Crissy Field/Marina screenline and North Bay screenline would exceed 100 percent for more than three event days per month (four days in August, and six days in September), similar to Alternative B, in 2013 Alternative C would result in short-term, major, adverse impacts to transit service, although the magnitude of the major, adverse impact would be less than for Alternative B due to lower transit demand associated with Alternative C.

For both AC34 2012 and AC34 2013 conditions, the following transportation enhancement measures are identified to lessen the severity of this potential major adverse impact, but these temporary impacts would remain major or moderate adverse impacts.

Under Alternative C, **Transportation Protection Measure TRA-6** would provide additional service on the three Muni bus routes that most directly serve the NPS and Presidio sites. Additional peak period service would provide additional capacity which would minimize the adverse impacts in 2012 on high-interest and peak weekend days, and in 2013 on peak weekend days. Due to the substantial shortfall of up to 4,439 riders per hour during the Saturday midday peak hour, adequate Muni resources may not be available to accommodate the shortfall completely and additional transportation protection measures would need to be implemented to minimize the impact.

Under Alternative C, **Transportation Protection Measure TRA-7** would increase shuttle service between the Presidio and downtown San Francisco on weekends. Downtown shuttle service at ten-minute headways between buses would accommodate between 200 and 300 passengers per hour.

Under Alternative C, **Transportation Protection Measure TRA-8** would provide stops on the augmented Golden Gate Transit Route 4 Short line, which on peak weekend event days during AC34 2012 and 2013 would run between the Manzanita park-and-ride lot (at the U.S. 101/Highway 1 interchange) and San Francisco. The Golden Gate Transit Route 4 line would stop at Conzelman Road in the southbound direction, and at Vista Point in the northbound direction, in order to serve the Fort Baker and Marin Headlands area.

Transportation Protection Measure TRA-3 would include the preparation of a Public Information Program to facilitate access to and from venues and spectator viewing area by all modes. Implementation of the Public Information Program is anticipated to alert the public to the possibilities of delays as a result of the AC34 events. **Transportation Protection Measure TRA-2** also includes a Traffic Monitoring and Management Program which would implement measures so that crowds associated with event activities do not impede transit operations, so as to ensure that additional capacity on peak event days are provided.

4.10.9.3 Pedestrians

Under Alternative C, the number of spectators destined to NPS and Presidio sites on AC34 event days would be substantially lower than under Alternative B (see **Table TRA-17A**, page 4.10-12). For example, in 2012, on peak weekend days the number of daily spectators at the NPS and Presidio sites under Alternative C would be about 39 percent of those estimated for Alternative B, while in 2013 on peak weekend days, the number of daily spectators under Alternative C would be about 36 percent of Alternative B.

Table TRA-44 summarizes the results of the LOS conditions at the walkway and PAOT locations for Alternative C. Supporting detailed technical information is included in **Appendix I**. In general, the number of locations and event days at the study locations that would be LOS D or worse would be fewer than under Alternative B. At most walkway locations, conditions would be LOS C or better on most event days. The exception would be on the five peak weekend event days in 2013 where LOS conditions at a number of locations would be LOS D. In addition, conditions at the Fort Mason pinch point would be LOS E or worse on all 2012 and 2013 weekend event days. PAOT conditions would be LOS C or better on most event days, with the exception of peak weekend event days in 2012 at Fort Mason and Crissy Field East, and in 2013 at Fort Mason, Crissy Field East, Crissy Field Picnic Promenade near Picnic Area, Fort Point, Battery Spencer, and the Golden Gate Bridge Toll Plaza Overlook, which would have LOS D to LOS E conditions.

2012 Event Conditions

Under Alternative C, in 2012, a total of about 3,100 daily spectators are anticipated on the two peak weekday event days, 6,570 daily spectators on the four high-interest weekend event days, and about 10,950 daily spectators on the two peak weekend event days are estimated to travel to the NPS and

TABLE TRA-44: ALTERNATIVE C: NO ORGANIZED EVENTS ON NPS LANDS WALKWAY AND PAOT LOS – AC34 2012 AND AC34 2013

Analysis Location			AC34 2012			AC34 2013		
			Peak Wkday	High Wkend	Peak Wkend	Peak Wkday	Avg Wkend	Peak Wkend
Walkway Analysis Locations								
1	Aquatic Park	Jefferson St NE entry into Aquatic Park	B	C	**C**	B	C	**D/C**
2	Aquatic Park	Promenade at Bath House	C	C	C	C	C	C
3	Aquatic Park	Promenade at west end of Aquatic Park	C	C	C	C	C	C
4	Fort Mason	Promenade at east end of Fort Mason	B	B	C	B	C	C
5	Fort Mason	Fort Mason Pinch Point on Laguna St	C	**E/D**	**F/D**	C	**E /D**	**F/D**
6	Crissy Field E.	Class I Multi-use Trail	A	C	C	B	B	**D/C**
7	Crissy Field E.	Waterfront Entry	A	B	B	A	B	C
8	Crissy Field E.	Promenade at Wetlands	A	B	B	A	B	C
9	Crissy Field W.	East End of Airfield	A	B	B	A	B	C
10	Crissy Field W.	West End of Airfield	A	B	B	A	B	C
11	Crissy Field W.	Picnic Promenade - East of Picnic Area	A	B	B	A	B	C
12	Crissy Field W.	Picnic Promenade – near Warming Hut	A	B	B	A	B	B
13	Fort Point	Marine Drive to Fort Point	B	C	C	B	C	C
14	Presidio - Other	Crissy/Mason/McDowell Intersection	C	**D/C**	**D/D**	C	C	**D/C**
15	Presidio - Other	Long Ave/Lincoln Blvd Intersection	B	B	C	B	B	**D/C**
16	Presidio - Other	Coastal Trail on West Side of Bridge	B	B	B	B	B	B
17	Presidio - Other	Coastal Trail on East Side of Bridge	B	C	C	B	C	C
18	Marin Headlands	Battery Spencer Main Walkways	A	B	B	A	A	B
19	Fort Baker	Center Road	B	B	C	B	B	C
20	Fort Baker	Moore Road	B	B	C	B	B	C
21	Fort Baker	Sommerville Road	A	B	B	A	B	C
PAOT Analysis Sites								
1	Aquatic Park		B	B	B	B	B	**C**
2	Fort Mason		B	**E**	**E**	B	C	**E**
3	Crissy Field East		B	C	**D**	B	C	**E**
4	Crissy Field West		A	B	C	A	B	C
5	Crissy Field West Picnic Area		A	C	C	A	B	**D**
6	Fort Point		A	C	C	A	C	**D**
7	Golden Gate Bridge Toll Plaza Overlook		B	C	C	B	C	**D**
8	Marin Headlands - Battery Spencer		A	C	C	C	C	**D**
9	Fort Baker		B	C	C	B	C	**C**

[a] LOS represents conditions during the peak hour of the day for each location, which may vary by location. Typically, the peak walkway period would be between noon and 2:00 p.m., and the peak PAOT would occur between 1:00 and 4:00 p.m.

[b] Walkway analysis locations or PAOT sites operating at LOS D, LOS E or LOS F conditions highlighted in **bold**.

SOURCE: ORCA Consulting LLC, 2012

Presidio sites (see **Table TRA-17A**, page 4.10-12).[16] Travel conditions in the vicinity of NPS and Presidio sites in San Francisco would also be affected by spectators at the Marina Green. In 2012, the AC Village would be located at the Marina Green and about 11,000 daily spectators are anticipated on peak weekdays, 30,000 daily spectators on high-interest weekend days, and about 50,000 daily spectators on peak weekend days.

Table TRA-44 presents the level of service at the 21 walkway locations and nine PAOT locations for three of the five AC34 2012 spectator profile days. The walkway LOS is presented for conditions without implementation of visitor use management strategies, and at locations projected to operate at LOS D, LOS E, or LOS F conditions, the LOS is also presented for conditions when bicyclists are required to dismount and walk their bicycles. Additional visitor use management strategies would further improve the walkway operating conditions. At locations where PAOT LOS is worse than LOS C conditions, crowd management strategies that would be implemented would include closing off of the spectator viewing areas when visitor saturation is reached, requiring reservations for access to the viewing areas at peak times, providing real-time information to spectators regarding crowd levels at the viewing areas and alternate locations.

Aquatic Park – Walkway conditions in the vicinity of Aquatic Park would generally be adequate on all event days in 2012. The PAOT LOS at Aquatic Park would be LOS B or better on all event days in 2012.

Fort Mason – In 2012, walkway conditions on the Bay Trail at the east end of Fort Mason would be LOS B or better on all AC34 2012 event days. However, the increase in visitor trips to Fort Mason and the Marina at the Fort Mason pinch point at Laguna Street would result in LOS E to LOS F conditions on the six weekend event days. As indicated in **Table TRA-44,** requiring bicyclists to dismount and walk their bicycles at this location would not be adequate to substantially reduce impacts, and additional measures would be required. **Transportation Protection Measure TRA-10** includes the provision of temporary bicycle lanes within the parking lane of Bay Street and Cervantes Street, which would provide a dedicated bicycle area around most of Fort Mason and would remove a substantial number of bicyclists from sharing the walkway with pedestrians, resulting in improved walkway LOS conditions. The PAOT LOS at Fort Mason would be LOS E on the six peak weekend event days, and LOS B or better on the other 13 event days in 2012.

Crissy Field East and West – Walkway conditions at the seven analysis locations in Crissy Field would be LOS C or better on all event days in 2012. The PAOT LOS at the three Crissy Field locations would be LOS C on all event days in 2012, with the exception of Crissy Field East, which would have walkway conditions of LOS D on the two peak weekend event days.

Fort Point – Walkway and PAOT LOS in Fort Point would be LOS C or better on all event days in 2012.

Other Presidio Locations – Walkway conditions at key intersections and along the Coastal Trail at the Golden Gate Bridge would generally be LOS C or better on all event days in 2012. The exception would be the sidewalks at the intersection of Mason/Crissy/McDowell, which would be LOS D on the

[16] The AC34 2012 events would also include seven medium-interest weekday event days and 4 low-interest weekday event days, for a total of 19 event days. See **Table TRA-15**.

six peak weekend event days. The PAOT LOS at the Golden Gate Bridge Toll Plaza Overlook would also be LOS C or better on all event days in 2012.

Marin Headlands and Fort Baker – Under Alternative C, the number of spectators projected to travel to the Marin Headlands and Fort Baker would range between 200 spectators on peak weekdays, and between 510 and 850 spectators on weekends, with the majority of spectators destined to Fort Baker and Cavallo Point. Walkway and PAOT LOS at Battery Spencer and Fort Baker would LOS C or better on all event days.

2013 Event Conditions

Under Alternative C, the overall number of spectators projected to attend the AC34 2013 events would increase overAC34 2012 conditions, and the total number of race and non-race days would increase from 19 days in 2012, to 84 days in 2013 (45 race and 40 non-race days). In 2013, the AC34 Village would be located at Piers 27-29 on The Embarcadero, rather than at the Marina Green.

As under Alternative B, in anticipation of the large increase in visitors to the NPS and Presidio sites on the five weekend days in 2013, vehicular traffic on Mason Street between Lyon Street and the Warming Hut would be restricted to emergency vehicles, permitted tenants, and PresidiGo shuttle service. In addition, vehicular access would be restricted on streets connecting with Mason Street, as well as on streets north of Chestnut Street and Bay Street. [17] Restrictions to vehicular access are not anticipated for weekday event days.

As presented in **Table TRA-17A**, page 4.10-12, for the analysis area including Crissy Field and the Presidio, the Marina Green and Fort Mason, and Aquatic Park, a total of about 2,600 daily spectators are anticipated on a peak weekday (ten days), 4,850 daily spectators on an average weekend day (13 days), and about 27,000 daily spectators on a peak weekend day (five days). [18] Under Alternative C, the number of daily spectators at the Marina Green is estimated to be similar to Alternative B (about 10,000 daily spectators are anticipated on peak weekdays, 28,000 daily spectators on high-interest weekend days, and 55,000 daily visitors on peak weekend days). While the number of spectators projected for the NPS and Presidio areas on weekdays would be similar to conditions during 2012, the number of spectators on peak weekends would increase substantially (i.e., from 10,950 daily spectators in 2012, to 25,500 daily spectators in 2013).

Aquatic Park – Walkway conditions in the vicinity of Aquatic Park would be LOS D on five of the 84 event days (weekend days) at the analysis location on the east side of Aquatic Park at Jefferson Street. Conditions on the Promenade at the west end of Aquatic Park and at the Bath House would be LOS C or better on all event days in 2013. The PAOT LOS at Aquatic Park would be LOS C or better on all event days in 2013.

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[17] The area north of Bay Street between The Embarcadero and Fillmore Street, and north of Chestnut Street between Fillmore Street and Lyon Street is proposed for restricted access on peak weekend days. Residents, authorized vehicles (e.g., business deliveries, transit vehicles, event staff), and emergency response vehicles would continue to have access into and within the restricted access area; parking would be strictly enforced.

[18] In addition to the 28 event days noted above, the AC34 2013 events would also include six medium-interest weekend event days, ten non-peak weekday race days, and 40 non-race days, for a total of 84 event days. See **Table TRA-15A**.

Fort Mason – Under Alternative C, walkway conditions on the Bay Trail at the east end of Fort Mason would be LOS C or better on all event days in 2013. However, the increase in visitor trips to Fort Mason and the Marina at the Fort Mason pinch point at Laguna Street would result in LOS E or LOS F conditions on all weekend event days in 2013 (conditions on weekdays would be LOS C or better). As indicated in **Table TRA-44**, requiring bicyclists to dismount and walk their bicycles at this location would not be adequate to reduce impacts, and additional measures would be required. **Transportation Protection Measure TRA-10** includes the provision of temporary bicycle lanes within the parking lane of Bay Street and Cervantes Street, which would provide a dedicated bicycle area around most of Fort Mason and would remove a substantial number of bicyclists from sharing the walkway with pedestrians, resulting in improved walkway LOS conditions. The PAOT LOS at Fort Mason would be LOS D or LOS E on 11 weekend event days, and LOS C or better on the other 73 event days in 2013.

Crissy Field East and West – The walkway location at the Class I multi-use trail on the east side of Crissy Field would operate at LOS D on the five peak weekend event days, and LOS C or better on the remaining 79 event days. All other Crissy Field locations would operate at LOS C or better on all 84 event days. On the 11 peak weekend event days, vehicular traffic would be restricted on Mason Street, and it is anticipated that bicyclists would be directed to travel within the bicycle lane on Mason Street, and the Class I multi-use trail would be for pedestrians only.

The PAOT LOS at the Crissy Field East and Crissy West Picnic Area would be LOS D on five weekend event days, and LOS C or better on the other 79 event days. The PAOT at Crissy Field West would be LOS C or better on all event days in 2013.

Fort Point – Walkway conditions in on Marine Drive at Fort Point would be LOS C or better on all event days in 2013. The PAOT LOS at Fort Point would be LOS D on the five peak weekend days, and LOS C or better on the other 79 event days.

Other Presidio Locations – Walkway conditions at key intersections and along the Coastal Trail at the Golden Gate Bridge would generally be adequate on all event days. The exception would be the intersection of Mason/Crissy/Mc Dowell, where the walkway conditions would be LOS D on the 11 peak weekday event days, and also the intersection of Long/Lincoln, which would be LOS D on five peak weekend event days. The PAOT LOS at the Golden Gate Bridge Toll Plaza Overlook would be LOS D on the five peak weekend event days, and LOS C or better on the other 79 event days. With implementation of **Transportation Protection Measure TRA-9**, impacts on pedestrians related to crowding would be reduced.

Marin Headlands and Fort Baker – The number of spectators projected to travel to the Marin Headlands and Fort Baker would range between 250 spectators on peak weekdays, and between 350 and 1,000 spectators on weekends, with the majority of spectators destined to Fort Baker and Cavallo Point. Walkway LOS at Battery Spencer and Fort Baker would be LOS C or better on all event days in 2013. PAOT LOS at Fort Baker would be LOS C or better on all event days in 2013, however, the PAOT LOS at Battery Spener would be LOS D for 11 weekend event days.

Pedestrian Impact Determination

In addition to the LOS summary in **Table TRA-44**, the percentage increase in pedestrian flows and PAOT volumes used in the pedestrian impact determination are summarized in **Appendix I**. As shown in the appendix, under Alternative C, pedestrian flow volumes would increase over existing conditions, and would remain at less than a 50 percent increase on walkways on most event days, except for peak weekend event days in 2012 and 2013. PAOT pedestrian volume increases would be more than 100 percent over existing conditions on most event days in 2012 and 2013 at Aquatic Park, Fort Mason, Crissy Field East, and Crissy Field West.

Due to the combination of increased pedestrian flows, frequency of LOS D or worse conditions at the study locations, and the need to implement visitor use management strategies on more than 15 percent of event days, Alternative C would result in short term, moderate to major, adverse impacts on pedestrians at NPS and Presidio sites in San Francisco. At the Marin Headlands and Fort Baker sites, Alternative C would result in short-term, minor, adverse impacts.

The impact determination for the various walkway locations is presented in **Table TRA-36**. Under AC34 2012 conditions, Alternative C would result in minor adverse impacts at 22 of the 30 analysis locations, moderate adverse impacts at one location, and major adverse impacts at seven locations. Under AC34 2013 conditions, Alternative C would result in minor adverse impacts at 13 of the 30 analysis locations, moderate adverse impacts at 13 locations, and major adverse impacts at four locations.

As indicated on **Table TRA-37**, requiring bicyclists to walk their bicycle through congested locations would improve conditions at a number of locations for many of the event days, and would change the overall impact determination at three locations in 2013. Additional visitor use management strategies measures would lessen the level and intensity of adverse impacts.

As described for Alternative B, as part of **Transportation Protection Measure TRA-9**, crowd management strategies would be employed at the NPS and Presidio sites, including the redirection of crowds, closures when capacity is reached, separation of bicycles and pedestrians, and dedication of temporary bicycle lanes (**Transportation Protection Measure TRA-10**). With implementation of these crowd management strategies, Alternative C impacts on pedestrians related to crowding would be reduced.

4.10.9.4 Bicycles

Under Alternative C, for both AC34 2012 and AC34 2013 conditions, bicycle access to NPS and Presidio sites would remain relatively unchanged from existing conditions. However, on weekend event days, the increase in spectators traveling to and from the waterfront between Aquatic Park and Crissy Field would result in an increase in the potential for bicycle-vehicle and pedestrian-bicycle conflicts in the area. Because under Alternative C there would be fewer spectators at the NPS and Presidio sites than under Alternative B, the potential for conflicts would be less than under Alternative B.

Under Alternative C, due to the large number of pedestrians and bicyclists that would pass through the Fort Mason pinch point on Laguna Street, operating conditions during weekend event days in 2012 and 2013 would be LOS E to LOS F. Requiring bicyclists to walk their bicycle through this area would improve conditions, however, on high attendance weekend days, the walkway LOS conditions would remain LOS D. On peak weekend event days, **Transportation Protection Measure TRA-10** would create a temporary bicycle lane on portions of Bay Street and Cervantes Street by restricting on-street parking. The temporary curb bicycle lane would provide an exclusive lane for bicyclists traveling westbound, and would reduce the number of bicyclists at the Laguna Street pinch point, and would allow for a continuous bicycle lane between The Embarcadero and Crissy Field (while also providing access to SAFR and Fort Mason).

The northeast entry to Aquatic Park at Jefferson Street is projected to operate at LOS D conditions on the five peak weekend event days in 2013. To minimize the potential for bicycle-pedestrian conflicts, an alternate bicycle route would be provided that would direct bicyclists traveling westbound to the bicycle lane on North Point Street. At Van Ness Avenue, a temporary bicycle lane would be provided along the west curb of Van Ness Avenue between North Point Street and Bay Street, which would connect with the temporary bicycle lane on Bay Street, as described above.

As indicated in **Table TRA-44**, walkway conditions along the Crissy Field Promenade would generally be LOS C or better, with the exception of one location during the five peak weekend event days in 2013. Requiring bicyclists to walk their bicycle through these areas would improve conditions to LOS C.

For those spectators arriving by bicycle, temporary valet bicycle stations (e.g., similar to the service operated at AT&T Park for San Francisco Giants games) would be provided to meet the projected demand identified in **Table TRA-28**, page 4.10-32 (see **Transportation Protection Measure TRA-11**). Under Alternative C, the AC34 2012 events would generate the need for up to 560 bicycle parking spaces on weekdays and up to 1,640 bicycle parking spaces on weekends on the NPS sites. The AC34 2013 events would generate the need for up to 430 bicycle parking spaces on weekdays and up to 2,450 bicycle parking spaces on weekends. Because the NPS sites currently provide about 430 spaces (see **Table TRA-5**, in Section 3.14), the majority of the AC34 event-related parking demand would be accommodated in temporary valet stations. The bicycle parking stations would be secure and conveniently located.

Bicycle Impact Determination

Under Alternative C, on up to five weekend days in 2013, bicycle access would become more difficult at some locations due to heavier pedestrian and bicycle volumes and would lead to changed patterns in bicycle circulation. Therefore, Alternative C would result in short-term, major adverse, impacts to bicyclists. **Transportation Protection Measures TRA-9** (visitor use management strategies), **TR-9** (Temporary Bicycle Lanes), and **TRA-10** (Temporary Bicycle Parking) would serve to minimize the potential for bicycle conflicts with pedestrians and vehicles, and ensure that adequate bicycle supply is provided, and would lessen the severity of the impact.

4.10.9.5 Parking

Table TRA-45 presents the parking demand for Alternative C for the weekday and weekend event days analyzed for 2012 and 2013 conditions within the NPS sites defined on **Figures TRA-6A** and **TRA-6B**, while **Table TRA-46** presents the projected parking deficits for each scenario in **Table TRA-45**.

TABLE TRA-45: ALTERNATIVE C: NO ORGANIZED EVENTS ON NPS LANDS –PARKING DEMAND (NUMBER OF SPACES) NEAR NPS SITES – AC34 2012 AND AC34 2013

	AC34 2012[a]			AC34 2013[a]		
Study Area	Peak Weekday	High Interest Weekend	Peak Weekend	Peak Weekday	Average Weekend	Peak Weekend
Presidio and Crissy Field	279	299	497	243	259	1,400
Fort Mason	13	42	70	13	11	35
Aquatic Park	61	84	140	61	70	280
Subtotal Federal Land Locations in SF	*353*	*425*	*707*	*317*	*340*	*1,715*
Alcatraz Island[a]	0	0	0	0	0	0
Marin Headlands (Conzelman Rd)	24	42	69	36	28	69
Fort Baker/Cavallo Pt.	24	29	49	24	21	69
Subtotal Federal Land Locations outside SF	*48*	*71*	*118*	*60*	*49*	*138*
Total all Federal Land Locations [b]	**401**	**496**	**825**	**377**	**389**	**1,853**

[a] Parking demand associated with Alcatraz Island has been assigned to Northeast Embarcadero
[b] Column totals might not add up due to rounding

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-46: ALTERNATIVE C: NO ORGANIZED EVENTS ON NPS LANDS – VEHICLE PARKING DEFICITS (NUMBER OF SPACES) AND UTILIZED NEAR NPS SITES – AC34 2012 AND AC34 2013

	Existing Utilization		AC34 2012[a]			AC34 2013[a]		
Study Area	Weekday	Weekend	Peak Weekday	High Interest Weekend	Peak Weekend	Peak Weekday	Average Weekend	Peak Weekend
Presidio and Crissy Field	72%	78%	120 106%	140 107%	340 117%	80 104%	100 105%	1,240 161%
Aquatic Park	83%	88%	No deficit	No deficit	60 108%	No deficit	No deficit	200 127%
Conzelman Rd. and Fort Baker	80% [a]	80% [a]	No deficit	No deficit	24 [b] 105%	No deficit	No deficit	44 [b] 109%

[a] Estimated value.
[b] Temporary overflow parking can be made available at Fort Baker along East Road (see Protection Measure TRA-4) to accommodate this deficit

SOURCE: Adavant Consulting/LCW Consulting, 2012

Under Alternative C, it is anticipated that a portion of the increased parking demand associated with AC34 2012 and AC34 2013 events would be accommodated on-street in the vicinity of the Presidio and NPS sites in San Francisco. While residential streets in the vicinity of the Presidio and NPS sites are currently subject to RPP parking restrictions, on peak weekend event days, it is possible that even with the RPP restrictions, residents arriving to these areas after drivers have started arriving for the AC34 events would have difficulty parking.

Because there would not be any organized events on NPS lands under Alternative C, the parking demand at the NPS sites would be less than under Alternative B. The transportation protection measures identified in section 4.10.12 would serve to enhance and encourage access to the waterfront by transit, walking, and bicycling, while discouraging access by private auto. These measures, combined with implementation of measures directed at managing the parking supply (such as **Transportation Protection Measure TRA-12** which includes the development of a parking management plan for parking within NPS sites, **Transportation Protection Measure TRA-3** which would encourage use of other modes of transportation by alerting potential visitors ahead of time that parking would be scarce, and **Transportation Protection Measure TRA-2** which would increase enforcement and temporary parking restrictions on selected streets to facilitate bus travel, provide for pedestrian-only streets, provide additional vehicle capacity, and reduce localized congestion) would discourage visitor access by auto and associated parking demand.

As part of the AC34 People Plan, SFMTA would develop a program for notifying residents and visitors of on-street parking restrictions that would be required on event days. In addition, **Transportation Protection Measure TRA-4** (Presidio and Other NPS Sites Roadway Management Strategies) includes the possibility for the NPS and U.S. Park Police to manage East Road within Fort Baker as a one-way inbound roadway providing additional temporary parking during peak demand weekends.

2012 Event Conditions

In 2012, the AC Village would be located at the Marina Green, and the parking demand generated during both the weekday and weekend peak events would generally exceed the parking supply between the Presidio/Crissy Field and Aquatic Park. The parking shortfall would be greatest during weekend events, which are projected to attract a substantially greater number of visitors.

On the two peak weekday event days in 2012, there would be about 350 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 120 spaces in the Presidio/Crissy Field area, while there would be no deficit near the Aquatic Park area. On the four high-interest weekend days in 2012, there would be about 430 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 140 spaces in the Presidio/Crissy Field area, while there would be no deficit near the Aquatic Park area. On the two peak weekend days in 2012, there would be almost 710 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 340 spaces in the Presidio/Crissy Field area, and 60 spaces in the vicinity of the Aquatic Park area.

There would be no AC34 parking demand related to Alcatraz Island under Alternative C in 2012. AC34 parking demand in the Marin Headlands and in Fort Baker in 2012 would result in a deficit of about 24

spaces on the two peak weekend event days. On such days, the NPS would be expected to close Conzelman Road to general automobile traffic and convert East Road into an inbound only road, making most of the parking spaces along Conzelman Road unavailable except for early arrivals, but also creating additional parking along East Road that would eliminate the expected parking deficit.

2013 Event Conditions

In 2013, the AC Village would be located at Piers 27-29, and the focus of the spectator viewing would shift to The Embarcadero. During weekdays, the parking demand generated by visitors to the Presidio and Crissy Field areas would exceed the available supply to a similar extent as during the 2012 events, in spite of the larger overall number of AC34 visitors expected. On peak weekend events, however, the parking demand generated would be much larger and would exceed the parking supply for the viewing areas between the Presidio/Crissy Field and Aquatic Park.

On the ten peak weekday event days in 2013, there would be about 320 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 80 spaces in the Presidio/Crissy Field area, while there would be no deficit near the Aquatic Park area. On the 13 average weekend/holiday event days in 2013, there would be about 340 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 100 spaces in the Presidio/Crissy Field area, while there would be no deficit near the Aquatic Park area. On the five peak weekend event days in 2013, there would be almost 1,720 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of about 1,240 spaces in the Presidio/Crissy Field area, and 200 spaces in the vicinity of the Aquatic Park area.

There would be no AC34 parking demand related to Alcatraz Island under Alternative C in 2013. AC34 parking demand in the Marin Headlands and in Fort Baker in 2013 would result in a parking deficit of about 44 spaces on the five peak weekend days. On such days, the NPS would be expected to close Conzelman Road to general automobile traffic and convert East Road into an inbound only road, making most of the parking spaces along Conzelman Road unavailable except for early arrivals, but also creating additional parking along East Road that would eliminate the expected parking deficit.

Parking Impact Determination

As presented on **Table TRA-40**, page 4.10-68, Alternative C would result in short-term, moderate, adverse impacts on parking at all sites under AC34 2012 and AC34 2013 conditions. Due to the fewer number of spectators destined to NPS sites under Alternative C than Alternative B, Alternative C impacts on parking would be less than for Alternative B.

Transportation Protection Measure TRA-12, which includes the development of a parking management plan, for parking within the NPS sites would serve to reduce the intensity of adverse impacts at the NPS sites. As part of **Transportation Protection Measure TRA-2**, SFMTA would develop a program for notifying visitors of availability of public parking facilities, including public and private off-street facilities, on-street parking, and satellite parking facilities that would be required on high-spectator event days. The provision of satellite parking facilities, and shuttles to the Presidio,

Crissy Field, Marina Green, Fort Mason, and Aquatic Park would serve to further reduce adverse impacts on parking.

4.10.9.6 NPS and Presidio Facility Access

Under Alternative C, on weekday event days in both 2012 and 2013, access to NPS and Presidio facilities would remain relatively unchanged from existing conditions. On the peak weekend event days in 2013 (estimated to be 5 days) when vehicular access on Mason Street would be restricted, tenants and visitors to some of these facilities north of Mason Street would be notified in advance of temporary roadway restrictions, and would be granted special parking access permits for short-term use of the facilities (on the six weekend event days in 2012, and on the 19 average-interest and medium high-interest weekend event days in 2013, Mason Street would remain open to all vehicles). Similar to Alternative B on days when access onto Mason Street is restricted, access would be controlled at the intersection of Crissy/Mason/McDowell, and only vehicles with permits would be permitted to access Mason Street. Vehicles leaving the facilities would continue eastbound on Mason Street and exit at the Marina Gate. Due to the substantially lower spectator estimates for the peak weekend event days in 2013 (61,000 daily spectators under Alternative B, and 20,000 daily spectators under Alternative C), it is not anticipated that vehicular access to these facilities would be restricted, as described for Alternative B.

Transportation Protection Measure TRA-13 would develop strategies to ensure that access to SAFR, Fort Mason, Fort Baker/Marin Headlands, and Crissy Field for NPS staff, Park Partners, residents, deliveries and registered program participants is reasonably maintained on AC34 event days. On the peak weekend event days in 2013 (estimated to be 5 days), when access restrictions would be implemented on Mason Street, emergency vehicle access would be provided in a manner consistent with the Public Safety Plan that would be prepared for the AC34 events. The Public Safety Plan and management strategies would address all reasonable safety and security measures, including Advanced Life Support emergency and rescue services. Visitor use management strategies developed as part of **Transportation Protection Measure TRA-9** would be employed to ensure that all San Francisco Fire Department emergency access lanes are maintained at a minimum of 14 feet wide at all times and that a minimum of three feet of clear space is maintained around fire hydrants (SFFD, 2012). In addition, **Resource Protection Measure FAC-4** involves staging of emergency response vehicles (i.e., fire and medical) in key areas to meet response times due to congested roads on peak weekend event days. General vehicular access to Crissy Field would not be possible via the Crissy/Mason/McDowell intersection on these peak days; however, controlled vehicular access for emergency vehicles, transit, park staff, and Crissy Field tenants could be maintained from the Presidio via McDowell Avenue. Vehicular access to other facilities within the Presidio, the Marin Headlands, and Fort Baker would be maintained.

Alcatraz Island Access/Loading – Under Alternative C, access for the Alcatraz Island ferry service at Pier 33 would be the same as under Alternative B. On most event days, visitor access to the ferry terminal would remain similar to existing conditions. On weekend days when the northbound right lane and the parking lane of northbound The Embarcadero is closed to private vehicles for a portion of the day between Howard Street and Jefferson Street, the available northbound travel lane would be signed for local access only, and therefore, visitors to Pier 33 would continue to be able to use the existing accessibility drop-off zone.

NPS and Presidio Facility Access Impact Determination

Because access to NPS and Presidio sites, including Alcatraz Island ferry service at Pier 33, would be maintained on event days, Alternative C impacts to access to NPS and Presidio facilities would be a short term, minor to moderate, adverse impact.

4.10.9.7 Programmatic Access to NPS and Presidio Sites

Under Alternative C, no organized events would occur on NPS lands, and therefore, there would be substantially fewer spectators than under Alternative B on NPS and Presidio sites. Under Alternative C, existing means of access to the NPS and Presidio sites would be maintained or expanded on AC34 event days, but ease of access and access travel times would vary somewhat by event day and expected spectator attendance.

As indicated in section 3.10.2.2, the Presidio Trust currently operates three shuttle routes serving residents, employees and visitors to the Presidio: the PresidiGo Downtown (between the Presidio and the temporary Transbay Terminal), and the PresidiGo Crissy Field (serving the northern area of the Presidio), and the PresidiGo Presidio Hills (serving the southern area of the Presidio). As part of **Transportation Protection Measure TRA-7**, shuttle service to downtown and Crissy Field would be enhanced. On peak weekend event days in 2012 and 2013, particularly when access to Mason Street and the Crissy Field surface parking lots would be restricted, expanded shuttle service would enhance visitor accessibility to Crissy Field destinations. All existing PresidiGo shuttle stops would be maintained during AC34 events.

- Riders would have to make at most one transfer (from one of the around the Park routes to the Downtown route). Riders can board the Downtown shuttle service at the temporary Transbay Terminal, the Embarcadero BART/Muni Metro Station or at the intersection of Union Street and Van Ness Avenue. The shuttle provides direct drop-off to several sites within the park such as the Lombard Gate, the Letterman Digital Arts center, the YMCA and the Main Post Transit Center. The Downtown Shuttle is currently available only to Presidio residents and employees with an appropriate boarding pass as well as to members of the general public with a Muni Passport during commute hours, and open to the general public with no pass required midday on weekdays. As part of **Transportation Protection Measure TRA-7**, shuttle service to downtown would be expanded on peak weekend event days.

- Additional shuttle service to Crissy Field could be interlined with the PresidiGo Crissy Field route, connecting with the Muni 28-19th Avenue and 76-Marin Headlands bus routes and the Golden Gate Transit at the Golden Gate Bridge Toll Plaza, with the 43-Masonic on Letterman Drive, and with Golden Gate Transit and the 28-19th Avenue on Richardson Avenue. As part of **Transportation Protection Measure TRA-7**, shuttle routes serving Crissy Field would be expanded.

2012 Event Conditions

On the 13 weekday event days in 2012, access to NPS and Presidio sites would remain similar to existing conditions. Similar to Alternative B, on weekday event days, additional Muni service would be provided on the 30L-Marina and on a supplemental 47L-Van Ness Limited and transit capacity would

be available to meet the projected ridership. Overcrowding on lines serving the Presidio would generally not occur. Those driving to the NPS and Presidio sites would experience somewhat increased delays at intersections within the Presidio, and visitor parking availability would be very limited. Pedestrian conditions on weekday event days would generally be acceptable, with the exception of walkway conditions at the Fort Mason pinch point on Laguna Street, and at the intersection of Mason/Crissy/McDowell in the Presidio. On weekday event days, bicycle access would remain unchanged from existing conditions. On weekday event days in 2012, the number of spectators destined to the Marin Headlands and Fort Baker is expected to be very small (up to 200 spectators per day), and vehicular, pedestrian, and bicycle travel conditions would therefore remain similar to existing conditions. Overall, on the 13 weekday event days in 2012, Alternative C impacts on visitor access to NPS and Presidio sites would be short term, minor to moderate, adverse impacts.

On the six weekend event days in 2012, the number of spectators destined to NPS and Presidio sites, as well as to other nearby spectator venues and viewing areas (e.g., the AC Village in the Marina Green) would increase over weekday conditions. On the peak weekend event days in 2012 (estimated to be six days), vehicular access on Mason Street would remain open to all vehicles. Increases in the number of pedestrians and bicyclists on Crissy Field, Fort Mason, and Aquatic Park would result in increased crowding at the Fort Mason pinch point and at the intersection of Mason/Crissy/McDowell. Parking availability in the vicinity of NPS sites in the Presidio would be more limited due to the increased demand. On the six weekend event days, additional transit service would be provided on the on the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited bus routes that would serve the Presidio, however, this additional service would not be adequate to accommodate the AC34 transit ridership demand. Enhanced service on the 22-Fillmore, 28-19th Avenue, and 43-Masonic bus routes (**Transportation Protection Measure TRA-6**), and the expanded shuttle service to downtown (**Transportation Protection Measure TRA-7**) would serve to reduce overcrowding and minimize travel time delays. Similar to Alternative B, faced with the shortfall in transit capacity, reduced parking availability, and increase intersection delays, those traveling to the Presidio, Fort Mason and Aquatic Park would have somewhat increased travel times. Under Alternative C, the increased travel times would be less than under Alternative B. Similar to Alternative B, visitors traveling by transit may need to wait for one or more buses before being able to board, some may decide to take an alternate, less convenient bus route, some may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days. Overall, under Alternative C, on weekend event days in 2012, the effect on visitor access and travel times to NPS and Presidio sites in San Francisco would be substantially less than under Alternative B.

On weekend event days in 2012, the number of spectators destined to the Marin Headlands and Fort Baker would increase from weekday conditions, but would still be relatively small (between 500 and 850 daily spectators). On the six weekend event days, vehicular access to Conzelman Road would remain open at all times. Therefore, on weekend event days in 2012, vehicular, pedestrian, and bicycle travel conditions in the Marin Headlands and Fort Baker for Alternative C would remain similar to existing conditions.

In general, on the six weekend event days in 2012, the intensity of travel time and access impacts associated with Alternative C would depend on the spectator attendance levels. In 2012, there would be two days with up to 6,570 daily spectators at the NPS and Presidio sites, and four days with up to

10,950 daily spectators at the NPS and Presidio sites. Therefore, on the six weekend event days in 2012, Alternative C impacts on visitor access to NPS and Presidio sites would be short term, minor to moderate, adverse impacts.

2013 Event Conditions

On the 60 weekday event (race and non-race) days in 2013, access to the NPS and Presidio sites would remain similar to existing conditions. As described above for 2012 weekday event conditions, additional transit service would be provided on lines that serve the Presidio, and the additional capacity would adequately accommodate the increase transit demand. Those driving, bicycling and walking to the NPS and Presidio sites would experience congestion at similar locations as in 2012, however, the congestion would occur on more days than in 2012. On the 60 weekday event days in 2013, the number of spectators destined to the Marin Headlands and Fort Baker is projected to be relatively small (up to 250 spectators per day), and travel conditions would therefore remain similar to existing conditions. Overall, on the 60 weekday event days in 2013, Alternative C impacts on visitor access to NPS and Presidio sites would be short term, minor to moderate, adverse impacts.

On the 24 weekend events in 2013, the number of spectators destined to the NPS and Presidio sites would increase over weekday conditions. On peak and medium-high-interest weekend event days, intersection delays at unrestricted roadways within the Presidio and at intersections to the south would increase over existing conditions. Additional traffic control and management strategies would be implemented by SFPD, Park Police, and SFMTA traffic control officers to reduce congestion at the key intersections. Increases in the number of pedestrians and bicyclists on Crissy Field, Fort Mason, and Aquatic Park would result in increased crowding at numerous locations at Crissy Field, within the Presidio, as well as at locations in Aquatic Park and at the Fort Mason pinch point. These conditions would primarily occur on the five peak weekend event days. Parking availability in the vicinity of NPS sites in the Presidio would be more limited due to the increased demand and temporary closure of parking areas on East Beach (on the five peak weekend event days).

On the 13 average weekend event days (i.e., 13 of 24 weekend event days) in 2013, the additional transit service on the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited bus routes that would serve the Presidio would be adequate to accommodate the increased demand, because in 2013 the AC Village would be located at Piers 27-29 (rather than at the Marina Green), and the overall number of spectators destined to the waterfront between Aquatic Park and Crissy Field in 2013 on an average weekend event day would be less than on the six weekend event days in 2012. On the 11 peak and medium-high weekend event days in 2013 (with a total of 160,000 to 250,000 daily spectators to all locations), the additional transit service in San Francisco, and enhanced service on the 22-Fillmore, 28-19th Avenue, and the 43-Masonic bus routes that directly serve the Presidio would not adequately accommodate demand. Faced with the shortfall in transit capacity, reduced parking availability, and increase intersection delays, those traveling to the Presidio, Fort Mason and Aquatic Park would have substantially increased travel times. Visitors traveling by transit may need to wait for one or more buses before being able to board, some may decide to take an alternate, less convenient bus route, some may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days. Overall, on the 24 weekend event

days in 2013, the effect on visitor access and travel times to NPS and Presidio sites in San Francisco would be less than Alternative B.

On weekend event days in 2013, the number of spectators destined to the Marin Headlands and Fort Baker would increase from weekday conditions, but would be small (between 350 and 1,000 daily spectators). Under Alternative C, vehicular access to Conzelman Road would remain open on all event days. On the 24 weekend event days in 2013, pedestrian and bicycle access would remain similar to existing conditions, and visitors would not be anticipated to experience increased travel times.

Programmatic Access to NPS and Presidio Sites Impact Determination

Overall, on the 24 weekend event days in 2013, the intensity of travel time and access impacts would be most noticeable on the five peak weekend event days in 2013. In 2013, there would be 13 days with up to 5,200 daily spectators at the NPS and Presidio sites, six days with up to 9,200 daily spectators, and five days with up to 25,500 daily spectators. Alternative C impacts on visitor access to NPS and Presidio sites would be substantially reduced over Alternative B conditions, particularly on weekend event days. On the 24 weekend event days in 2013, Alternative C impacts on visitor access to NPS and Presidio sites would be short term, minor to moderate, adverse impacts. **Implementation of Transportation Protection Measures TRA-1** through **TRA-13** would serve to facilitate access to the NPS and Presidio sites on events days, and would minimize impacts.

4.10.9.8 Cumulative

The transportation impacts described above for Alternative C (i.e. traffic, transit, pedestrians, bicycles, parking, access) are cumulative in nature in that they assess the potential impacts of the AC34 project in combination with conditions that would affect the transportation network in 2012 and 2013. Implementation of the Marin Headlands and Fort Baker and Management Plan (Project Headlands), which includes improvements to 11 miles of roads in the Marin Headlands and Fort Baker and will improve safety and access by all transportation modes, is currently underway and is expected to be completed by the end of 2013. The Alexander Avenue/Danes Drive Intersection Improvement Project, which would correct existing deficiencies and substandard roadway conditions at the Alexander Avenue left turn to Danes Drive is currently under environmental review, and construction of this project would occur some time after 2014. This project was therefore not assumed to be completed in time for AC34 2012 or AC34 2013 events. Construction of the Presidio Parkway (i.e., the replacement for Doyle Drive) is ongoing and would continue throughout the AC34 2012 and AC34 2013 events. The impact analysis presented above reflects the known construction roadway closures that would be in place at the time of the events, including the recent closure of Halleck Street and Marshall Street, and the recent modifications to the PresidiGo shuttle services.

Therefore, the analysis above represents a cumulative impact analysis for purposes of transportation impacts. In addition, Alternative C would be a temporary event occurring over no more than four months in a two year period after which travel demand associated with AC34 would cease, and travel demand generated by Alternative C would not contribute to travel demand generated by future development that may occur subsequent to the proposed events.

However, since the AC34 events would occur over four months in a two-year period, it is likely that the some AC34 event days would be concurrent with other special events. Annual special events are typical in San Francisco. Generally, special events lead to an increase in parking demand in their vicinity, as event attendees try to park within walking distance of their final destination. Special events also lead to a temporary increase in vehicle trips and a temporary increase in transit demand. Depending on the type of special event, day of week, venue location, number of attendees, and whether increased transit is provided for these events, special events concurrent with AC34 event days could increase the number of spectators, vehicles, bicyclists, and affect LOS operating conditions over those reported for just AC34 events above.

4.10.9.9 Conclusion

Alternative C would have short-term and temporary transportation impacts ranging from minor adverse to major adverse impacts, varying by event day and the number of spectators traveling to and from the spectator venues and secondary viewing areas; with impacts generally less intense than Alternative B. With Alternative C, potential major adverse impacts would result from the additional travel demand generated by the AC34 events in both 2012 and 2013. **Transportation Protection Measures TRA-1** through **TRA-13** have been identified to manage and reduce the severity of the major adverse impacts, and reduce major impacts at some locations to moderate adverse or minor adverse.

4.10.1 Impacts of Alternative D—Modified Program Alternative

4.10.10.1 Traffic

Table TRA-47A presents the intersection LOS conditions at the study intersections for Existing plus Alternative D events conditions for the weekday p.m. peak hour, while **Table TRA-47B** presents the intersection LOS for the Saturday midday peak hour.

San Francisco Locations

Under Alternative D, there would be a reduced intensity of programming across spectator venues, and the primary race area would be shifted east from its Alternative B and Alternative C counterpart by approximately ¼ mile to focus spectators away from Crissy Field. As shown in **Table TRA-17A**, page 4.10-12, the total number of spectators destined to NPS sites under Alternative D would be less than Alternative B during both the AC34 2012 and AC34 2013 events, similar to Alternative C during the AC34 2012 events, but more than Alternative C during the AC34 2013 events.

2012 Event Conditions

On the two peak weekday event days in 2012, there would be about 3,100 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park (generating about 296 p.m. peak hour vehicle trips), and substantially fewer spectators on the 11 medium-interest and low-interest weekdays. During the weekday p.m. peak hour, intersection delay and LOS would generally be LOS D or better. The exceptions would be at the intersections of Marina/Lyon and Lombard/Divisadero, which would operate at LOS E or

TABLE TRA-47A: ALTERNATIVE D: MODIFIED PROGRAM ALTERNATIVE – INTERSECTION LOS AC34 AND AC34 2013 – WEEKDAY PM PEAK HOUR

			Existing		AC34 2012		AC34 2013	
#	Intersection		Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS
1	Mason St	Yacht Rd	13.8 (wb)	B	33.3 (wb)	D	**35.1 (wb)**	**E**
2	Marina Blvd	Lyon St	32.6	C	**>80**	**F**	**>80**	**F**
3	Mason St	Enter Crissy Field Parking	14.0 (eb)	B	31.3 (eb)	D	33.4 (eb)	D
4	Mason St	Exit Crissy Field Parking	12.9 (sb)	B	29.2 (sb)	D	**37.8 (sb)**	**E**
5	Mason St	Crissy Field Ave East	17.9 (wb)	C	19.8 (wb)	C	29.6 (wb)	D
6	Mason St	Crissy Field Ave West	10.7 (sb)	B	11.4 (sb)	B	15.1 (wb)	C
7	Lincoln Ave	Long Ave (Ft. Pt Rd)	12.3 (sb)	B	12.5 (sb)	B	12.9 (sb)	B
8	Lincoln Ave	25th Ave	14.2 (wb)	B	14.4 (wb)	B	15.5 (wb)	C
9	Lincoln Blvd	Merchant Rd	19.4 (sb)	C	20.2 (sb)	C	23.6 (sb)	C
10	Lincoln Blvd	McDowell Ave	8.8 (eb)	A	9.0 (eb)	A	9.5 (eb)	A
11	Lincoln Blvd	Bowley St – North	23.0 (wb)	C	23.3 (wb)	C	24.4 (wb)	C
12	Lincoln Blvd	Bowley St – South	16.9 (wb)	C	17.1 (wb)	C	17.6 (wb)	C
13	Jackson St	Arguello Blvd	28.1 (sb)	D	29.3 (sb)	D	34.0 (sb)	D
14	Pacific Ave	Presidio Blvd	20.3 (sb)	C	21.0 (sb)	C	23.4 (sb)	C
15	Lombard St	Lyon St	33.6 (eb)	D	34.4 (eb)	D	**37.3 (eb)**	**E**
16	Lombard St	Divisadero St	36.4	D	**74.5**	**E**	**>80**	**F**
17	Bay St	Laguna St	19.7	B	24.1	C	24.8	C
18	Bay St	Franklin St	10.8	B	10.9	B	11.1	B
19	Bay St	Van Ness Ave	16.4	B	24.2	C	18.7	B
20	Bay St	Hyde St	6.3	A	6.2	A	6.3	A
21	Marina Blvd	Buchanan St	11.2	B	14.1	B	15.1	B
22	Marina Blvd	Cervantes Blvd/Scott St	11.8	B	31.0	C	43.0	D
23	Alexander Ave	U.S. 101 NB ramps	10.9 (wb)	B	11.1 (wb)	B	11.1 (wb)	B
24	Alexander Ave	Danes Dr	12.0 (eb)	B	12.3 (eb)	B	12.3 (eb)	B
25	Alexander Ave	Ft. Baker (East) Rd	10.1 (wb)	B	10.5 (wb)	B	10.4 (wb)	B
26	Conzelman Rd	U.S. 101 entrance	12.9 (eb)	B	13.6 (eb)	B	13.8 (eb)	B
27	Conzelman Rd	McCullough Rd	9.0 (sb)	A	9.1 (sb)	A	9.2 (sb)	A
28	Bunker Rd	Danes Dr	10.1 (sb)	B	10.3 (sb)	B	10.3 (sb)	B

[a] Delay presented in seconds per vehicle. For unsignalized intersections, delay and LOS presented for worst approach. Worst approach indicated by ( ).

[b] Intersections operating at LOS E or LOS F conditions highlighted in bold.

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-47B: ALTERNATIVE D: MODIFIED PROGRAM ALTERNATE – INTERSECTION LOS AC34 2012 AND AC34 2013 – SATURDAY MIDDAY PEAK HOUR

					Existing plus Alternative D							
					AC34 2012				AC34 2013			
			Existing		High Interest		Peak		Average		Peak	
#	Intersection		Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS
1	Mason St	Yacht Rd	18.8 (eb)	C	**>50 (eb)**	**F**	**>50 (eb)**	**F**	**>50 (eb)**	**F**	--	N/A
2	Marina Blvd	Lyon St	46.2	D	**>80**	**F**	**>80**	**F**	**>80**	**F**	--	N/A
3	Mason St	Enter Crissy Field Parking	23.8 (eb)	C	**48.2 (eb)**	**F**	**>50 (eb)**	**F**	**47.1 (eb)**	**E**	--	N/A
4	Mason St	Exit Crissy Field Parking	15.7 (nb)	C	19.4 (sb)	C	**38.2 (sb)**	**E**	18.4 (sb)	C	--	N/A
5	Mason St	Crissy Field Ave East	27.1 (wb)	D	28.3 (wb)	D	**38.0 (wb)**	**E**	**>50 (wb)**	**F**	--	N/A
6	Mason St	Crissy Field Ave West	11.5 (wb)	B	12.1 (wb)	B	13.6 (wb)	B	19.4 (wb)	C	--	N/A
7	Lincoln Ave	Long Ave (Ft. Pt Rd)	14.4 (nb)	B	13.5 (nb)	B	13.7 (nb)	B	14.4 (nb)	B	16.2 (nb)	C
8	Lincoln Ave	25th Ave	18.6 (nb)	C	15.3 (nb)	C	15.6 (nb)	C	16.4 (nb)	C	34.8 (nb)	D
9	Lincoln Blvd	Merchant Rd	31.3 (nb)	D	22.7 (nb)	C	24.0 (nb)	C	27.8 (nb)	D	**>50 (nb)**	**F**
10	Lincoln Blvd	McDowell Ave	10.9 (eb)	B	10.8 (eb)	B	11.2 (eb)	B	12.2 (eb)	B	**>50 (eb)**	**F**
11	Lincoln Blvd	Bowley St – North	27.9 (eb)	D	23.2 (eb)	C	23.5 (eb)	C	24.3 (eb)	C	33.8 (wb)	D
12	Lincoln Blvd	Bowley St – South	18.2 (wb)	C	16.5 (wb)	C	16.7 (wb)	C	17.0 (wb)	C	21.2 (wb)	C
13	Jackson St	Arguello Blvd	13.6 (nb)	B	12.3 (nb)	B	12.5 (nb)	B	13.0 (nb)	B	22.0 (nb)	C
14	Pacific Ave	Presidio Blvd	12.7 (sb)	B	11.6 (nb)	B	11.7 (nb)	B	12.1 (nb)	B	18.7 (sb)	C
15	Lombard St	Lyon St	19.4 (eb)	C	15.6 (eb)	C	15.7 (eb)	C	15.9 (eb)	C	19.0 (eb)	C
16	Lombard St	Divisadero St	14.6	B	41.2	D	**>80**	**F**	53.4	D	**>80**	**F**
17	Bay St	Laguna St	13.4	B	48.1	D	**71.3**	**E**	43.0	D	**>80**	**F**
18	Bay St	Franklin St	9.5	A	9.3	A	10.7	B	9.3	A	10.6	B
19	Bay St	Van Ness Ave	20.7	C	15.5	B	**>80**	**F**	14.9	B	**>80**	**F**
20	Bay St	Hyde St	7.3	A	7.1	A	6.3	A	7.1	A	6.7	A
21	Marina Blvd	Buchanan St	12.1	B	--	N/A	--	N/A	--	N/A	--	N/A
22	Marina Blvd	Cervantes Blvd/Scott St	11.6	B	30.0	C	**> 80**	**F**	30.2	C	--	N/A
23	Alexander Ave	U.S. 101 NB ramps	**>50 (wb)**	**F**	**>50 (wb)**	**F**	**>50 (wb)**	**F**	**>50 (wb)**	**F**	**>50 (wb)**	**F**
24	Alexander Ave	Danes Dr	21.3 (eb)	B	23.1 (eb)	D	25.8 (eb)	D	23.0 (eb)	C	**48.9 (eb)**	**E**
25	Alexander Ave	Ft. Baker (East) Rd	13.9 (wb)	B	14.6 (wb)	B	15.6 (wb)	B	14.6 (wb)	B	20.8 (wb)	C
26	Conzelman Rd	U.S. 101 entrance	17.4 (eb)	C	18.6 (eb)	C	19.9 (eb)	C	18.3 (eb)	C	30.1 (eb)	D
27	Conzelman Rd	McCullough Rd	8.9 (sb)	A	9.1 (sb)	A	9.2 (sb)	A	9.0 (sb)	A	9.8 (sb)	A
28	Bunker Rd	Danes Dr	10.9 (sb)	B	11.0 (sb)	B	11.0 (sb)	B	11.0 (sb)	B	11.2 (sb)	B

[a] Delay presented in seconds per vehicle. For unsignalized intersections, delay and LOS presented for worst approach. Worst approach indicated by ( ).
[b] Intersections operating at LOS E or LOS F conditions highlighted in bold.

SOURCE: Adavant Consulting/LCW Consulting, 2012

LOS F conditions on the two peak weekday event days. On medium-interest and low-interest day weekday event days, all study intersections would continue to operate similar to existing conditions.

Under Alternative D, on high-interest weekend days in 2012 (four days with about 5,370 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park generating about 374 Saturday midday peak hour vehicle trips), two intersections along Mason Street would operate at LOS F conditions during the Saturday midday peak hour (Mason/Yacht and Mason/Crissy Field Parking Entrance). In addition, the intersection of Marina/Lyon would operate at LOS F conditions. On peak weekend days (two days with 8,950 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park generating about 623 Saturday midday peak hour vehicle trips), the above three intersections would also operate at LOS F conditions during the Saturday midday peak hour, as would the intersections of Mason/Crissy Field Parking Exit, Mason/Crissy Field Avenue East, Marina/Cervantes/Scott, Lombard/Divisadero and Bay/Van Ness, and the intersection of Bay/Laguna would operate at LOS E.

2013 Event Conditions

In 2013, on the peak weekday event days (ten days), there would be about 4,600 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park (generating about 439 p.m. peak hour vehicle trips), and substantially fewer on the non-peak weekday event days (50 days). In 2013, the AC Village would move to Pier 27-29, and, during the weekday p.m. peak hour, five of the 22 study intersections in San Francisco would operate at LOS E or LOS F (Mason/Yatch, Mason/Crissy Field Parking Exit, Marina/Lyon, Lombard/Lyon, and Lombard/Divisadero). However, in 2013 there would be more weekday events with higher attendance levels, and therefore, during the weekday p.m. peak hour, these five intersections would operate at LOS E or LOS F on up to 20 event days (10 peak race days, and 10 non-peak race days).

In 2013, on average weekend event days (13 days with about 7,300 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park generating about 508 Saturday midday peak hour vehicle trips), three intersections along Mason Street would operate at LOS E or LOS F conditions during the Saturday midday peak hour (Mason/Yacht, Mason/Crissy Field Parking Entrance, and Mason/Crissy Field East). In addition the intersection of Marina/Lyon would operate at LOS F conditions. On high-interest (six days) and peak weekend event (five days) days, the number of spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park would increase, and would range between16,500 and 36,500 spectators (generating up to 2,540 Saturday midday peak hour vehicle trips). Vehicular access on Mason Street would be restricted to transit and emergency vehicles only, while permitted tenants/visitors could potentially enter via McDowell Avenue and exit eastbound via Mason Street (which would be restricted to one-way, eastbound traffic only). Within the Presidio, the intersections of Lincoln/Merchant and Lincoln/McDowell would operate at LOS F during the Saturday midday peak hour. To the east of the Presidio, the intersections of Lombard/Divisadero, Bay/Laguna, and Bay/Van Ness would operate at LOS F during the Saturday midday peak hour.

Marin Headlands and Fort Baker Locations

Under Alternative D, the number of spectators destined to the Marin Headlands and Fort Baker would be similar to Alternative C, and would be less than under Alternative B on both weekday and weekend event days. Due to the lower number of spectators under Alternative D, it is anticipated that access to Conzelman Road would not be restricted on any weekend event days in either 2012 or 2013, however, access could be restricted at peak times (except for emergency vehicles). On peak weekend event days in 2013, access could also be restricted through the Barry-Baker tunnel, except for emergency vehicles, residents, staff and potentially permitted tenants.

2012 Event Conditions

In 2012, up to 200 spectators are estimated to travel to the Marin Headlands and Fort Baker on the 13 weekday event days (generating up to 41 p.m. peak hour vehicle trips), and between 510 and 850 spectators on the six weekend event days (generating between 72 and 117 Saturday midday peak hour vehicle trips). Similar to Alternative B and Alternative C, during the weekday p.m. peak hour, the study intersections in the Marin Headlands and Fort Baker would continue to operate at LOS C or better on all weekday event days. On the six weekend event days in 2012, the intersection of Alexander Avenue/U.S. 101 northbound off-ramp would continue to operate at LOS F conditions, as under existing conditions. All other study intersections in Marin would operate at LOS D or better.

2013 Event Conditions

In 2013, up to 250 spectators are estimated to travel to the Marin Headlands and Fort Baker on the 60 weekday (race and non-race) event days (generating up to 51 p.m. peak hour vehicle trips), and between 350 and 1,000 spectators on the 24 weekend event days (generating between 49 and 383 Saturday midday peak hour vehicle trips). During the weekday p.m. peak hour, the six study intersections in the Marin Headlands and Fort Baker would continue to operate at LOS C or better in 2013.

On the 24 weekend event days in 2013, the intersection of Alexander Avenue/U.S. 101 northbound off-ramp would continue to operate at LOS F conditions during the Saturday midday peak hour, as under existing conditions. Due to the increase in Saturday midday peak hour traffic volumes over existing conditions, delays at this intersection would increase and queues could spill back onto U.S. 101 northbound. In addition, similar to Alternative B and Alternative C, the intersection of Alexander/Danes would operate at LOS F conditions during the Saturday midday peak hour on the 11 total peak weekend and high-interest weekend event days in 2013. Implementation of **Transportation Protection Measure TRA-5**, which would station CHP officers at the intersection of the northbound and southbound U.S. 101 ramps to Alexander Avenue, on peak weekend event days, would facilitate traffic flow through these unsignalized intersections and reduce potential for queue spillback onto U.S. 101. NPS Park Police would be stationed at the unsignalized intersection of Alexander/Danes on peak weekend event days.

It should be noted that the *Marin Headlands and Fort Baker Infrastructure and Management Plan* identifies a traffic mitigation measure which involves operating a one-way loop within Fort Baker.

Under this configuration, vehicles enter Fort Baker at East Road, and travel on Center Road to Bunker Road, and exit on Danes Drive. This configuration allows for additional parking to be accommodated the northbound lane on East Road, and allows for two-way travel for bicyclists. The one-way loop configuration has been implemented by NPS on high visitor demand days, such as on Independence Day. If determined appropriate, NPS could implement the one-way loop operation within Fort Baker on one or more AC34 peak weekend event days in 2012 or 2013.

Intersection Impact Determination

Table TRA-31, page 4.10-45, presents the impact determinations for each study intersection, and presents a comparison to Alternative B. Alternative D would result in fewer moderate and major impacts than Alternative B.

Under Alternative D, AC34 events in 2012 and 2013 would result in short-term impacts. Under AC34 2012 conditions, Alternative D would result in minor adverse impacts at 19 intersections, moderate adverse impacts at four intersections, and major adverse impacts at five intersections. Under AC34 2013 conditions, Alternative D would result in minor adverse impacts at 15 intersections, moderate adverse impacts at five intersections, and major adverse impacts at eight intersections.

Transportation Protection Measures identified for Alternative B and Alternative C would also be applicable for Alternative D. The various strategies in **Transportation Protection Measure TRA-1** (People Plan for National Park Areas) and **Transportation Protection Measure TRA-2** (People Plan) would serve to manage travel demand during the AC34 events, and to encourage walking, bicycling, and transit for access to the sites. **Transportation Protection Measure TRA-4** (Presidio and NPS Sites Roadway Management Strategies) and **Transportation Protection Measure TRA-5** (Traffic Control Officers at Intersections) would serve to reduce delays associated with the additional vehicle trips generated by the AC34 events by restricting vehicle access to areas with projected high concentrations of pedestrians. Traffic control officers at intersections would facilitate vehicle, bicycle, and pedestrian flows, and would reduce overall delays at intersections. Implementation of transportation protection measures would reduce the intensity of the identified minor, moderate, and major adverse impacts. With implementation of additional restrictions on vehicular access than those considered in the analysis for Mason Street and other roadways in the Presidio **(Transportation Protection Measure TRA-4),** intersections along Mason Street would not experience congested conditions, and impacts would change from major adverse, to moderate adverse impacts.

4.10.10.2 Transit

Table TRA-19 (page 4.10-16) presents the total peak hour transit trips for Alternative D for AC34 2012 and AC34 2013 conditions for the various analysis scenarios. **Table TRA-48A** presents the capacity utilization analysis for the weekday p.m. (outbound from the waterfront) conditions for AC34 2012 and AC34 2013 peak weekday conditions. **Table TRA-48B** presents the Saturday midday (towards the waterfront) analysis for AC34 2012 high-interest weekend and peak weekend days, while **Table TRA-48C** presents the Saturday midday analysis for AC34 2013 conditions for average weekend

TABLE TRA-48A: ALTERNATIVE D: MODIFIED PROGRAM ALTERNATIVE – TRANSIT ANALYSIS AC34 2012 AND AC34 2013 – WEEKDAY PM PEAK HOUR

	Existing			Existing Plus Alternative D 2012 Peak			Existing Plus Alternative D 2013 Peak		
Outbound	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
San Francisco									
Presidio/Crissy/Marina	2,891	1,820	63%	3,521	2,742	78%	3,521	2,896	82%
Fisherman's Wharf	4,049	3,309	82%	4,613	3,463	75%	4,613	3,340	72%
East Bay									
BART	24,150	20,067	83%	24,150	20,570	85%	24,150	20,977	87%
AC Transit	4,193	2,517	60%	4,193	2,593	62%	4,193	2,655	63%
Ferries	1,519	702	46%	1,519	727	48%	1,519	748	49%
Total	*29,862*	*23,286*	*78%*	*29,862*	*23,890*	*80%*	*29,862*	*24,379*	*82%*
North Bay									
Buses	2,205	1,397	63%	2,205	1,459	66%	2,205	1,510	68%
Ferries	1,706	906	53%	1,706	951	56%	1,706	988	58%
Total	*3,911*	*2,303*	*59%*	*3,911*	*2,410*	*62%*	*3,911*	*2,479*	*64%*
South Bay									
BART	16,800	10,202	61%	16,800	10,611	63%	16,800	10,941	65%
Caltrain	3,250	1,986	61%	3,250	2,065	64%	3,250	2,129	66%
SamTrans	940	575	61%	940	598	64%	940	616	66%
Total	*20,990*	*12,763*	*61%*	*20,990*	*13,273*	*63%*	*20,990*	*13,687*	*65%*

[a] Existing capacity
[b] Capacity includes Muni and Regional transit provider service enhancements included in the People Plan (i.e., Protection Measure TRA-2b). Service enhancements on Muni include increased frequencies on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays, and the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends.
[c] Conditions exceeding 100 percent capacity utilization are highlighted in **bold**

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-48B: ALTERNATIVE D: MODIFIED PROGRAM ALTERNATIVE –TRANSIT ANALYSIS AC34 2012 – SATURDAY MIDDAY PEAK HOUR

	Existing			Existing Plus Alternative D High Interest			Existing Plus Alternative D Peak		
Outbound	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
San Francisco									
Presidio/Crissy/Marina	2,738	1,827	67%	**3,872**	**5,214**	**135%**	**3,872**	**7,472**	**193%**
Fisherman's Wharf	3,119	2,339	75%	3,683	2,659	72%	3,683	2,872	78%
East Bay									
BART	8,064	3,900	48%	16,128	5,774	36%	16,128	7,014	44%
AC Transit	200	117	56%	464	177	38%	464	207	45%
Ferries	688	560	81%	1,464	755	52%	1,464	875	60%
Total	*8,952*	*4,577*	*51%*	*18,056*	*6,706*	*37%*	*18,056*	*8,096*	*45%*
North Bay									
Buses	205	62	30%	509	189	37%	509	265	52%
Ferries	2,580	691	27%	3,380	1,553	46%	3,380	2,136	63%
Total	*2,785*	*753*	*27%*	*3,389*	*1,742*	*45%*	*3,389*	*2,402*	*62%*
South Bay									
BART	8,547	2,340	27%	17,094	4,195	25%	17,094	5,442	32%
Caltrain	650	543	84%	1,300	717	55%	1,300	837	64%
SamTrans	40	32	80%	480	75	16%	480	114	24%
Total	*9,237*	*2,915*	*32%*	*18,874*	*4,987*	*26%*	*18,874*	*6,393*	*34%*

[a] Existing capacity
[b] Capacity includes Muni and Regional transit provider service enhancements included in the People Plan (i.e., Protection Measure TRA-2b). Service enhancements on Muni include increased frequencies on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays, and the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends.
[c] Conditions exceeding 100 percent capacity utilization are highlighted in **bold**

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-48C: ALTERNATIVE D: MODIFIED PROGRAM ALTERNATIVE – TRANSIT ANALYSIS AC34 2013 – SATURDAY MIDDAY PEAK HOUR

	Existing			Existing Plus Alternative D High Interest			Existing Plus Alternative D Peak		
Outbound	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
San Francisco									
Presidio/Crissy/Marina	2,738	1,827	67%	3,872	2,720	70%	**3,872**	**10,942**	**283%**
Fisherman's Wharf	3,119	2,339	75%	3,683	2,379	65%	3,683	2,872	78%
East Bay									
BART	8,064	3,900	48%	16,128	4,556	28%	16,128	11,930	74%
AC Transit	200	117	56%	464	136	29%	464	354	76%
Ferries	688	560	81%	1,464	626	43%	1,464	1,376	94%
Total	*8,952*	*4,577*	*51%*	*18,056*	*5,318*	*29%*	*18,056*	*13,661*	*76%*
North Bay									
Buses	205	62	30%	509	105	21%	509	589	116%
Ferries	2,580	691	27%	3,380	995	29%	3,380	4,411	131%
Total	*2,785*	*753*	*27%*	*3,389*	*1,100*	*28%*	*3,389*	*5,001*	*129%*
South Bay									
BART	8,547	2,340	27%	17,094	2,993	18%	17,094	10,339	60%
Caltrain	650	543	84%	1,300	605	47%	1,300	1,301	100%
SamTrans	40	32	80%	480	49	10%	480	236	49%
Total	*9,237*	*2,915*	*32%*	*18,874*	*3,647*	*19%*	*18,874*	*11,875*	*63%*

[a] Existing capacity
[b] Capacity includes Muni and Regional transit provider service enhancements included in the People Plan (i.e., Protection Measure TRA-2b). Service enhancements on Muni include increased frequencies on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays, and the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends.
[c] Conditions exceeding 100 percent capacity utilization are highlighted in **bold**

SOURCE: Adavant Consulting/LCW Consulting, 2012

and peak weekend event days.[19] The analysis includes existing transit service levels plus service increases proposed as part of the People Plan, summarized in **Transportation Protection Measure TRA-2**.

2012 Event Conditions

In 2012, Alternative D would generate about 2,300 transit trips during the weekday p.m. peak hour on a peak weekday event day, 8,700 transit trips during the Saturday midday peak hour on a high-interest weekend day, and 14,500 transit trips during the Saturday midday peak hour on a peak weekend day. On peak weekday event days, the p.m. peak hour capacity utilization at all screenlines would be less than 100 percent (see **Table TRA-48A**). Capacity utilization on all Muni and regional transit screenlines would be less than 100 percent during the p.m. peak hour. Similar to Alternative C, the additional capacity provided as part of the September 2011 People Plan would adequately accommodate spectators destined to and from NPS and Presidio sites in San Francisco. Under Alternative D, because transit demand to NPS and Presidio sites would be accommodated on existing and enhanced/augmented Muni routes, the expansion of the downtown shuttle service on weekdays would not occur

Table TRA-48B presents the weekend capacity utilization for the Saturday midday peak hour for conditions assuming the additional Muni and regional transit service included in the People Plan. On high-interest and peak weekend days in 2012, even with the enhanced/augmented service on Muni routes, the Saturday midday peak hour capacity utilization of the Presidio/Crissy/Marina screenline would exceed 100 percent. As indicated in **Table TRA-49**, with the additional capacity provided by the augmented 22S-Fillmore Short, 28S-19th Avenue Short, and the 43L-Masonic Limited (as described in **Transportation Protection Measure TRA-6**) and the additional shuttle service to downtown on weekends (see **Transportation Protection Measure TRA-7)**, demand on high-interest weekend days would be accommodated. However, the projected ridership demand would not be accommodated on peak weekend event days, and the Saturday midday peak hour shortfall on peak weekend event days would be about 2,200 passengers per hour. Faced with this shortfall passengers would need to wait for one or more buses before being able to board, some passengers may decide to take an alternate, less convenient bus, some passengers may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days. In order to accommodate the additional Saturday midday demand at 100 percent capacity utilization, between 24 and 36 additional buses per hour on the peak weekend days (depending on whether 63 or 94 passenger buses are used). SFMTA has indicted that additional transit service beyond what is identified in **Transportation Protection Measure TRA-6** is not feasible.

The AC34 2012 events would generate a substantial number of transit trips destined to the Presidio, Crissy Field, and the Marina Green (where the AC34 Village would be located), particularly on weekend days. While shuttle service would be supplemented on weekends (see **Transportation Protection Measure TRA-7**), the additional demand associated with the AC34 2012 events would result in the PresidiGo Crissy Field shuttle route exceeding its capacity, which would result in a short-term, major, adverse impact to the PresidiGo shuttle service. As described in ***Section 3.14,***

[19] The transit ridership and capacity utilization analysis accounts for all AC34 spectators, including those destined to NPS and Presidio sites, to other spectator viewing sites and secondary viewing locations, as well as to existing riders.

TABLE TRA-49: ALTERNATIVE D: MODIFIED PROGRAM ALTERNATIVE – TRANSIT ANALYSIS AC34 2012 AND AC34 2013 – SATURDAY MIDDAY HOUR – PRESIDIO/CRISSY FIELD/MARINA SCREENLINE WITH IMPLEMENTATION OF PROTECTION MEASURES TRA-6 AND TRA-7

	Existing plus AC34 with Protection Measure TRA-2b			Existing plus AC34 with Protection Measures TRA-2b, TRA-6 and TRA-7		
	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
2012						
High Interest	3,872	5,214	135%	5,246	5,214	99%
Peak Race Day	3,872	7,472	193%	5,246	7,472	142%
2013						
Peak Race Day	3,872	10,942	283%	5,246	10,942	209%

[a] Capacity includes additional Muni service as described in the People Plan (see **Transportation Protection Measure TRA-2b**).
[b] Capacity includes augmented Muni service and expanded downtown shuttle service as included in **Transportation Protection Measure TRA-2b**, **TRA-6 and TRA-7.**

SOURCE: Adavant Consulting/LCW Consulting, 2012

Transportation and Circulation, transit service to the Marin Headlands and Fort Baker is extremely limited, and include the Muni 76-Marin Headlands on Sundays and holidays, and the Golden Gate Transit Route 10 on weekdays which does not directly serve Fort Baker or the Marin Headlands. On AC34 weekday and weekend event days, very limited number of spectators would be anticipated to access Marin Headlands and Fort Baker/Cavallo Point by transit, and impacts on these lines would be short-term, minor, adverse impacts. Implementation of **Transportation Protection Measure TRA-8**, under which the augmented Golden Gate Transit bus service included in the People Plan would stop at Conzelman Road in the southbound direction and at Vista Point in the northbound direction, would enhance public transit access to the Fort Baker and Marin Headlands area on peak weekend event days.

2013 Event Conditions

In 2013, Alternative D would generate about 4,200 transit trips during the weekday p.m. peak hour on a peak weekday event day, 12,200 transit trips during the Saturday midday peak hour on a high-interest weekend day, and 37,400 transit trips during the Saturday midday peak hour on a peak weekend day.

On peak weekday event days, the capacity utilization at all Muni and regional transit screenlines would be less than 100 percent (see **Table TRA-48A**). The additional capacity provided as part of the September 2011 People Plan would adequately accommodate spectators destined to and from NPS and Presidio sites in San Francisco.

During the Saturday midday peak hour, the capacity utilization of the Presidio/Crissy/Marina screenline would exceed 100 percent on the peak weekend days (see **Table TRA-48C**). The Saturday midday peak hour shortfall would be about 5,700 passengers per hour. As presented in **Table TRA-49**,

with the additional capacity provided by augmented 22S-Fillmore Short, 28S-19th Avenue Short, and the 43L-Masonic Limited (as described in **Transportation Protection Measure TRA-6**), as well as the expanded downtown shuttle on weekends (as described in **Transportation Protection Measure TRA-7**), peak hour capacity utilization would decrease, but would still exceed 100 percent. In order to accommodate the additional Saturday midday demand at 100 percent capacity utilization, between 61 and 91 additional buses per hour would need to be provided (depending on whether 63 or 94 passenger buses are used) on peak weekend days. Faced with a shortfall in transit capacity passengers would need to wait for one or more buses before being able to board, some passengers may decide to take an alternate, less convenient bus, some passengers may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days.

Transit Impact Determination

Table TRA-34, page 4.10-53, presents the impact determinations for transit impacts based on the number of times per month that transit capacity utilization exceeds 100 percent. On six of the 19 event days in 2012, the capacity utilization of the Presidio/Crissy Field/Marina screenline would exceed 100 percent capacity utilization. Capacity utilization of other Muni screenlines would be less than 100 percent, and the regional service provider East Bay, North Bay and South Bay screenlines would be less than 85 percent capacity utilization on all event days in 2012. Because the capacity utilization of the Presidio/Crissy Field/Marina screenline would exceed 100 percent for more than three event days per month (four days in August), similar to Alternative B and Alternative C, in 2012 Alternative D would result in short-term, major, adverse impacts to transit service, although the magnitude of the major, adverse impact would be less than for Alternative B due to lower transit demand associated with Alternative D, but would be similar to Alternative C.

On 11 of the 84 event days in 2013, the capacity utilization of the Presidio/Crissy Field/Marina screenline would exceed 100 percent capacity utilization, and the regional service provider North Bay screenlines would be more than 100 percent capacity utilization for the same 11 event days. Because the capacity utilization of the Presidio/Crissy Field/Marina screenline and North Bay screenline would exceed 100 percent for more than three event days per month (four days in August, and six days in September), similar to Alternative B, in 2013 Alternative D would result in short-term, major, adverse impacts to transit service, although the magnitude of the major, adverse impact would be less than for Alternative B due to lower transit demand associated with Alternative D, but would be similar to Alternative C.

For both AC34 2012 and AC34 2013 conditions, the following transportation protection measures are identified to lessen the severity of this potential major adverse impact, but these temporary impacts would remain major or moderate adverse impacts.

Under Alternative D, **Transportation Protection Measure TRA-6** would provide additional service on the three Muni bus routes that most directly serve the NPS and Presidio sites. Additional peak period service would provide additional capacity which would minimize the adverse impacts in 2012 on high-interest and peak weekend days, and in 2013 on peak weekend days. Due to the substantial shortfall of 1,340 to 7,065 riders per hour during the Saturday midday peak hour, adequate Muni

resources may not be available to accommodate the shortfall completely and additional transportation protection measures would need to be implemented to minimize the impact.

Under Alternative D, **Transportation Protection Measure TRA-7** would increase service between the Presidio and downtown San Francisco on weekends. Downtown shuttle service at ten minute headways between buses would accommodate between 200 and 300 passengers per hour.

Under Alternative D, **Transportation Protection Measure TRA-8** would provide stops on the augmented Golden Gate Transit Route 4 Short line, which on peak weekend event days during AC34 2012 and 2013 would run between the Manzanita park-and-ride lot (at the U.S. 101/ Highway 1 interchange) and San Francisco. The Golden Gate Transit Route 4 line would stop at Conzelman Road in the southbound direction and at Vista Point in the northbound direction, in order to serve the Fort Baker and Marin Headlands area.

Transportation Protection Measure TRA-3 would include the preparation of a Public Information Program to facilitate access to and from venues and spectator viewing area by all modes. Implementation of the Public Information Program is anticipated to alert the public to the possibilities of delays as a result of the AC34 events. **Transportation Protection Measure TRA-2** includes a citywide Traffic Monitoring and Management Program which would implement measures so that crowds associated with event activities do not impede transit operations, so as to ensure that additional capacity on peak event days are provided.

4.10.10.3 Pedestrians

As presented in **Table TRA-17A**, page 4.10-12, under Alternative D the number of spectators destined to NPS and Presidio sites on AC34 event days would be substantially lower than under Alternative B. For example, in 2012, on peak weekend days, the number of daily spectators at the NPS and Presidio sites under Alternative D would be about 35 percent of those estimated for Alternative B, while in 2013 on peak weekend days, the number of daily spectators under Alternative D would be about 52 percent of Alternative B.

Table TRA-50 summarizes the results of the LOS conditions at the walkway and PAOT locations for Alternative D. Supporting detailed technical information is included in **Appendix I**. In general, under Alternative D the number of locations and event days at the study locations that would be LOS E or worse would be fewer than under Alternative B, but more than under Alternative C. At most walkway locations, conditions would be LOS C or better on most event days. The exception would be on the five peak weekend event days in 2013 where LOS conditions at a number of locations would be LOS D. In addition, conditions at the Fort Mason pinch point would be LOS E or LOS F on all weekend event days in 2012 and 2013. Under Alternative D, walkway conditions would be LOS D or worse for more days than Alternative C at Jefferson Street in Aquatic Park, and at the intersection of Mason-Crissy-McDowell. PAOT conditions would be LOS C or better at most locations in 2012, and LOS D or worse on most weekend event days in 2013.

TABLE TRA-50: ALTERNATIVE D: MODIFIED PROGRAM ALTERNATIVE – WALKWAY AND PAOT LOS – AC34 2012 AND AC34 2013

Analysis Location			AC34 2012			AC34 2013		
			Peak Wkday	High Wkend	Peak Wkend	Peak Wkday	Avg Wkend	Peak Wkend
Walkway Analysis Locations								
1	Aquatic Park	Jefferson St NE entry into Aquatic Park	B	C	**D/D**	B	C	**D/D**
2	Aquatic Park	Promenade at Bath House	C	C	**D/C**	C	C	**D/C**
3	Aquatic Park	Promenade at west end of Aquatic Park	C	C	C	C	C	C
4	Fort Mason	Promenade at east end of Fort Mason	C	B	C	B	C	C
5	Fort Mason	Fort Mason Pinch Point on Laguna St	C	**E/E**	**F/F**	C	**E/E**	**F/F**
6	Crissy Field E.	Class I Multi-use Trail	A	B	B	B	C	**E/D**
7	Crissy Field E.	Waterfront Entry	A	B	B	C	B	C
8	Crissy Field E.	Promenade at Wetlands	A	B	B	A	B	C
9	Crissy Field W.	East End of Airfield	A	B	B	A	B	C
10	Crissy Field W.	West End of Airfield	A	B	B	B	B	C
11	Crissy Field W.	Picnic Promenade - East of Picnic Area	A	B	B	A	B	C
12	Crissy Field W.	Picnic Promenade – near Warming Hut	A	B	B	A	B	C
13	Fort Point	Marine Drive to Fort Point	B	C	C	B	C	**D/C**
14	Presidio - Other	Crissy/Mason/McDowell Intersection	C	C	C	C	C	**E/D**
15	Presidio - Other	Long Ave/Lincoln Blvd Intersection	B	B	B	B	C	**D/D**
16	Presidio - Other	Coastal Trail on West Side of Bridge	B	B	B	B	B	B
17	Presidio - Other	Coastal Trail on East Side of Bridge	B	C	C	B	C	C
18	Marin Headlands	Battery Spencer Main Walkways	A	B	B	A	A	B
19	Fort Baker	Center Road	B	B	C	B	B	C
20	Fort Baker	Moore Road	B	B	C	B	B	C
21	Fort Baker	Sommerville Road	A	B	B	A	B	C
PAOT Analysis Sites								
1	Aquatic Park		B	C	**D**	B	B	**D**
2	Fort Mason		B	**E**	**F**	C	**D**	**F**
3	Crissy Field East		A	B	C	C	C	**E**
4	Crissy Field West		A	A	A	B	B	**D**
5	Crissy Field West Picnic Area		A	B	C	A	C	**D**
6	Fort Point		A	C	C	B	C	**D**
7	Golden Gate Bridge Toll Plaza Overlook		B	C	C	B	**C**	**D**
8	Marin Headlands - Battery Spencer		A	C	C	C	C	**D**
9	Fort Baker		B	C	C	B	C	C

[a] LOS represents conditions during the peak hour of the day for each location, which may vary by location. Typically, the peak walkway period would be between noon and 2:00 p.m., and the peak PAOT would occur between 1:00 and 4:00 p.m.

[b] Walkway analysis locations or PAOT sites operating at LOS D, LOS E or LOS F conditions highlighted in **bold**.

SOURCE: ORCA Consulting LLC, 2012

2012 Event Conditions

Under Alternative D, in 2012, a total of about 3,300 daily spectators are anticipated on peak weekdays (two days), 5,880 daily spectators on high-interest weekend days (four days), and about 9,800 daily spectators on the two peak weekend days are estimated to travel to the NPS and Presidio sites (see **Table TRA-17A**, page 4.10-12).[20] Travel conditions in the vicinity of NPS and Presidio sites in San Francisco would also be affected by spectators at the Marina Green. In 2012, the AC Village would be located at the Marina Green and about 11,000 daily spectators are anticipated on peak weekdays, 30,000 daily spectators on high-interest weekend days, and about 50,000 daily spectators on peak weekend days.

Table TRA-50 presents the level of service at the 21 walkway locations and nine PAOT locations for three of the five AC34 2012 spectator profile days. The walkway LOS is presented for conditions without implementation of visitor use management strategies, and at locations projected to operate at LOS D, LOS E, or LOS F conditions, the LOS is also presented for conditions when bicyclists are required to dismount and walk their bicycles. Additional visitor use management strategies would further improve the walkway operating conditions. At locations where PAOT LOS is worse than LOS C conditions, visitor use management strategies that would be implemented would include closing off of the spectator viewing areas when visitor saturation is reached, requiring reservations for access to the viewing areas at peak times, providing real-time information to spectators regarding crowd levels at the viewing areas and alternate locations.

Aquatic Park – At the Aquatic Park analysis locations at Jefferson Street and on the Aquatic Park Promenade at the Bath House, walkway conditions would be LOS D on the two peak weekend event days, and LOS C or better on the other 17 event days in 2012. Requiring bicyclists to dismount and walk their bicycles would improve operations through these areas, and would result in LOS C conditions at the Bath House, but conditions on Jefferson Street would remain at LOS D. The walkway location at the west end of Aquatic Park would operate at LOS C or better on all 19 event days in 2012. The PAOT LOS at Aquatic Park would be LOS D on the two peak weekend event days, and LOS C or better on the other 17 event days in 2012.

Fort Mason – In 2012, walkway conditions on the Bay Trail at the east end of Fort Mason would be LOS C or better on all event days in 2012. The increase in visitor trips to Fort Mason and the Marina at the Fort Mason pinch point at Laguna Street would result in LOS E to LOS F conditions on the six weekend event days. Requiring bicyclists to dismount and walk their bicycles at this location would not be adequate to substantially reduce impacts, and additional measures would be required. **Transportation Protection Measure TRA-10** includes the provision of temporary bicycle lanes within the parking lane of Bay Street and Cervantes Street, which would provide a dedicated bicycle area around most of Fort Mason and would remove a substantial number of bicyclists from sharing the walkway with pedestrians, resulting in improved walkway LOS conditions. The PAOT LOS at Fort Mason would be LOS E or LOS F on the six weekend event days, and LOS B or better on the other 13 event days in 2012.

[20] The AC34 2012 events would also include seven medium-interest weekday event days and 4 low-interest weekday event days, for a total of 19 event days. See **Table TRA-15**.

Crissy Field East and West – Walkway conditions at the seven analysis locations in Crissy Field would be LOS C or better on all 19 event days in 2012. The PAOT LOS at the three Crissy Field locations would be LOS C on all event days in 2012.

Fort Point – Walkway and PAOT LOS in Fort Point would be LOS C or better on all event days in 2012.

Other Presidio Locations – Walkway conditions at key intersections and along the Coastal Trail at the Golden Gate Bridge would be LOS C or better on all event days in 2012. The PAOT LOS at the Golden Gate Bridge Toll Plaza Overlook would also be LOS C or better on all event days in 2012.

Marin Headlands and Fort Baker – Under Alternative D, the number of spectators projected to travel to the Marin Headlands and Fort Baker would range between 200 spectators on peak weekdays, and between 510 and 850 spectators on weekends, with the majority of spectators destined to Fort Baker and Cavallo Point. Walkway and PAOT LOS at Battery Spencer and Fort Baker would be LOS C or better on all event days.

2013 Event Conditions

Under Alternative D, the overall number of spectators projected to attend the AC34 2013 events would increase over AC34 2012 conditions, and the total number of race and non-race days would increase from 19 days in 2012, to 84 days in 2013 (45 race and 40 non-race days). As for Alternative B and Alternative C, in 2013 the AC34 Village would be located at Piers 27-29 on The Embarcadero, rather than at the Marina Green.

Under Alternative D, a total of about 4,850 daily spectators are anticipated on a peak weekday (ten days), 7,650 daily spectators on an average weekend day (13 days), and about 37,500 daily spectators on a peak weekend day (five days). [21] Under Alternative D, the number of daily spectators at the Marina Green is estimated to be similar to Alternative B and Alternative C (about 10,000 daily spectators are anticipated on peak weekdays, 28,000 daily spectators on high-interest weekend days, and 55,000 daily visitors on peak weekend days). While the number of spectators projected for the NPS and Presidio areas on weekdays would be similar to conditions during 2012, the number of spectators on peak weekends would increase substantially (i.e., from 9,800 daily spectators in 2012, to 37,500 daily spectators in 2013).

Aquatic Park – Walkway conditions in the vicinity of Aquatic Park would be LOS D on 11 of the 84 event days (i.e., on weekend event days) at the analysis location on the east side of Aquatic Park at Jefferson Street. Walkway conditions on the Aquatic Park Promenade at the Bath House would be LOS D on the five peak weekend event days in 2013. Requiring bicyclists to walk, rather than ride their bicycle at this location would improve walkway conditions. The Bay Trail walkway location on the east end of Fort Mason would operate at LOS C or better on all event days in 2013. The PAOT LOS at Aquatic Park would be LOS D on the five peak weekend event days, and LOS C or better on the other 79 event days.

[21] In addition to the 28 event days noted above, the AC34 2013 events would also include six medium-interest weekend event days, ten non-peak weekday race days, and 40 non-race days, for a total of 84 event days. See **Table TRA-15**.

Fort Mason – Under Alternative D, walkway conditions on the Bay Trail at the east end of Fort Mason would be LOS C or better on all event days in 2013. However, the increase in visitor trips to Fort Mason and the Marina at the Fort Mason pinch point at Laguna Street would result in LOS E to LOS F conditions on all weekend event days in 2013. Requiring bicyclists to dismount and walk their bicycles at this location would not be adequate to reduce impacts, and additional measures would be required. **Transportation Protection Measure TRA-10** includes the provision of temporary bicycle lanes within the parking lane of Bay Street and Cervantes Street, which would provide a dedicated bicycle area around most of Fort Mason and would remove a substantial number of bicyclists from sharing the walkway with pedestrians, resulting in improved walkway LOS conditions. The PAOT LOS at Fort Mason would be LOS D to LOS F on 24 weekend event days, and LOS C or better on the other 60 weekday (race and non-race) event days in 2013.

Crissy Field East and West – The Class I multi-use trail on the east side of Crissy Field would operate at LOS E on the five peak weekend event days, and LOS C or better on the remaining 79 event days. At the other Crissy Field East and Crissy Field West Promenade locations, walkway conditions would be LOS C or better on all event days in 2013.

The PAOT LOS at Crissy Field East would be LOS D or LOS E on 11 weekend event days in 2013. The PAOT LOS at the Crissy Field West and at the Crissy Field West Picnic Area would be LOS D on the five peak weekend event days, and LOS C or better on other 79 event days in 2013.

Fort Point – Walkway conditions in Fort Point would be LOS D on the five peak weekend event days, and LOS C or better on the 79 event days in 2013. Requiring bicyclist to walk their bicycle would improve conditions to LOS C. The PAOT LOS at Fort Point would be LOS D on the five peak weekend days, and LOS C or better on the other 79 event days.

Other Presidio Locations – Walkway conditions at key intersections and along the Coastal Trail at the Golden Gate Bridge would LOS C or better on most event days. The exceptions would be at the intersection of Mason/Crissy/McDowell, where the walkway conditions would be LOS D or LOS F on the 11 peak weekend event days, and also at the intersection of Long/Lincoln, where the walkway conditions would be LOS D on the five peak weekend event days. The PAOT LOS at the Golden Gate Bridge Plaza Toll Overlook would be LOS D on 11 weekend event days, and LOS C or better on the other 73 event days. With implementation of **Transportation Protection Measure TRA-9**, impacts on pedestrians related to crowding would be reduced.

Marin Headlands and Fort Baker – The number of spectators projected to travel to the Marin Headlands and Fort Baker would range between 250 spectators on peak weekdays, and between 350 and 1,000 spectators on weekends, with the majority of spectators destined to Fort Baker and Cavallo Point. Walkway LOS at Battery Spencer and Fort Baker would be LOS C or better on all event days in 2013. The PAOT LOS at Fort Baker would be LOS C or better on all event days in 2012, while the PAOT LOS at Battery Spencer would be LOS D for 11 weekend event days.

Pedestrian Impact Determination

In addition to the LOS summary in **Table TRA-50**, the percentage increase in pedestrian flows and PAOT volumes used in the pedestrian impact determination are summarized in **Appendix I**. As shown

in the appendix, under Alternative D, pedestrian flow volumes would increase over existing conditions, and would be greater than a 50 percent increase on walkways on many event days in 2012 and 2013. PAOT pedestrian volume increases would be more than 100 percent over existing conditions on most event days in 2012 and 2013 at Aquatic Park, Fort Mason, Crissy Field East, and Crissy Field West.

Due to the combination of increased pedestrian flows, frequency of LOS D or worse conditions at the study locations, and the need to implement crowd management strategies on more than 15 percent of event days, Alternative D would result in short-term, moderate to major, adverse impacts on pedestrians at NPS and Presidio sites in San Francisco. Similar to Alternative C, at the Marin Headlands and Fort Baker sites, Alternative D would result in short-term, minor, adverse impacts.

The impact determination for the various walkway locations is presented in **Table TRA-36**. Under AC34 2012 conditions, Alternative D would result in minor adverse impacts at 20 of the 30 analysis locations, moderate adverse impacts at two locations, and major adverse impacts at eight locations. Under AC34 2013 conditions, Alternative D would result in minor adverse impacts at eight of the 30 analysis locations, moderate adverse impacts at 16 locations, and major adverse impacts at six locations.

As indicated on **Table TRA-37**, requiring bicyclists to walk their bicycle through congested locations would improve conditions at a number of locations for many of the event days, and would change the overall impact determination at two locations in 2013. Additional visitor use management strategies measures would lessen the level and intensity of adverse impacts.

As described for Alternative B, as part of **Transportation Protection Measure TRA-9**, visitor use management strategies would be employed at the NPS and Presidio sites, including the redirection of crowds, closures when capacity is reached, separation of bicycles and pedestrians, and dedication of temporary bicycle lanes (**Transportation Protection Measure TRA-10**). With implementation of these visitor use management strategies, Alternative D impacts on pedestrians related to crowding would be reduced.

4.10.10.4 Bicycles

Under Alternative D, for both AC34 2012 and AC34 2013 conditions, bicycle access to NPS and Presidio sites would remain relatively unchanged from existing conditions. However, on weekend event days, the increase in spectators traveling to and from the waterfront between Aquatic Park and Crissy Field would result in an increase in the potential for bicycle-vehicle and pedestrian-bicycle conflicts in the area. Because under Alternative D there would be fewer spectators at the NPS and Presidio sites than under Alternative B, the potential for conflicts would be less than under Alternative B.

Under Alternative D (as under Alternative B and Alternative C), due to the large number of pedestrians and bicyclists that would pass through the Fort Mason pinch point on Laguna Street, operating conditions during weekend event days in 2012 and 2013 would be LOS E to LOS F. Requiring bicyclists to walk their bicycle through this area would improve conditions, however, on high attendance weekend days, the walkway LOS conditions would remain LOS D. On peak weekend events in 2012 and 2013, **Transportation Protection Measure TRA-10** would create a temporary bicycle lane on portions of Bay Street and Cervantes Street by restricting on-street parking. The

temporary curb bicycle lane would provide an exclusive lane for bicyclists traveling westbound, and would reduce the number of bicyclists at the Laguna Street pinch point, and would allow for a continuous bicycle lane between The Embarcadero and Crissy Field (while also providing access to SAFR and Fort Mason).

The northeast entry to Aquatic Park at Jefferson Street is projected to operate at LOS D conditions on the two peak weekend event days in 2012, and on 11 peak weekend event days in 2013. To minimize the potential for bicycle-pedestrian conflicts, an alternate bicycle route would be provided that would direct bicyclists traveling westbound to the bicycle lane on North Point Street. At Van Ness Avenue, a temporary bicycle lane would be provided along the west curb of Van Ness Avenue between North Point Street and Bay Street, which would connect with the temporary bicycle lane on Bay Street, as described above.

As indicated in **Table TRA-50**, walkway conditions along the Crissy Field Promenade would generally be LOS C or better, with the exception of the Class I path during the five peak weekend event days in 2013. Requiring bicyclists to walk their bicycle through these areas would improve conditions, and implementation of additional visitor use management strategies, such as restricting bicyclists from portions of the Crissy Field Class I multi-use trail, would be required for walkway conditions to improve to LOS C or better.

For those spectators arriving by bicycle, temporary valet bicycle stations (e.g., similar to the service operated at AT&T Park for San Francisco Giants games) would be provided to meet the projected demand identified in **Table TRA-28**, page 4.10-32 (see **Transportation Protection Measure TRA-11**). Under Alternative D, the AC34 2012 events would generate the need for up to 500 bicycle parking spaces on weekdays and up to 1,470 bicycle parking spaces on weekends on the NPS sites. The AC34 2013 events would generate the need for up to 530 bicycle parking spaces on weekdays and up to 3,060 bicycle parking spaces on weekends. Because the NPS sites currently provide about 430 spaces, the majority of the AC34 event-related parking demand would be accommodated in temporary valet stations. The bicycle parking stations would be secure and conveniently located.

Bicycle Impact Determination

Under Alternative D, on up to two peak weekend event days in 2012 and the five peak weekend days in 2013, bicycle access would become more difficult at some locations due to heavier pedestrian and bicycle volumes and would lead to changed patterns in bicycle circulation. Therefore, Alternative D would result in short-term, major adverse, impacts to bicyclists. **Transportation Protection Measures TRA-9** (visitor use management strategies), **TR-10** (Temporary Bicycle Lanes), and **TRA-11** (Temporary Bicycle Parking) would serve to minimize the potential for bicycle conflicts with pedestrians and vehicles, and ensure that adequate bicycle supply is provided, and would lessen the severity of the impact.

4.10.10.5 Parking

Table TRA-51 presents the parking demand for Alternative D on the weekday and weekend event days analyzed for 2012 and 2013 conditions for the NPS sites defined on **Figures TRA-6A** and **TRA-6B**, while **Table TRA-52** presents the projected parking deficits for each scenario in **Table TRA-51**.

TABLE TRA-51: ALTERNATIVE D: MODIFIED PROGRAM ALTERNATIVE –PARKING DEMAND (NUMBER OF SPACES) NEAR NPS SITES – AC34 2012 AND AC34 2013

Study Area	AC34 2012[a]			AC34 2013[a]		
	Peak Weekday	High Interest Weekend	Peak Weekend	Peak Weekday	Average Weekend	Peak Weekend
Presidio and Crissy Field	120	125	209	478	388	2,142
Fort Mason	12	43	71	24	22	71
Aquatic Park	239	211	351	48	106	351
Subtotal Federal Land Locations in SF	*371*	*379*	*631*	*550*	*516*	*2,564*
Alcatraz Island[a]	0	0	0	0	0	0
Marin Headlands (Conzelman Rd)	25	42	69	37	28	69
Fort Baker/Cavallo Pt.	25	29	48	25	21	69
Subtotal Federal Land Locations outside SF	*50*	*71*	*117*	*62*	*49*	*138*
Total all Federal Land Locations[b]	**421**	**450**	**748**	**612**	**565**	**2,702**

[a] Parking demand associated with Alcatraz Island has been assigned to Northeast Embarcadero
[b] Column totals might not add up due to rounding

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-52: ALTERNATIVE D: MODIFIED PROGRAM ALTERNATIVE – VEHICLE PARKING DEFICITS (NUMBER OF SPACES) AND UTILIZATION NEAR NPS SITES – AC34 2012 AND AC34 2013

Study Area	Existing Utilization		AC34 2012[a]			AC34 2013[a]		
	Weekday	Weekend	Peak Weekday	High Interest Weekend	Peak Weekend	Peak Weekday	Average Weekend	Peak Weekend
Presidio and Crissy Field	72%	78%	No deficit	No deficit	50 103%	320 116%	230 111%	1,980 198%
Aquatic Park	83%	88%	130 118%	130 118%	270 137%	No deficit	30 104%	270 137%
Conzelman Rd. and Fort Baker	80%[a]	80%[a]	No deficit	No deficit	23[b] 105%	No deficit	No deficit	44[b] 109%

[a] Estimated value.
[b] Temporary overflow parking can be made available at Fort Baker along East Road (see Protection Measure TRA-4) to accommodate this deficit

SOURCE: Adavant Consulting/LCW Consulting, 2012

Under Alternative D, it is anticipated that a portion of the increased parking demand associated with AC34 2012 and AC34 2013 events would be accommodated on-street in the vicinity of the Presidio and NPS sites in San Francisco. Under Alternative D, the modified program would result in less parking demand parking demand at the NPS sites than under Alternative B. While residential streets in the vicinity of the Presidio and NPS sites are currently subject to RPP parking restrictions, on peak weekend event days, it is possible that even with the RPP restrictions, residents arriving to these areas after drivers have started arriving for the AC34 events would have difficulty parking.

As described for Alternatives B and C, the transportation protection measures identified in section 4.10.12 would serve to enhance and encourage access to the waterfront by transit, walking, and bicycling, while discouraging access by private auto. These measures, combined with implementation of measures directed at managing the parking supply (such as **Transportation Protection Measure TRA-12** which includes the development of a parking management plan for parking within NPS sites, **Transportation Protection Measure TRA-3** which would encourage use of other modes of transportation by alerting potential visitors ahead of time that parking would be scarce, and **Transportation Protection Measure TRA-2** which would increase enforcement and temporary parking restrictions on selected streets to facilitate bus travel, provide for pedestrian-only streets, provide additional vehicle capacity, and reduce localized congestion) would discourage visitor access by auto and associated parking demand.

As part of the AC34 People Plan, SFMTA would develop a program for notifying residents and visitors of on-street parking restrictions that would be required on event days. In addition, **Transportation Protection Measure TRA-4** (Presidio and Other NPS Sites Roadway Management Strategies) includes the possibility for the NPS and U.S. Park Police to manage East Road within Fort Baker as a one-way inbound roadway providing additional temporary parking during peak demand weekends.

2012 Event Conditions

In 2012, the AC Village would be located at the Marina Green and visitorship would shift towards the Aquatic Park and Fisherman's Wharf to the east. As a result, the parking demand generated during both the weekday and weekend peak events between the Presidio/Crissy Field and Fort Mason would be expected to be accommodated. There would be a parking shortfall near Aquatic Park, particularly during weekend events when a greater number of visitors is expected.

On the two peak weekday event days in 2012, there would be about 370 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 130 spaces at Aquatic Park, while there would be no deficit in the Presidio/Crissy Field area. On the four high-interest weekend event days in 2012, there would be about 380 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 130 spaces at Aquatic Park, while there would be no deficit in the Presidio/Crissy Field area. On the two peak weekend event days in 2012, there would be 630 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 270 spaces at Aquatic Park, while there would be no deficit in the Presidio/Crissy Field area.

There would be no AC34 parking demand related to Alcatraz Island under Alternative D in 2012. AC34 parking demand in the Marin Headlands and in Fort Baker in 2012 would result in a parking deficit of less than 30 spaces on the two peak weekend days. On such days, the NPS would be expected to close Conzelman Road to general automobile traffic and convert East Road into an inbound only road, making most of the parking spaces along Conzelman Road unavailable except for early arrivals, but also creating additional parking along East Road that would eliminate the expected parking deficit.

2013 Event Conditions

In 2013, the AC Village would be located at Piers 27-29, and the focus of the spectator viewing would shift to The Embarcadero. During weekdays and peak weekends, the parking demand generated by visitors to the Presidio and Crissy Field areas would exceed the parking supply for the viewing areas between the Presidio/Crissy Field and Aquatic Park.

On the ten peak weekday event days in 2013, there would be about 550 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 320 spaces in the Presidio/Crissy Field area, while there would be no deficit near the Aquatic Park area. On the 13 average weekend/holiday event days in 2013, there would be about 520 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 230 spaces in the Presidio/Crissy Field area, and 30 spaces in the vicinity of the Aquatic Park area. On the five peak weekend event days in 2013, there would be about 2,560 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of almost 2,000 spaces in the Presidio/Crissy Field area, and 270 spaces in the vicinity of the Aquatic Park area.

There would be no AC34 parking demand related to Alcatraz Island under Alternative D in 2013. AC34 parking demand in the Marin Headlands and in Fort Baker in 2013 would result in a parking deficit of about 44 spaces on the five peak weekend days. On such days, the NPS would be expected to close Conzelman Road to general automobile traffic and convert East Road into an inbound only road, making most of the parking spaces along Conzelman Road unavailable except for early arrivals, but also creating additional parking along East Road that would eliminate the expected parking deficit.

Parking Impact Determination

As presented on **Table TRA-40**, page 4.10-68, Alternative D would result in short-term, moderate, adverse impacts on parking at all sites under AC34 2012 and AC34 2013 conditions. In general, due to the fewer number of spectators destined to NPS sites under Alternative D than Alternative B, Alternative D adverse impacts on parking would be less than Alternative B. As indicated on **Table TRA-40**, Alternative D impacts on parking would be similar to Alternative C.

Transportation Protection Measure TRA-12, which includes the development of a Parking Management Plan for NPS sites, would serve to reduce the intensity of adverse impacts at the NPS sites. As part of **Transportation Protection Measure TRA-2** (AC34 People Plan), SFMTA would develop a program for notifying visitors of availability of public parking facilities, including public and private off-street facilities, on-street parking, and satellite parking facilities that would be required on high-spectator event days. The provision of satellite parking facilities, and shuttles to the Presidio,

Crissy Field, Marina Green, Fort Mason, and Aquatic Park would serve to further reduce adverse impacts on parking.

4.10.10.6 NPS and Presidio Facility Access

Under Alternative D, on weekday event days in both 2012 and 2013, access to NPS and Presidio facilities would remain relatively unchanged from existing conditions. On the peak weekend event days in 2013 (estimated to be five days) when vehicular access on Mason Street would be restricted, tenants and visitors to some of these facilities north of Mason Street would be notified in advance of temporary roadway restrictions, and would be granted special parking access permits for short-term use of the facilities (on the six weekend events in 2012, and on the 19 average-interest and medium high-interest weekend events in 2013, Mason Street would remain open to all vehicles). Similar to Alternative B and Alternative C, on days when access onto Mason Street is restricted, access would be controlled at the intersection of Crissy/Mason/McDowell, and only vehicles with permits would be permitted to access Mason Street. Vehicles leaving the facilities would continue eastbound on Mason Street and exit at the Marina Gate. Due to the substantially lower spectator estimates for the peak weekend event days in 2013 (61,000 daily spectators under Alternative B, and 30,500 daily spectators under Alternative D), it is not anticipated that vehicular access to these facilities would need to be restricted, as described for Alternative B. Access to other businesses and residents within the Presidio and Fort Mason would also need to be managed on the peak weekend event days in 2013. Tenants, vendors, and residents would be notified in advance of all event days and of any roadway restrictions that would be implemented. **Transportation Protection Measure TRA-13** would develop strategies to ensure that access to SAFR, Fort Mason, Fort Baker/Marin Headlands, and Crissy Field for NPS staff, Park Partners, residents, deliveries and registered program participants is reasonably maintained on AC34 event days.

On five peak weekend event days in 2013, when access restrictions would be implemented on Mason Street, emergency vehicle access would be provided in a manner consistent with the Public Safety Plan that would be prepared for the AC34 events. The Public Safety Plan and management strategies would address all reasonable safety and security measures, including Advanced Life Support emergency and rescue services. Visitor use management strategies developed as part of **Transportation Protection Measure TRA-9** (visitor use management strategies) would be employed to ensure that all San Francisco Fire Department emergency access lanes are maintained at a minimum of 14 feet wide at all times and that a minimum of three feet of clear space is maintained around fire hydrants (SFFD, 2012). In addition, **Resource Protection Measure FAC 4** involves staging of emergency response vehicles (i.e., fire and medical) in key areas to meet response times due to congested roads on peak weekend event days. Vehicular access to Crissy Field would not be possible via the Crissy/Mason/McDowell intersection on these peak days; however, controlled vehicular access could be maintained from the Presidio via McDowell Avenue. Vehicular access to other facilities within the Presidio, the Marin Headlands, and Fort Baker would be maintained.

Alcatraz Island Access/Loading – Under Alternative D, access for the Alcatraz Island ferry service at Pier 33 would be the same as under Alternative B and Alternative C. On most event days, visitor access to the ferry terminal would remain similar to existing conditions. On weekend days when the northbound right lane and the parking lane of northbound The Embarcadero is closed to private

vehicles for a portion of the day between Howard Street and Jefferson Street, the available northbound travel lane would be signed for local access only, and therefore, visitors to Pier 33 would continue to be able to use the existing accessibility drop-off zone.

NPS and Presidio Facility Access Impact Determination

Because access to NPS and Presidio sites, including Alcatraz Island ferry service at Pier 33, would be maintained on event days, Alternative D impacts to access to NPS and Presidio facilities would be a short term, minor to moderate, adverse impact.

4.10.10.7 Programmatic Access to NPS and Presidio Sites

Under Alternative D, there would be a reduced intensity of programming across spectator venues, and the primary race area would be shifted east from its Alternative B and Alternative C counterpart by approximately ¼ mile to focus spectators away from Crissy. Therefore, under Alternative D there would be substantially fewer spectators than under Alternative B on NPS and Presidio sites. Under Alternative D, existing means of access to the NPS and Presidio sites would be maintained or expanded on AC34 event days, but ease of access and access travel times would vary somewhat by event day and expected spectator attendance.

As indicated in section 3.10.2.2, the Presidio Trust currently operates three shuttle routes serving residents, employees and visitors to the Presidio: the PresidiGo Downtown (between the Presidio and the temporary Transbay Terminal), and the PresidiGo Crissy Field (serving the northern area of the Presidio), and the PresidiGo Presidio Hills (serving the southern area of the Presidio). As part of **Transportation Protection Measure TRA-7**, shuttle service to downtown and Crissy Field would be enhanced. On peak weekend event days in 2012 and 2013, particularly when access to Mason Street and the Crissy Field surface parking lots would be restricted, the expanded shuttle routes would enhance motorized visitor accessibility to Crissy Field destinations. All existing PresidiGo shuttle stops would be maintained during AC34 events.

- Riders would have to make at most one transfer (from one of the around the Park routes to the Downtown route). Riders can board the Downtown shuttle service at the temporary Transbay Terminal, the Embarcadero BART/Muni Metro Station or at the intersection of Union Street and Van Ness Avenue. The shuttle provides direct drop-off to several sites within the park such as the Lombard Gate, the Letterman Digital Arts center, the YMCA and the Main Post Transit Center. The Downtown Shuttle is currently available only to Presidio residents and employees with an appropriate boarding pass as well as to members of the general public with a Muni Passport during commute hours, and open to the general public with no pass required midday on weekdays. As part of **Transportation Protection Measure TRA-7**, shuttle service to downtown would be expanded on peak weekend event days.

- Additional shuttle service to Crissy Field could be interlined with the PresidiGo Crissy Field Routes connecting with the Muni 28-19th Avenue and 76-Marin Headlands bus routes and the Golden Gate Transit at the Golden Gate Bridge Toll Plaza, with the 43-Masonic on Letterman Drive, and with Golden Gate Transit and the 28-19th Avenue on Richardson Avenue. As part of **Transportation Protection Measure TRA-7**, shuttle routes serving Crissy Field would be expanded on peak weekend event days.

2012 Event Conditions

On the 13 weekday event days in 2012, access to NPS and Presidio sites would remain similar to existing conditions. Similar to Alternative B, on weekday event days, additional Muni service would be provided on the 30L-Marina and on a supplemental 47L-Van Ness Limited and transit capacity would be available to meet the projected ridership. Overcrowding on lines serving the Presidio would generally not occur. Those driving to the NPS and Presidio sites would experience somewhat increased delays at intersections within the Presidio, and visitor parking availability would be very limited. Pedestrian conditions on weekday event days would generally be acceptable, with the exception of walkway conditions at the Fort Mason pinch point on Laguna Street, and at the intersection of Mason/Crissy/McDowell in the Presidio. On weekday event days, bicycle access would remain unchanged from existing conditions. On weekday event days in 2012, the number of spectators destined to the Marin Headlands and Fort Baker is expected to be very small (up to 200 spectators per day), and vehicular, pedestrian, and bicycle travel conditions would therefore remain similar to existing conditions. Overall, on the 13 weekday event days in 2012, Alternative D impacts on visitor access to NPS and Presidio sites would be short term, minor to moderate, adverse impacts.

On the six weekend event days in 2012, the number of spectators destined to NPS and Presidio sites, as well as to other nearby spectator venues and viewing areas (e.g., the AC Village in the Marina Green) would increase over weekday conditions. On the peak weekend event days in 2012 (estimated to be six days), vehicular access on Mason Street would remain open to all vehicles. Increases in the number of pedestrians and bicyclists on Crissy Field, Fort Mason, and Aquatic Park would result in increased crowding at the Fort Mason pinch point and in Fort Mason at Jefferson Street and on the Aquatic Park Promenade at the Bath House. Parking availability in the vicinity of NPS sites in the Presidio would be more limited due to the increased demand. On the six weekend event days, additional transit service would be provided on the on the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited bus routes that would serve the Presidio, however, this additional service would not be adequate to accommodate the AC34 transit ridership demand. Enhanced service on the 22-Fillmore, 28-19th Avenue, the 43-Masonic bus routes, and expanded shuttle service to downtown would reduce overcrowding and minimize travel time delays. However, similar to Alternative B and Alternative C, faced with the shortfall in transit capacity, reduced parking availability, and increase intersection delays, those traveling to the Presidio, Fort Mason and Aquatic Park would have somewhat increased travel times. Under Alternative D, the increased travel times would be similar to Alternative C, and less than under Alternative B. Similar to Alternative B, visitors traveling by transit may need to wait for one or more buses before being able to board, some may decide to take an alternate, less convenient bus route, some may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days. Overall, under Alternative D, on weekend event days in 2012, the effect on visitor access and travel times to NPS and Presidio sites in San Francisco would be substantially less than under Alternative B.

On weekend event days in 2012, the number of spectators destined to the Marin Headlands and Fort Baker would increase from weekday conditions, but would still be relatively small (between 500 and 850 daily spectators). On the six weekend event days, vehicular access to Conzelman Road would remain open at all times. Therefore, on weekend event days in 2012, vehicular, pedestrian, and bicycle travel conditions in the Marin Headlands and Fort Baker would remain similar to existing conditions.

In general, on the six weekend event days in 2012, the intensity of travel time and access impacts associated with Alternative D would depend on the spectator attendance levels, but would be similar to Alternative C. In 2012, there would be two days with up to 5,880 daily spectators at the NPS and Presidio sites, and four days with up to 9,800 daily spectators at the NPS and Presidio sites. Therefore, on the six weekend event days in 2012, Alternative D impacts on visitor access to NPS and Presidio sites would be short term, minor to moderate, adverse impacts.

2013 Event Conditions

On the 60 weekday event (race and non-race) days in 2013, access to the NPS and Presidio sites would remain similar to existing conditions. As described above for 2012 weekday event conditions, additional transit service would be provided on lines that serve the Presidio, and the additional capacity would adequately accommodate the increase transit demand. Those driving, bicycling and walking to the NPS and Presidio sites would experience congestion at similar locations as in 2012; however, the congestion would occur on more days than in 2012. On the 60 weekday event days in 2013, the number of spectators destined to the Marin Headlands and Fort Baker is projected to be relatively small (up to 250 spectators per day), and travel conditions would therefore remain similar to existing conditions. Overall, on the 60 weekday event days in 2013, Alternative D impacts on visitor access to NPS and Presidio sites would be short term, minor to moderate, adverse impacts.

On the 24 weekend events in 2013, the number of spectators destined to the NPS and Presidio sites would increase over weekday conditions. On peak and medium-high-interest weekend event days, intersection delays at unrestricted roadways within the Presidio would increase over existing conditions. Additional traffic control and management strategies would be implemented by SFPD, Park Police, and SFMTA traffic control officers to reduce congestion at the key intersections. Increases in the number of pedestrians and bicyclists on Crissy Field, Fort Mason, and Aquatic Park would result in increased crowding at numerous locations at Crissy Field, within the Presidio, as well as at locations in Aquatic Park and at the Fort Mason pinch point. These conditions would primarily occur on the five peak weekend event days. Parking availability in the vicinity of NPS sites in the Presidio would be more limited due to the increased demand and temporary closure of parking areas on East Beach (on the five peak weekend event days).

On the 13 average weekend event days (i.e., 13 of 24 weekend event days) in 2013, the additional transit service on the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited bus routes that would serve the Presidio would be adequate to accommodate the increased demand, because in 2013 the AC Village would be located at Piers 27-29 (rather than at the Marina Green), and the overall number of spectators destined to the waterfront between Aquatic Park and Crissy Field in 2013 on an average weekend event day would be less than on the six weekend event days in 2012. On the 11 peak and medium-high weekend event days in 2013 (with a total of 166,000 to 260,000 daily spectators to all locations), the additional transit service in San Francisco, and enhanced service on the 22-Fillmore, 28-19th Avenue, the 43 Masonic, and expanded shuttle service to downtown, would not adequately accommodate demand. Faced with the shortfall in transit capacity, reduced parking availability, and increase intersection delays, those traveling to the Presidio, Fort Mason and Aquatic Park would have substantially increased travel times. Visitors traveling by transit may need to wait for one or more buses before being able to board, some may decide to take an alternate, less convenient

bus route, some may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days. Overall, on the 24 weekend event days in 2013, the effect on visitor access and travel times to NPS and Presidio sites in San Francisco would be similar to Alternative C, and less than Alternative B.

On weekend event days in 2013, the number of spectators destined to the Marin Headlands and Fort Baker would increase from weekday conditions, but would be small (between 350 and 1,000 daily spectators). As under Alternative C, vehicular access to Conzelman Road would remain open on all event days under Alternative D. On the 24 weekend event days in 2013, pedestrian and bicycle access would remain similar to existing conditions, and visitors would not be anticipated to experience increased travel times.

Programmatic Access to NPS and Presidio Sites Impact Determination

Overall, on the 24 weekend event days in 2013, the intensity of travel time and access impacts would be most noticeable on the five peak weekend event days in 2013. In 2013, there would be 13 days with up to 7,650 daily spectators at the NPS and Presidio sites, six days with up to 17,050 daily spectators, and five days with up to 37,500 daily spectators. Alternative D impacts on visitor access to NPS and Presidio sites would be similar to Alternative C, and substantially reduced over Alternative B conditions, particularly on weekend event days. On the 24 weekend event days in 2013, Alternative D impacts on visitor access to NPS and Presidio sites would be short term, minor to moderate, adverse impacts. Implementation of **Transportation Protection Measures TRA-1** through **TRA-13** would serve to facilitate access to the NPS and Presidio sites on events days, and would minimize impacts.

4.10.10.8 Cumulative

The transportation impacts described above for Alternative D (i.e. traffic, transit, pedestrians, bicycles, parking, access) are cumulative in nature in that they assume conditions that would be affect the transportation network in 2012 and 2013. Implementation of the Marin Headlands and Fort Baker and Management Plan, which includes improvements to 11 miles of roads in the Marin Headlands and Fort Baker, is currently underway. The Plan will improve safety and access by all transportation modes. The Alexander Avenue/Danes Drive Intersection Improvement Project, which would correct existing deficiencies and substandard roadway conditions at the Alexander Avenue left turn to Danes Drive is currently under environmental review, and construction of this project would occur some time after 2014. This project was therefore not assumed to be completed in time for AC34 2012 or AC34 2013 events. Construction of the Presidio Parkway is ongoing and would continue throughout the AC34 2012 and AC34 2013 events. The impact analysis presented above reflects the construction roadway closures that would be in place at the time of the events, including the recent closure of Halleck Street and Marshall Street, and the modifications to the PresidiGo shuttle services.

Therefore, the previous analysis represents a cumulative impact analysis for purposes of transportation impacts. In addition, Alternative D would be a temporary event occurring over a two year period after which travel demand associated with AC34 would cease, and travel demand generated by Alternative D would not contribute to travel demand generated by future development which may occur subsequent to the proposed events.

However, since the AC34 events would occur over four months in a two-year period, it is likely that the some AC34 event days would be concurrent with other special events. Annual special events are typical in San Francisco. Generally, special events lead to an increase in parking demand in their vicinity, as event attendees try to park within walking distance of their final destination. Special events also lead to a temporary increase in vehicle trips and a temporary increase in transit demand. Depending on the type of special event, day of week, venue location, number of attendees, and whether increased transit is provided for these events, special events concurrent with AC34 event days could increase the number of spectators, vehicles, bicyclists, and affect LOS operating conditions over those reported for just AC34 events above.

4.10.10.9 Conclusion

Alternative D would have short-term and temporary transportation impacts ranging from minor adverse to major adverse impacts, varying by event day and the number of spectators traveling to and from the spectator venues and secondary viewing areas; with impacts generally less intense than Alternative B. With Alternative D, potential major adverse impacts would result from the additional travel demand generated by the AC34 events in both 2012 and 2013. **Transportation Protection Measures TRA-1** through **TRA-13** have been identified to manage and reduce the severity of the major adverse impacts, and reduce major impacts at some locations to moderate adverse or minor adverse.

4.10.11 Impacts of Alternative E—Preferred Alternative

4.10.11.1 Traffic

Table TRA-53A presents the intersection LOS conditions at the study intersections for Existing plus Alternative E events conditions for the weekday p.m. peak hour, while **Table TRA-53B** presents the intersection LOS for the Saturday midday peak hour.

San Francisco Locations

Under Alternative E, there would be no programming on NPS lands except at SAFR. In 2012, similar to Alternative D, the first ACWS race area would be shifted east from its Alternative B and Alternative C counterpart by approximately ¼ mile to focus spectators away from Crissy Field. The second ACWS race area would be shifted east by approximately one mile. The AC72 Exhibition race area would be similar to that of Alternative B for 2013. In 2013, the race area would be same as for Alternatives B, D and D. Alternative E assumes that the second ACWS races occur during Fleet Week, which is scheduled to occur between October 4 and October 8, 2012 (AC34 races would occur daily between Thursday, October 4, 2012 and Sunday, October 7, 2012).

As shown in **Table TRA-17B**, page 4.10-12, the total number of spectators destined to NPS sites under Alternative E would be less than Alternative B during both the AC34 2012 and AC34 2013 events, and similar to Alternative D during the AC34 2013 events.

TABLE TRA-53A: ALTERNATIVE E: PREFERRED ALTERNATIVE – INTERSECTION LOS AC34 2013 – WEEKDAY PM PEAK HOUR

			Existing		AC34 2013	
#	Intersection		Delay[a,b]	LOS	Delay[a,b]	LOS
1	Mason St	Yacht Rd	13.8 (wb)	B	31.5 (wb)	D
2	Marina Blvd	Lyon St	32.6	C	**>80**	**F**
3	Mason St	Enter Crissy Field Parking	14.0 (eb)	B	29.6 (eb)	D
4	Mason St	Exit Crissy Field Parking	12.9 (sb)	B	29.0 (sb)	D
5	Mason St	Crissy Field Ave East	17.9 (wb)	C	22.2 (wb)	C
6	Mason St	Crissy Field Ave West	10.7 (sb)	B	12.4 (wb)	B
7	Lincoln Ave	Long Ave (Ft. Pt Rd)	12.3 (sb)	B	12.6 (sb)	B
8	Lincoln Ave	25th Ave	14.2 (wb)	B	14.8 (wb)	B
9	Lincoln Blvd	Merchant Rd	19.4 (sb)	C	21.3 (sb)	C
10	Lincoln Blvd	McDowell Ave	8.8 (eb)	A	9.2 (eb)	A
11	Lincoln Blvd	Bowley St – North	23.0 (wb)	C	23.7 (wb)	C
12	Lincoln Blvd	Bowley St – South	16.9 (wb)	C	17.2 (wb)	C
13	Jackson St	Arguello Blvd	28.1 (sb)	D	30.8 (sb)	D
14	Pacific Ave	Presidio Blvd	20.3 (sb)	C	21.8 (sb)	C
15	Lombard St	Lyon St	33.6 (eb)	D	**35.2 (eb)**	**E**
16	Lombard St	Divisadero St	36.4	D	**>80**	**F**
17	Bay St	Laguna St	19.7	B	24.7	C
18	Bay St	Franklin St	10.8	B	11.0	B
19	Bay St	Van Ness Ave	16.4	B	19.3	B
20	Bay St	Hyde St	6.3	A	6.2	A
21	Marina Blvd	Buchanan St	11.2	B	15.1	B
22	Marina Blvd	Cervantes Blvd/Scott St	11.8	B	40.0	D
23	Alexander Ave	U.S. 101 NB ramps	10.9 (wb)	B	11.1 (wb)	B
24	Alexander Ave	Danes Dr	12.0 (eb)	B	12.3 (eb)	B
25	Alexander Ave	Ft. Baker (East) Rd	10.1 (wb)	B	10.4 (wb)	B
26	Conzelman Rd	U.S. 101 entrance	12.9 (eb)	B	13.8 (eb)	B
27	Conzelman Rd	McCullough Rd	9.0 (sb)	A	9.2 (sb)	A
28	Bunker Rd	Danes Dr	10.1 (sb)	B	10.3 (sb)	B

[a] Delay presented in seconds per vehicle. For unsignalized intersections, delay and LOS presented for worst approach. Worst approach indicated by ( ).
[b] Intersections operating at LOS E or LOS F conditions highlighted in bold.

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-53B: ALTERNATIVE E: PREFERRED ALTERNATIVE – INTERSECTION LOS AC34 2012 AND AC34 2013 – SATURDAY MIDDAY PEAK HOUR

					Existing plus Alternative E							
					AC34 2012				AC34 2013			
			Existing		AC72 Exhibition		AC45 Race Day		Average		Peak	
#	Intersection		Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS
1	Mason St	Yacht Rd	18.8 (eb)	C	23.2(eb)	C	22.1 (eb)	C	**>50 (eb)**	**F**	--	N/A
2	Marina Blvd	Lyon St	46.2	D	**>80**	**F**	**>80**	**F**	**>80**	**F**	--	N/A
3	Mason St	Enter Crissy Field Parking	23.8 (eb)	C	**46 (eb)**	**E**	30.2 (eb)	D	**45.4 (eb)**	**E**	--	N/A
4	Mason St	Exit Crissy Field Parking	15.7 (nb)	C	14.6 (sb)	B	13.3 (sb)	B	18.5 (sb)	C	--	N/A
5	Mason St	Crissy Field Ave East	27.1 (wb)	D	**>50 (wb)**	**F**	17.3 (wb)	C	**>50 (wb)**	**F**	--	N/A
6	Mason St	Crissy Field Ave West	11.5 (wb)	B	25.5 (wb)	D	11.0 (wb)	B	14.8 (wb)	B	--	N/A
7	Lincoln Ave	Long Ave (Ft. Pt Rd)	14.4 (nb)	B	12.4 (nb)	B	11.9 (nb)	B	13.9 (nb)	B	14.3 (nb)	B
8	Lincoln Ave	25th Ave	18.6 (nb)	C	17.0 (nb)	C	15.6 (nb)	C	15.9 (nb)	C	23.7 (nb)	C
9	Lincoln Blvd	Merchant Rd	31.3 (nb)	D	30.8 (nb)	D	24.0 (nb)	C	29.1 (nb)	D	**>50 (nb)**	**F**
10	Lincoln Blvd	McDowell Ave	10.9 (eb)	B	14.4 (eb)	B	11.6 (eb)	B	11.4 (eb)	B	25.9 (eb)	D
11	Lincoln Blvd	Bowley St – North	27.9 (eb)	D	24.7 (eb)	C	23.5 (eb)	C	23.7 (eb)	C	29.1 (wb)	D
12	Lincoln Blvd	Bowley St – South	18.2 (wb)	C	17.3 (wb)	C	16.7 (wb)	C	16.8 (wb)	C	19.3 (wb)	C
13	Jackson St	Arguello Blvd	13.6 (nb)	B	13.4 (nb)	B	12.5 (nb)	B	12.7 (nb)	B	16.9 (nb)	C
14	Pacific Ave	Presidio Blvd	12.7 (sb)	B	12.4 (nb)	B	11.7 (nb)	B	11.8 (nb)	B	15.4 (sb)	C
15	Lombard St	Lyon St	19.4 (eb)	C	16.1 (eb)	C	15.7 (eb)	C	15.8 (eb)	C	17.5 (eb)	C
16	Lombard St	Divisadero St	14.6	B	**>80**	**F**	**>80**	**F**	52.0	D	**>80**	**F**
17	Bay St	Laguna St	13.4	B	**>80**	**F**	**>80**	**F**	39.9	D	**>80**	**F**
18	Bay St	Franklin St	9.5	A	9.3	B	9.3	A	9.3	A	10.6	B
19	Bay St	Van Ness Ave	20.7	C	50.1	D	50.1	D	15.1	B	**>80**	**F**
20	Bay St	Hyde St	7.3	A	7.3	A	7.3	A	7.1	A	6.9	A
21	Marina Blvd	Buchanan St	12.1	B	--	N/A	--	N/A	--	N/A	--	N/A
22	Marina Blvd	Cervantes Blvd/Scott St	11.6	B	--	N/A	--	N/A	--	N/A	--	N/A
23	Alexander Ave	U.S. 101 NB ramps	**>50 (wb)**	**F**	**>50 (wb)**	**F**	**>50 (wb)**	**F**	**>50 (wb)**	**F**	**>50 (wb)**	**F**
24	Alexander Ave	Danes Dr	21.3 (eb)	B	25.0 (eb)	D	25.8 (eb)	D	23.4 (eb)	C	**48.9 (eb)**	**E**
25	Alexander Ave	Ft. Baker (East) Rd	13.9 (wb)	B	15.3 (wb)	C	15.6 (wb)	C	14.8 (wb)	B	20.8 (wb)	C
26	Conzelman Rd	U.S. 101 entrance	17.4 (eb)	C	19.6 (eb)	C	19.9 (eb)	C	18.4 (eb)	C	30.1 (eb)	D
27	Conzelman Rd	McCullough Rd	8.9 (sb)	A	9.2 (sb)	A	9.2 (sb)	A	9.0 (sb)	A	9.8 (sb)	A
28	Bunker Rd	Danes Dr	10.9 (sb)	B	11.0 (sb)	B	11.0 (sb)	B	11.0 (sb)	B	11.2 (sb)	B

[a] Delay presented in seconds per vehicle. For unsignalized intersections, delay and LOS presented for worst approach. Worst approach indicated by ( ).
[b] Intersections operating at LOS E or LOS F conditions highlighted in bold.

SOURCE: Adavant Consulting/LCW Consulting, 2012

2012 Event Conditions

Under Alternative E, on the peak AC45 weekend race day (two days with about 13,100 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park generating about 911 Saturday midday peak hour vehicle trips), two intersections along Mason Street would operate at LOS E or LOS F conditions during the Saturday midday peak hour (Mason/Crissy Field Parking Entrance, and Mason/Crissy Field East). In addition, the intersections of Marina/Lyon, Lombard/Divisadero, and Bay/Laguna would operate at LOS F conditions.

On peak AC72 Exhibition weekend race days (one days with about 8,850 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park generating about 615 Saturday midday peak hour vehicle trips), the intersections of Marina/Lyon, Lombard/Divisadero, and Bay/Laguna would operate at LOS F conditions.

2013 Event Conditions

In 2013, on the peak weekday event days (ten days), there would be about 2,700 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park (generating about 258 p.m. peak hour vehicle trips), and substantially fewer on the non-peak weekday event days (50 days). As under Alternatives B, C and D, in 2013, the AC Village would move to Pier 27-29, and, during the weekday p.m. peak hour, three of the 22 study intersections in San Francisco would operate at LOS E or LOS F (Marina/Lyon, Lombard/Lyon, and Lombard/Divisadero). However, in 2013 there would be more weekday events with higher attendance levels, and therefore, during the weekday p.m. peak hour, these three intersections would operate at LOS E or LOS F on up to 20 event days (10 peak race days, and 10 non-peak race days).

In 2013, on average weekend event days (13 days with about 6,350 spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park generating about 442 Saturday midday peak hour vehicle trips), three intersections along Mason Street would operate at LOS E or LOS F conditions during the Saturday midday peak hour (Mason/Yacht, Mason/Crissy Field Parking Entrance, and Mason/Crissy Field East). In addition the intersection of Marina/Lyon would operate at LOS F conditions. On high-interest (six days) and peak weekend event (five days) days, the number of spectators destined to the Presidio, Crissy Field, Fort Mason, and Aquatic Park would increase, and would be up to 28,500 spectators (generating up to 1,982 Saturday midday peak hour vehicle trips). Vehicular access on Mason Street would be restricted to emergency vehicles only, while permitted tenants/visitors could potentially enter via McDowell Avenue and exit eastbound via Mason Street (which would be restricted to one-way, eastbound traffic only). Under Alternative E, other intersections within the Presidio would operate at LOS D during the Saturday midday peak hour, with the exception of the intersection of Lincoln/Merchant, which would operate at LOS F. To the east of the Presidio, the intersections of Lombard/Divisadero, Bay/Laguna, and Bay/Van Ness would operate at LOS E or LOS F during the Saturday midday peak hour.

Marin Headlands and Fort Baker Locations

Under Alternative E, the number of spectators destined to the Marin Headlands and Fort Baker would be similar to Alternatives C and D, and would be less than under Alternative B on both weekday and

weekend event days. Due to the lower number of spectators under Alternative E, it is anticipated that access to Conzelman Road would not be restricted on any weekend event days in either 2012 or 2013, however, access could be restricted at peak times (except for emergency vehicles). On peak weekend event days in 2013, access through the Barry-Baker tunnel would be managed, except for emergency vehicles, residents, staff and potentially permitted tenants, however, could be restricted at peak times.

2012 Event Conditions

In 2012, up to 850 spectators are estimated to travel to the Marin Headlands and Fort Baker on the five weekend event days (generating up to 116 Saturday midday peak hour vehicle trips). Similar to Alternative B and Alternative C, during the weekday p.m. peak hour, the study intersections in the Marin Headlands and Fort Baker would continue to operate at LOS C or better on all weekday event days. On the six weekend event days in 2012, the intersection of Alexander Avenue/U.S. 101 northbound off-ramp would continue to operate at LOS F conditions, as under existing conditions. All other study intersections in Marin would operate at LOS D or better.

2013 Event Conditions

In 2013, up to 250 spectators are estimated to travel to the Marin Headlands and Fort Baker on the 60 weekday (race and non-race) event days (generating up to 51 p.m. peak hour vehicle trips), and between 350 and 1,000 spectators on the 24 weekend event days (generating between 46 and 383 Saturday midday peak hour vehicle trips). During the weekday p.m. peak hour, the six study intersections in the Marin Headlands and Fort Baker would continue to operate at LOS C or better in 2013.

On the 24 weekend event days in 2013, the intersection of Alexander Avenue/U.S. 101 northbound off-ramp would continue to operate at LOS F conditions during the Saturday midday peak hour, as under existing conditions. Due to the increase in Saturday midday peak hour traffic volumes over existing conditions, delays at this intersection would increase and queues could spill back onto U.S. 101 northbound. In addition, the intersection of Alexander/Danes would operate at LOS E conditions during the Saturday midday peak hour on the 11 total peak weekend and high-interest weekend event days in 2013. Implementation of **Transportation Protection Measure TRA-5**, which would station CHP officers at the intersections of the northbound and southbound U.S. 101 ramps to Alexander Avenue, and NPS officers at the intersection of Alexander/Danes, on peak weekend event days would facilitate traffic flow through these unsignalized intersections and reduce potential for queue spillback onto U.S. 101.

It should be noted that the *Marin Headlands and Fort Baker Infrastructure and Management Plan* identifies a traffic mitigation measure which involves operating a one-way loop within Fort Baker. Under this configuration, vehicles enter Fort Baker at East Road, and travel on Center Road to Bunker Road, and exit on Danes Drive. This configuration allows for additional parking to be accommodated the northbound lane on East Road, and allows for two-way travel for bicyclists. The one-way loop configuration has been implemented by NPS on high visitor demand days, such as on Independence Day. If determined appropriate, NPS could implement the one-way loop operation within Fort Baker on one or more AC34 peak weekend event days in 2012 or 2013.

Intersection Impact Determination

Table TRA-31, page 4.10-45, presents the impact determinations for each study intersection, and presents a comparison to Alternative B. Alternative E would result in fewer moderate and major impacts than Alternative B, and traffic impacts would be similar to Alternatives C and D.

Under Alternative E, AC34 events in 2012 and 2013 would result in short-term impacts. Under AC34 2012 conditions, Alternative E would result in minor adverse impacts at 22 intersections, and major adverse impacts at six intersections. Under AC34 2013 conditions, Alternative E would result in minor adverse impacts at 16 intersections, moderate adverse impacts at five intersections, and major adverse impacts at seven intersections.

Transportation Protection Measures identified for Alternatives B, C and D would also be applicable for Alternative E. The various strategies in **Transportation Protection Measure TRA-1** (People Plan for National Park Areas) and **Transportation Protection Measure TRA-2** (People Plan) would serve to manage travel demand during the AC34 events, and to encourage walking, bicycling, and transit for access to the sites. **Transportation Protection Measure TRA-4** (Presidio and NPS Sites Roadway Management Strategies) and **Transportation Protection Measure TRA-5** (Traffic Control Officers at Intersections) would serve to reduce delays associated with the additional vehicle trips generated by the AC34 events by restricting vehicle access to areas with projected high concentrations of pedestrians. Traffic control officers at intersections would facilitate vehicle, bicycle, and pedestrian flows, and would reduce overall delays at intersections. Implementation of transportation protection measures would reduce the intensity of the identified minor, moderate, and major adverse impacts. With implementation of additional restrictions on vehicular access than those considered in the analysis for Mason Street and other roadways in the Presidio **(Transportation Protection Measure TRA-4),** intersections along Mason Street would not experience congested conditions, and impacts would change from major adverse, to moderate adverse impacts.

4.10.11.2 Transit

Table TRA-19 (page 44.10-16) presents the total peak hour transit trips for Alternative E for AC34 2012 and AC34 2013 conditions for the various analysis scenarios. **Table TRA-54A** presents the capacity utilization analysis for the weekday p.m. (outbound from the waterfront) conditions for AC34 2013 peak weekday conditions. **Table TRA-54B** presents the Saturday midday (towards the waterfront) analysis for AC34 2012 AC72 Exhibition and AC45 peak weekend days, while **Table TRA-54C** presents the Saturday midday analysis for AC34 2013 conditions for average weekend and peak weekend event days.[22] The analysis includes existing transit service levels plus service increases proposed as part of the People Plan, summarized in **Transportation Protection Measure TRA-2**.

[22] The transit ridership and capacity utilization analysis accounts for all AC34 spectators, including those destined to NPS and Presidio sites, to other spectator viewing sites and secondary viewing locations, as well as to existing riders.

TABLE TRA-54A: ALTERNATIVE E: PREFERRED ALTERNATIVE – TRANSIT ANALYSIS AC34 2013 – WEEKDAY PM PEAK HOUR

	Existing			Existing Plus Alternative E 2013 Peak		
Outbound	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
San Francisco						
Presidio/Crissy/Marina	2,891	1,820	63%	3,521	2,740	78%
Fisherman's Wharf	4,049	3,309	82%	4,613	3,355	73%
East By						
BART	24,150	20,067	83%	24,150	20,931	87%
AC Transit	4,193	2,517	60%	4,193	2,648	63%
Ferries	1,519	702	46%	1,519	745	49%
Total	*29,862*	*23,286*	*78%*	*29,862*	*24,325*	*81%*
North Bay						
Buses	2,205	1,397	63%	2,205	1,504	68%
Ferries	1,706	906	53%	1,706	984	58%
Total	*3,911*	*2,303*	*59%*	*3,911*	*2,488*	*64%*
South Bay						
BART	16,800	10,202	61%	16,800	10,904	65%
Caltrain	3,250	1,986	61%	3,250	2,123	65%
SamTrans	940	575	61%	940	614	65%
Total	*20,990*	*12,763*	*61%*	*20,990*	*13,641*	*65%*

[a] Existing capacity
[b] Capacity includes Muni and Regional transit provider service enhancements included in the People Plan (i.e., Protection Measure TRA-2b). Service enhancements on Muni include increased frequencies on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays, and the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends.
[c] Conditions exceeding 100 percent capacity utilization are highlighted in **bold**

SOURCE: Adavant Consulting/LCW Consulting, 2012

2012 Event Conditions

In 2012, Alternative E would generate between 14,500 transit trips during the Saturday midday peak hour on a AC72 Exhibition weekend day, and 15,100 transit trips during the Saturday midday peak hour on a peak weekend day for AC45 racing. On peak weekday event days, the p.m. peak hour capacity utilization at all screenlines would be less than 100 percent (see **Table TRA-54A**).

Similar to Alternatives C and D, the additional capacity provided as part of the September 2011 People Plan would adequately accommodate spectators destined to and from NPS and Presidio sites in San Francisco. Under Alternative E, because transit demand to NPS and Presidio sites would be accommodated on existing and enhanced/augmented Muni routes, the expansion of shuttle service to downtown on weekdays would not occur.

TABLE TRA-54B: ALTERNATIVE E: PREFERRED ALTERNATIVE –TRANSIT ANALYSIS AC34 2012 – SATURDAY MIDDAY PEAK HOUR

	Existing			Existing Plus Alternative E Exhibition Day (AC72)			Existing Plus Alternative E Peak Race Day (AC45)		
Outbound	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
San Francisco									
Presidio/Crissy/Marina	2,738	1,827	67%	**3,872**	**7,905**	**204%**	**3,872**	**7,453**	**192%**
Fisherman's Wharf	3,119	2,339	75%	3,683	2,871	78%	3,683	2,871	78%
East Bay									
BART	8,064	3,900	48%	16,128	7,159	44%	16,128	7,024	44%
AC Transit	200	117	56%	464	206	44%	464	208	45%
Ferries	688	560	81%	1,464	886	61%	1,464	875	60%
Total	*8,952*	*4,577*	*51%*	*18,056*	*8,251*	*46%*	*18,056*	*8,107*	*45%*
North Bay									
Buses	205	62	30%	509	271	53%	509	266	52%
Ferries	2,580	691	27%	3,380	2,211	65%	3,380	2,144	63%
Total	*2,785*	*753*	*27%*	*3,389*	*2,482*	*64%*	*3,389*	*2,411*	*62%*
South Bay									
BART	8,547	2,340	27%	17,094	5,576	33%	17,094	5,446	32%
Caltrain	650	543	84%	1,300	851	65%	1,300	837	64%
SamTrans	40	32	80%	480	120	25%	480	114	24%
Total	*9,237*	*2,915*	*32%*	*18,874*	*6,547*	*35%*	*18,874*	*6,397*	*34%*

[a] Existing capacity
[b] Capacity includes Muni and Regional transit provider service enhancements included in the People Plan (i.e., Protection Measure TRA-2b). Service enhancements on Muni include increased frequencies on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays, and the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends.
[c] Conditions exceeding 100 percent capacity utilization are highlighted in **bold.**

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-54C: ALTERNATIVE E: PREFERRED ALTERNATIVE – TRANSIT ANALYSIS AC34 2013 – SATURDAY MIDDAY PEAK HOUR

	Existing			Existing Plus Alternative E High Interest			Existing Plus Alternative E Peak		
Outbound	Capacity	Ridership	Percent Utilization	Capacity	Ridership	Percent Utilization	Capacity	Ridership	Percent Utilization
San Francisco									
Presidio/Crissy/Marina	2,738	1,827	67%	3,872	2,671	69%	**3,872**	**9,811**	**253%**
Fisherman's Wharf	3,119	2,339	75%	3,683	2,406	65%	3,683	3,191	87%
East Bay									
BART	8,064	3,900	48%	16,128	4,541	28%	16,128	11,545	72%
AC Transit	200	117	56%	464	136	29%	464	340	73%
Ferries	688	560	81%	1,464	625	43%	1,464	1,332	91%
Total	*8,952*	*4,577*	*51%*	*18,056*	*5,301*	*29%*	*18,056*	*13,216*	*73%*
North Bay									
Buses	205	62	30%	509	104	20%	509	560	110%
Ferries	2,580	691	27%	3,380	989	29%	3,380	4,250	126%
Total	*2,785*	*753*	*27%*	*3,389*	*1,093*	*28%*	*3,389*	*4,810*	*124%*
South Bay									
BART	8,547	2,340	27%	17,094	2,977	17%	17,094	9,945	58%
Caltrain	650	543	84%	1,300	603	46%	1,300	1,257	97%
SamTrans	40	32	80%	480	49	10%	480	236	49%
Total	*9,237*	*2,915*	*32%*	*18,874*	*3,629*	*19%*	*18,874*	*11,438*	*61%*

[a] Existing capacity
[b] Capacity includes Muni and Regional transit provider service enhancements included in the People Plan (i.e., Protection Measure TRA-2b). Service enhancements on Muni include increased frequencies on the 30L-Marina and a supplemental 47L-Van Ness Limited on weekdays, and the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited on weekends.
[c] Conditions exceeding 100 percent capacity utilization are highlighted in **bold**

SOURCE: Adavant Consulting/LCW Consulting, 2012

Table TRA-54B presents the weekend capacity utilization for the Saturday midday peak hour for conditions assuming the additional Muni and regional transit service included in the People Plan. Similar to Alternatives B, C and D, on peak weekend days in 2012 (AC45 races and AC72 Exhibition races), even with the enhanced/augmented service on Muni routes, the Saturday midday peak hour capacity utilization of the Presidio/Crissy/Marina screenline would exceed 100 percent. As indicated in **Table TRA-55**, with the additional capacity provided by the augmented 22S-Fillmore Short, 28S-19th Avenue Short, and the 43L-Masonic Limited (as described in **Transportation Protection Measure TRA-6**) and the expanded shuttle service to downtown on weekends (see **Transportation Protection Measure TRA-7**), demand on peak weekend days would still not be accommodated, although the shortfall would be less. The Saturday midday peak hour shortfall on peak weekend event days would be up to 2,660 passengers per hour. Faced with this shortfall passengers would need to wait for one or more buses before being able to board, some passengers may decide to take an alternate, less convenient bus, some passengers may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days. In order to accommodate the additional Saturday midday demand at 100 percent capacity utilization, between 29 and 43 additional buses per hour on the peak weekend days. SFMTA has indicated that additional transit service beyond what is identified in **Transportation Protection Measure TRA-6** is not feasible.

TABLE TRA-55: ALTERNATIVE E: PREFERRED ALTERNATIVE – TRANSIT ANALYSIS AC34 2012 AND AC34 2013 – SATURDAY MIDDAY HOUR – PRESIDIO/CRISSY FIELD/MARINA SCREENLINE WITH IMPLEMENTATION OF PROTECTION MEASURES TRA-6 AND TRA-7

	Existing plus AC34 with Protection Measure TRA-2b			Existing plus AC34 with Protection Measures TRA-2b, TRA-6 and TRA-7		
	Capacity[a]	Ridership	Percent Utilization	Capacity[b]	Ridership	Percent Utilization
2012						
Peak Race Day (AC45)	3,872	7,905	204%	5,246	7,905	151%
Exhibition Day (AC72)	3,872	7,453	192%	5,246	7,453	142%
2013						
Peak Race Day	3,872	9,811	253%	5,246	9,811	187%

[a] Capacity includes additional Muni service as described in the People Plan (see **Transportation Protection Measure TRA-2b**).
[b] Capacity includes augmented Muni service and expanded downtown shuttle service as included in **Transportation Protection Measure TRA-2b, TRA-6 and TRA-7.**

SOURCE: Adavant Consulting/LCW Consulting, 2012

The AC34 2012 events would generate a substantial number of transit trips destined to the Presidio, Crissy Field, and the Marina Green (where the AC34 Village would be located), particularly on weekend days. While downtown shuttle service would be supplemented on weekends (see **Transportation Protection Measure TRA-7**), the additional demand associated with the AC34 2012 events would result in the PresidiGo Crissy Field shuttle route exceeding its capacity, which would result in a short-term, major, adverse impact to the PresidiGo shuttle service. As described in ***Section 3.14,Transportation and Circulation***, transit service to the Marin Headlands and Fort Baker

is extremely limited, and includes the Muni 76-Marin Headlands on Sundays and holidays, and the Golden Gate Transit Route 10 on weekdays which does not directly serve Fort Baker or the Marin Headlands. On AC34 weekday and weekend event days, very limited number of spectators would be anticipated to access Marin Headlands, Fort Baker/Cavallo Point by transit, and impacts on these lines would be short-term, minor, adverse impacts. Implementation of **Transportation Protection Measure TRA-8**, under which the augmented Golden Gate Transit bus service included in the People Plan would stop at Conzelman Road in the southbound direction and at Vista Point in the northbound direction, would enhance public transit access to the Fort Baker and Marin Headlands area on peak weekend event days.

2013 Event Conditions

In 2013, Alternative E would generate a total of 3,400 transit trips during the weekday p.m. peak hour on a peak weekday event day, 11,900 transit trips during the Saturday midday peak hour on a high-interest weekend day, and 35,500 transit trips during the Saturday midday peak hour on a peak weekend day.

On peak weekday event days, the capacity utilization at all Muni and regional transit screenlines would be less than 100 percent (see **Table TRA-48A**). The additional capacity provided as part of the September 2011 People Plan would adequately accommodate spectators destined to and from NPS and Presidio sites in San Francisco.

During the Saturday midday peak hour, the capacity utilization of the Presidio/Crissy/Marina screenline would exceed 100 percent on the peak weekend days (see **Table TRA-48C**). The Saturday midday peak hour shortfall would be about 4,500 passengers per hour. As presented in **Table TRA-49**, with the additional capacity provided by augmented 22S-Fillmore Short, 28S-19th Avenue Short, and the 43L-Masonic Limited (as described in **Transportation Protection Measure TRA-6**), as well as the expanded shuttle service to downtown on weekends (as described in **Transportation Protection Measure TRA-7**), peak hour capacity utilization would decrease, but would still exceed 100 percent. In order to accommodate the additional Saturday midday demand at 100 percent capacity utilization, between 49 and 73 additional buses per hour would need to be provided (depending on whether 63 or 94 passenger buses are used) on peak weekend days. Faced with a shortfall in transit capacity passengers would need to wait for one or more buses before being able to board, some passengers may decide to take an alternate, less convenient bus, some passengers may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days.

Transit Impact Determination

Table TRA-34B, page 4.10-53, presents the impact determinations for transit impacts based on the number of times per month that transit capacity utilization exceeds 100 percent. On five of the 14 event days in 2012, the capacity utilization of the Presidio/Crissy Field/Marina screenline would exceed 100 percent capacity utilization. Capacity utilization of other Muni screenlines would be less than 100 percent, and the regional service provider East Bay, North Bay and South Bay screenlines would be less than 85 percent capacity utilization on all event days in 2012. Because the capacity utilization of the

Presidio/Crissy Field/Marina screenline would exceed 100 percent for fewer than three event days per month, in 2012 Alternative E would result in short-term, moderate, adverse impacts to transit service (as compared to short-term, major, adverse impacts for Alternatives B, C, and D).

On 11 of the 84 event days in 2013, the capacity utilization of the Presidio/Crissy Field/Marina screenline would exceed 100 percent capacity utilization, and the regional service provider North Bay screenlines would be more than 100 percent capacity utilization for the same 11 event days. Because the capacity utilization of the Presidio/Crissy Field/Marina screenline and North Bay screenline would exceed 100 percent for more than three event days per month (four days in August, and six days in September), similar to Alternatives B, C and D, in 2013 Alternative E would result in short-term, major, adverse impacts to transit service, although the magnitude of the major, adverse impact would be less than for Alternative B due to lower transit demand associated with Alternative E, but would be similar to Alternatives C and D.

For both AC34 2012 and AC34 2013 conditions, the following transportation protection measures are identified to lessen the severity of this potential major adverse impact, but these temporary impacts would remain major or moderate adverse impacts.

Under Alternative E, **Transportation Protection Measure TRA-6** would provide additional service on the three Muni bus routes that most directly serve the NPS and Presidio sites. Additional peak period service would provide additional capacity which would minimize the adverse impacts in 2012 on high-interest and peak weekend days, and in 2013 on peak weekend days. Due to the substantial shortfall of 1,340 to 7,065 riders per hour during the Saturday midday peak hour, adequate Muni resources may not be available to accommodate the shortfall completely and additional transportation protection measures would need to be implemented to minimize the impact.

Under Alternative E, **Transportation Protection Measure TRA-7** would expand shuttle service between the Presidio and downtown San Francisco on weekends. Downtown shuttle service at ten minute headways between buses would accommodate between 200 and 300 passengers per hour.

Under Alternative E, **Transportation Protection Measure TRA-8** would provide stops on the augmented Golden Gate Transit Route 4 Short line, which on peak weekend event days during AC34 2012 and 2013 would run between the Manzanita park-and-ride lot (at the U.S. 101/Highway 1 interchange) and San Francisco. The Golden Gate Transit Route 4 line would stop at Conzelman Road in the southbound direction and at Vista Point in the northbound direction, in order to serve the Fort Baker and Marin Headlands area

Transportation Protection Measure TRA-3 would include the preparation of a Public Information Program to facilitate access to and from venues and spectator viewing areas by all modes. Implementation of the Public Information Program is anticipated to alert the public to the possibilities of delays as a result of the AC34 events. **Transportation Protection Measure TRA-2** includes a citywide Traffic Monitoring and Management Program which would implement measures so that crowds associated with event activities do not impede transit operations, so as to ensure that additional capacity on peak event days are provided.

4.10.11.3 Pedestrians

As presented in **Table TRA-17A** and **Table TRA-17B**, page 4.10-12, under Alternative E the number of spectators destined to NPS and Presidio sites on AC34 event days would be substantially lower than under Alternative B. For example, in 2012, on peak weekend days, the number of daily spectators under Alternative E would be about 82 percent of those estimated for Alternative B, while in 2013 on peak weekend days, the number of daily spectators under Alternative E would be about 41 percent of Alternative B.

Table TRA-56 summarizes the results of the LOS conditions at the walkway and PAOT locations for Alternative E. Supporting detailed technical information is included in **Appendix I**. In general, under Alternative E the number of locations and event days at the study locations that would be LOS E or worse would be fewer than under Alternative B, but more than under Alternative C. At most walkway locations, conditions would be LOS C or better on most event days. The exception would be on the five peak weekend event days in 2013 where LOS conditions at a number of locations would be LOS D. In addition, conditions at the Fort Mason pinch point would be LOS E or LOS F on all weekend event days in 2012 and 2013. Under Alternative E, walkway conditions would be LOS D or worse for more days than Alternative C at Jefferson Street in Aquatic Park, and at the intersection of Mason-Crissy-McDowell. PAOT conditions would be LOS C or better at most locations in 2012, and LOS D or worse on most weekend event days in 2013.

2012 Event Conditions

Under Alternative E, in 2012, about 3,300 daily spectators are anticipated on peak weekdays, 13,950 daily spectators on peak AC45 race days, and about 9,700 daily spectators on the AC72 Exhibition weekend days are estimated to travel to the NPS and Presidio sites (see **Table TRA-17A**, page 4.10-12). As for Alternatives B, C and D, travel conditions in the vicinity of NPS and Presidio Trust sites in San Francisco would also be affected by spectators at the Marina Green.

Table TRA-56 presents the level of service at the 21 walkway locations and nine PAOT locations for three of the five AC34 2012 spectator profile days. The walkway LOS is presented for conditions without implementation of visitor use management strategies, and at locations projected to operate at LOS D, LOS E, or LOS F conditions, the LOS is also presented for conditions when bicyclists are required to dismount and walk their bicycles. Additional visitor use management strategies would further improve the walkway operating conditions. At locations where PAOT LOS is worse than LOS C conditions, visitor use management strategies that would be implemented would include closing off of the spectator viewing areas when visitor saturation is reached, requiring reservations for access to the viewing areas at peak times, providing real-time information to spectators regarding crowd levels at the viewing areas and alternate locations.

Aquatic Park – At the Aquatic Park analysis locations at Jefferson Street and on the Aquatic Park Promenade at the Bath House, walkway conditions would be LOS D on the peak weekend event days, and LOS C or better on the peak weekday event days in 2012. Requiring bicyclists to dismount and walk their bicycles would improve operations through these areas, and would result in LOS C conditions at the both locations. The walkway location at the west end of Aquatic Park would operate

TABLE TRA-56: ALTERNATIVE E: PREFERRED ALTERNATIVE – WALKWAY AND PAOT LOS – AC34 2012 AND AC34 2013

Analysis Location			AC34 2012			AC34 2013		
			Peak Wkday	AC72 Wkend	AC45 Wkend	Peak Wkday	Avg Wkend	Peak Wkend
Walkway Analysis Locations								
1	Aquatic Park	Jefferson St NE entry into Aquatic Park	B	**D/C**	**D/C**	B	C	**D/C**
2	Aquatic Park	Promenade at Bath House	C	**D/C**	**D/C**	C	C	**D/C**
3	Aquatic Park	Promenade at west end of Aquatic Park	C	C	C	C	C	C
4	Fort Mason	Promenade at east end of Fort Mason	C	C	C	C	C	C
5	Fort Mason	Fort Mason Pinch Point on Laguna St	C	**F/D**	**F/D**	C	**E/D**	**F/D**
6	Crissy Field E.	Class I Multi-use Trail	A	C	B	B	C	**D/C**
7	Crissy Field E.	Waterfront Entry	A	B	B	A	B	C
8	Crissy Field E.	Promenade at Wetlands	A	B	B	A	B	C
9	Crissy Field W.	East End of Airfield	A	B	B	A	B	C
10	Crissy Field W.	West End of Airfield	A	B	B	B	B	C
11	Crissy Field W.	Picnic Promenade - East of Picnic Area	A	B	B	A	B	C
12	Crissy Field W.	Picnic Promenade – near Warming Hut	A	B	B	A	B	B
13	Fort Point	Marine Drive to Fort Point	B	C	C	B	C	C
14	Presidio - Other	Crissy/Mason/McDowell Intersection	C	**D/D**	**D/D**	C	C	**D/C**
15	Presidio - Other	Long Ave/Lincoln Blvd Intersection	B	C	B	B	B	**D/D**
16	Presidio - Other	Coastal Trail on West Side of Bridge	B	B	B	B	B	B
17	Presidio - Other	Coastal Trail on East Side of Bridge	B	C	C	B	C	C
18	Marin Headlands	Battery Spencer Main Walkways	A	B	B	A	A	B
19	Fort Baker	Center Road	B	C	C	B	B	C
20	Fort Baker	Moore Road	B	C	C	B	B	C
21	Fort Baker	Sommerville Road	A	B	B	A	B	C
PAOT Analysis Sites								
1	Aquatic Park		B	**D**	**D**	B	B	**D**
2	Fort Mason		B	**E**	**E**	B	C	**E**
3	Crissy Field East		B	**D**	C	B	C	**E**
4	Crissy Field West		A	C	A	A	B	C
5	Crissy Field West Picnic Area		A	C	C	A	B	**D**
6	Fort Point		A	C	C	A	C	**D**
7	Golden Gate Bridge Toll Plaza Overlook		B	C	C	B	C	**D**
8	Marin Headlands - Battery Spencer		A	C	C	C	C	**D**
9	Fort Baker		B	C	C	B	C	C

[a] LOS represents conditions during the peak hour of the day for each location, which may vary by location. Typically, the peak walkway period would be between noon and 2:00 p.m., and the peak PAOT would occur between 1:00 and 4:00 p.m.

[b] Walkway analysis locations or PAOT sites operating at LOS D, LOS E or LOS F conditions highlighted in **bold**.

SOURCE: ORCA Consulting LLC, 2012

at LOS C or better on all 19 event days in 2012. The PAOT LOS at Aquatic Park would be LOS D on the peak weekend event days, and LOS C or better on weekday event days in 2012.

Fort Mason – In 2012, walkway conditions on the Bay Trail at the east end of Fort Mason would be LOS C or better on all event days in 2012. The increase in visitor trips to Fort Mason and the Marina at the Fort Mason pinch point at Laguna Street would result in LOS F conditions on weekend event days. Requiring bicyclists to dismount and walk their bicycles at this location would not be adequate to substantially reduce impacts, and additional measures would be required. **Transportation Protection Measure TRA-10** includes the provision of temporary bicycle lanes within the parking lane of Bay Street and Cervantes Street, which would provide a dedicated bicycle area around most of Fort Mason and would remove a substantial number of bicyclists from sharing the walkway with pedestrians, resulting in improved walkway LOS conditions. The PAOT LOS at Fort Mason would be LOS E on the peak weekend event days.

Crissy Field East and West – Walkway conditions at the seven analysis locations in Crissy Field would be LOS C or better on all 14 event days in 2012. The PAOT LOS at the three Crissy Field locations would be LOS C on all event days in 2012, with the exception of Crissy Field East, which would be LOS D on AC72 event days.

Fort Point – Walkway and PAOT LOS in Fort Point would be LOS C or better on all event days in 2012.

Other Presidio Locations – Walkway conditions at key intersections and along the Coastal Trail at the Golden Gate Bridge would be LOS C or better on all event days in 2012. The exception would be the sidewalks at the intersection of Crissy/Mason/McDowell, which would operate at LOS D on peak weekend event days. The PAOT LOS at the Golden Gate Bridge Toll Plaza Overlook would also be LOS C or better on all event days in 2012.

Marin Headlands and Fort Baker – Under Alternative E, the number of spectators projected to travel to the Marin Headlands and Fort Baker would be up to 850 on peak weekdays. Walkway and PAOT LOS at Battery Spencer and Fort Baker would be LOS C or better on all event days.

2013 Event Conditions

Under Alternative E, the overall number of spectators projected to attend the AC34 2013 events would increase over AC34 2012 conditions, and the total number of race and non-race days would increase from 14 days in 2012, to 84 days in 2013 (44 race and 40 non-race days). As for Alternatives B, C, and D, in 2013 the AC34 Village would be located at Piers 27-29 on The Embarcadero, rather than at the Marina Green. As shown in **Table TRA-17B**, under Alternative E, a total of about 2,950 daily spectators are anticipated on federal lands on a peak weekday (ten days), 6,700 daily spectators on an average weekend day (13 days), and about 29,500 daily spectators on a peak weekend day (five days). [23] Under Alternative E, the number of daily spectators at the Marina Green is estimated to be similar to Alternative B and Alternative C (about 10,000 daily spectators are anticipated on peak weekdays,

[23] In addition to the 28 event days noted above, the AC34 2013 events would also include six medium-interest weekend event days, ten non-peak weekday race days, and 40 non-race days, for a total of 84 event days. See **Table TRA-15**.

28,000 daily spectators on high-interest weekend days, and 55,000 daily visitors on peak weekend days). While the number of spectators projected for the NPS and Presidio areas on weekdays would be similar to conditions during 2012, the number of spectators on peak weekends would increase substantially (i.e., from 13,950 daily spectators in 2012, to 29,500 daily spectators in 2013).

Aquatic Park – Walkway conditions would be LOS D on 11 of the 84 event days (i.e., on peak weekend event days) at the analysis location on the east side of Aquatic Park at Jefferson Street. Walkway conditions on the Aquatic Park Promenade at the Bath House would be LOS D on the five peak weekend event days in 2013. Requiring bicyclists to walk, rather than ride their bicycle at this location would improve walkway conditions. The Bay Trail walkway location on the east end of Fort Mason would operate at LOS C or better on all event days in 2013. The PAOT LOS at Aquatic Park would be LOS D on the five peak weekend event days, and LOS C or better on the other 79 event days.

Fort Mason – Under Alternative E, walkway conditions on the Bay Trail at the east end of Fort Mason would be LOS C or better on all event days in 2013. However, the increase in visitor trips to Fort Mason and the Marina at the Fort Mason pinch point at Laguna Street would result in LOS E to LOS F conditions on all weekend event days in 2013. Requiring bicyclists to dismount and walk their bicycles at this location would not be adequate to reduce impacts, and additional measures would be required. **Transportation Protection Measure TRA-10** includes the provision of temporary bicycle lanes within the parking lane of Bay Street and Cervantes Street, which would provide a dedicated bicycle area around most of Fort Mason and would remove a substantial number of bicyclists from sharing the walkway with pedestrians, resulting in improved walkway LOS conditions. The PAOT LOS at Fort Mason would be LOS D to LOS E on 11 weekend event days, and LOS C or better on the other 73 weekday and weekend event days in 2013.

Crissy Field East and West – The Class I multi-use trail on the east side of Crissy Field would operate at LOS D on the five peak weekend event days, and LOS C or better on the remaining 79 event days. At the other Crissy Field East and Crissy Field West Promenade locations, walkway conditions would be LOS C or better on all event days in 2013.

The PAOT LOS would be LOS E at Crissy Field East and LOS D at the Crissy Field West Picnic Area on five weekend event days in 2013. The PAOT LOS at Crissy Field West would be LOS C on all event days in 2013.

Fort Point – Walkway conditions in Fort Point would be LOS C or better on all event days in 2013. The PAOT LOS at Fort Point would be LOS D on the five peak weekend days, and LOS C or better on the other 79 event days.

Other Presidio Locations – Walkway conditions at key intersections and along the Coastal Trail at the Golden Gate Bridge would LOS C or better on all event days. The exceptions would be at the intersection of Mason-Crissy-McDowell, where the walkway conditions would be LOS D on the 11 peak weekend event days, and also at the intersection of Long/Lincoln, where the walkway conditions would be LOS D on the five peak weekend event days. The PAOT LOS at the Golden Gate Bridge Toll Plaza Overlook would be LOS D on five weekend event days, and LOS C or better on the other 79 event days. With implementation of **Transportation Protection Measure TRA-9**, impacts on pedestrians related to crowding would be reduced.

Marin Headlands and Fort Baker – The number of spectators projected to travel to the Marin Headlands and Fort Baker would range between 250 spectators on peak weekdays, and between 350 and 1,000 spectators on weekends, with the majority of spectators destined to Fort Baker and Cavallo Point. Walkway LOS at Battery Spencer and Fort Baker would be LOS C or better on all event days in 2013. The PAOT LOS at Fort Baker would be LOS C or better on all event days in 2012, while the PAOT LOS at Battery Spencer would be LOS D for 11 weekend event days.

Pedestrian Impact Determination

In addition to the LOS summary in **Table TRA-56**, the percentage increase in pedestrian flows and PAOT volumes used in the pedestrian impact determination are summarized in **Appendix I**. As shown in the appendix, under Alternative E, pedestrian flow volumes would increase over existing conditions, and would be greater than a 50 percent increase on walkways on many event days in 2012 and 2013. PAOT pedestrian volume increases would be more than 100 percent over existing conditions on most event days in 2012 and 2013 at Aquatic Park, Fort Mason, Crissy Field East, and Crissy Field West.

Due to the combination of increased pedestrian flows, frequency of LOS D or worse conditions at the study locations, and the need to implement crowd management strategies on more than 15 percent of event days, Alternative E would result in short-term, moderate to major, adverse impacts on pedestrians at NPS and Presidio sites in San Francisco. Similar to Alternative C, at the Marin Headlands and Fort Baker sites, Alternative E would result in short-term, minor, adverse impacts.

The impact determination for the various walkway locations is presented in **Table TRA-36**. Under AC34 2012 conditions, Alternative E would result in minor adverse impacts at 18 of the 30 analysis locations, moderate adverse impacts at one location, and major adverse impacts at 11 locations. Under AC34 2013 conditions, Alternative E would result in minor adverse impacts at eight analysis locations, moderate adverse impacts at 17 locations, and major adverse impacts at five locations.

As indicated on **Table TRA-37**, requiring bicyclists to walk their bicycle through congested locations would improve conditions at a number of locations for many of the event days, and would change the overall impact determination at two locations in 2013. Additional visitor use management strategies measures would lessen the level and intensity of adverse impacts.

As described for Alternative B, as part of **Transportation Protection Measure TRA-9**, visitor use management strategies would be employed at the NPS and Presidio sites, including the redirection of crowds, closures when capacity is reached, separation of bicycles and pedestrians, and dedication of temporary bicycle lanes (**Transportation Protection Measure TRA-10**). With implementation of these visitor use management strategies, Alternative E impacts on pedestrians related to crowding would be reduced.

4.10.11.4 Bicycles

Under Alternative E, for both AC34 2012 and AC34 2013 conditions, bicycle access to NPS and Presidio sites would remain relatively unchanged from existing conditions. However, on weekend

event days, the increase in spectators traveling to and from the waterfront between Aquatic Park and Crissy Field would result in an increase in the potential for bicycle-vehicle and pedestrian-bicycle conflicts in the area. Because under Alternative E there would be fewer spectators at the NPS and Presidio sites than under Alternative B, the potential for conflicts would be less than under Alternative B.

Under Alternative E (as under Alternatives B, C and D), due to the large number of pedestrians and bicyclists that would pass through the Fort Mason pinch point on Laguna Street, operating conditions during weekend event days in 2012 and 2013 would be LOS E to LOS F. Requiring bicyclists to walk their bicycle through this area would improve conditions, however, on high attendance weekend days, the walkway LOS conditions would remain LOS D. On peak weekend events in 2012 and 2013, **Transportation Protection Measure TRA-10** would create a temporary bicycle lane on portions of Bay Street and Cervantes Street by restricting on-street parking. The temporary curb bicycle lane would provide an exclusive lane for bicyclists traveling westbound, and would reduce the number of bicyclists at the Laguna Street pinch point, and would allow for a continuous bicycle lane between The Embarcadero and Crissy Field (while also providing access to SAFR and Fort Mason).

The northeast entry to Aquatic Park at Jefferson Street is projected to operate at LOS D conditions on the peak weekend event days in 2012 (AC45 races and AC72 Exhibition races), and on five peak weekend event days in 2013. To minimize the potential for bicycle-pedestrian conflicts, an alternate bicycle route would be provided that would direct bicyclists traveling westbound to the bicycle lane on North Point Street. At Van Ness Avenue, a temporary bicycle lane would be provided along the west curb of Van Ness Avenue between North Point Street and Bay Street, which would connect with the temporary bicycle lane on Bay Street, as described above.

As indicated in **Table TRA-56**, walkway conditions along the Crissy Field Promenade would generally be LOS C or better, with the exception of the Class I path during the five peak weekend event days in 2013. Requiring bicyclists to walk their bicycle through these areas would improve conditions to LOS C or better.

For those spectators arriving by bicycle, temporary valet bicycle stations (e.g., similar to the service operated at AT&T Park for San Francisco Giants games) would be provided to meet the projected demand identified in **Table TRA-28**, page 4.10-32 (see **Transportation Protection Measure TRA-11**). Under Alternative E, the AC34 2012 events would generate the need for up to 1,750 bicycle parking spaces on weekends on the NPS and Presidio sites. The AC34 2013 events would generate the need for up to 405 bicycle parking spaces on weekdays and up to 2,820 bicycle parking spaces on weekends. As under Alternatives B, C, and D, the majority of the AC34 event-related parking demand would be accommodated in temporary valet stations.

Bicycle Impact Determination

Under Alternative E, on up to five peak weekend event days in 2012 and on the five peak weekend days in 2013, bicycle access would become more difficult at some locations due to heavier pedestrian and bicycle volumes and would lead to changed patterns in bicycle circulation. Therefore, Alternative E would result in short-term, major adverse, impacts to bicyclists. **Transportation Protection**

Measures TRA-9 (visitor use management strategies), **TRA-10**(temporary bicycle lanes), and **TRA-11** (temporary bicycle parking) would serve to minimize the potential for bicycle conflicts with pedestrians and vehicles, and ensure that adequate bicycle supply is provided, and would lessen the severity of the impact.

4.10.11.5 Parking

Table TRA-57 presents the parking demand for Alternative E on the weekday and weekend event days analyzed for 2012 and 2013 conditions for the NPS sites defined on **Figures TRA-6A** and **TRA-6B**, while **Table TRA-58** presents the projected parking deficits for each scenario in **Table TRA-57**.

Under Alternative E, it is anticipated that a portion of the increased parking demand associated with AC34 2012 and AC34 2013 events would be accommodated on-street in the vicinity of the Presidio and NPS sites in San Francisco. Under Alternative E, because programming on NPS sites would be limited, the preferred alternative would result in less parking demand at and near the NPS sites than under Alternative B. While residential streets in the vicinity of the Presidio and NPS sites are currently subject to RPP parking restrictions, on peak weekend event days, it is possible that even with the RPP restrictions, residents arriving to these areas after drivers have started arriving for the AC34 events would have difficulty parking. As for Alternatives B, C and D, the transportation protection measures identified in section 4.10.12 would serve to enhance and encourage access to the waterfront by transit, walking, and bicycling, while discouraging access by private auto. These measures, combined with implementation of measures directed at managing the parking supply (such as **Transportation Protection Measure TRA-12** which includes the development of a parking management plan for parking within NPS sites, **Transportation Protection Measure TRA-3** which would encourage use of other modes of transportation by alerting potential visitors ahead of time that parking would be scarce, and **Transportation Protection Measure TRA-2** which would increase enforcement and temporary parking restrictions on selected streets to facilitate bus travel, provide for pedestrian-only streets, provide additional vehicle capacity, and reduce localized congestion) would discourage visitor access by auto and associated parking demand.

As part of the AC34 People Plan, SFMTA would develop a program for notifying residents and visitors of on-street parking restrictions that would be required on event days. In addition, **Transportation Protection Measure TRA-4** (Presidio and Other NPS Sites Roadway Management Strategies) includes the possibility for the NPS and U.S. Park Police to manage East Road within Fort Baker as a one-way inbound roadway providing additional temporary parking during peak demand weekends.

2012 Event Conditions

In 2012, the AC Village would be located at the Marina Green and visitorship would shift towards the Aquatic Park and Fisherman's Wharf to the east. As a result, the parking demand generated during

TABLE TRA-57: ALTERNATIVE E: PREFERRED ALTERNATIVE –PARKING DEMAND (NUMBER OF SPACES) NEAR NPS SITES – AC34 2012 AND AC34 2013

Study Area	AC34 2012[a]		AC34 2013[a]		
	Very High Interest AC45 Boat Race Weekend	High Interest AC72 Boat Exhibition Weekend	Peak Weekday	Average Weekend	Peak Weekend
Presidio and Crissy Field	500	202	240	262	1,405
Fort Mason	71	71	12	11	36
Aquatic Park	351	351	72	176	561
Subtotal Federal Land Locations in SF	*922*	*624*	*324*	*449*	*2,002*
Alcatraz Island[a]	0	0	0	0	0
Marin Headlands (Conzelman Rd)	69	69	37	28	69
Fort Baker/Cavallo Pt.	48	48	25	21	69
Subtotal Federal Land Locations outside SF	*117*	*117*	*62*	*49*	*138*
Total all Federal Land Locations[b]	**1,039**	**741**	**386**	**498**	**2,140**

[a] Parking demand associated with Alcatraz Island has been assigned to Northeast Embarcadero
[b] Column totals might not add up due to rounding

SOURCE: Adavant Consulting/LCW Consulting, 2012

TABLE TRA-58: ALTERNATIVE E: PREFERRED ALTERNATIVE – VEHICLE PARKING DEFICITS (NUMBER OF SPACES) AND UTILIZATION NEAR NPS SITES – AC34 2012 AND AC34 2013

Study Area	Existing Utilization		AC34 2012[a]		AC34 2013[a]		
	Weekday	Weekend	Very High Interest Peak AC45 Boat Race Weekend	High Interest Peak AC72 Boat Exhibition Weekend	Peak Weekday	Average Weekend	Peak Weekend
Presidio and Crissy Field	72%	78%	340 117%	40 102%	80 104%	100 105%	1,250 162%
Aquatic Park	83%	88%	270 137%	270 137%	No deficit	100 114%	480 165%
Conzelman Rd. and Fort Baker	80% [a]	80% [a]	117[b] 124%	23[b] 105%	No deficit	No deficit	44[b] 109%

[a] Estimated value.
[b] Temporary overflow parking can be made available at Fort Baker along East Road (see Protection Measure TRA-4) to accommodate this deficit

SOURCE: Adavant Consulting/LCW Consulting, 2012

both the weekday and weekend peak events between the Presidio/Crissy Field and Fort Mason would be expected to be accommodated. There would be a parking shortfall near Aquatic Park, particularly during weekend events when a greater number of visitors is expected.

On the two very high-interest weekend event days in 2012, there would be about 920 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 340 spaces at the Presidio/Crissy Field area and 270 spaces at Aquatic Park. On the three high-interest weekend event days in 2012, there would be almost 630 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 40 spaces at the Presidio/Crissy Field area and 270 spaces at Aquatic Park.

There would be no AC34 parking demand related to Alcatraz Island under this alternative in 2012. AC34 parking demand in the Marin Headlands and in Fort Baker in 2012 would result in a parking deficit of about 117 spaces on the two very high-interest weekend event days and 23 spaces on the two high-interest weekend days. On such days, the NPS would be expected to close Conzelman Road to general automobile traffic and convert East Road into an inbound only road, making most of the parking spaces along Conzelman Road unavailable except for early arrivals, but also creating additional parking along East Road that would eliminate the expected parking deficit.

2013 Event Conditions

In 2013, the AC Village would be located at Piers 27-29, and the focus of the spectator viewing would shift to The Embarcadero. During weekdays and peak weekends, the parking demand generated by visitors to the Presidio and Crissy Field areas would exceed the parking supply for the viewing areas between the Presidio/Crissy Field and Aquatic Park.

On the ten peak weekday event days in 2013, there would be about 330 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 80 spaces in the Presidio/Crissy Field area, while there would be no deficit near the Aquatic Park area. On the 13 average weekend/holiday event days in 2013, there would be about 450 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 100 spaces in the Presidio/Crissy Field area, and 100 spaces in the vicinity of the Aquatic Park area. On the five peak weekend event days in 2013, there would be about 2,000 additional vehicles parked at the Presidio, Crissy Field, Fort Mason, and Aquatic Park, resulting in a parking deficit of 1,250 spaces in the Presidio/Crissy Field area, and 480 spaces in the vicinity of the Aquatic Park area.

There would be no AC34 parking demand related to Alcatraz Island under this alternative in 2013. AC34 parking demand in the Marin Headlands and in Fort Baker in 2013 would result in a parking deficit of about 44 spaces on the five peak weekend days. On such days, the NPS would be expected to close Conzelman Road to general automobile traffic and convert East Road into an inbound only road, making most of the parking spaces along Conzelman Road unavailable except for early arrivals, but also creating additional parking along East Road that would eliminate the expected parking deficit.

Parking Impact Determination

As presented on **Table TRA-40**, page 4.10-68, Alternative E would result in short-term, moderate to major, adverse impacts on parking under AC34 2012 and AC34 2013 conditions. Alternative E would result in short-term, major, adverse parking impacts at the Aquatic Park under AC34 2012 conditions, and short-term, moderate, adverse impacts at all other NPS sites in 2012 as well as at all NPS sites under AC34 2013 conditions. Parking impacts at Presidio/Crissy Field and the Marin Headlands/Fort Baker would be short-term, moderate, adverse impacts under both AC34 2012 and AC34 2013 conditions. In general, due to the fewer number of spectators destined to NPS sites under Alternative E than Alternative B, Alternative E adverse impacts on parking would be less than Alternative B.

Transportation Protection Measure TRA-12, which includes parking management strategies for the NPS sites, would serve to reduce the intensity of adverse impacts at the NPS and Presidio sites. As part of **Transportation Protection Measure TRA-2** (AC34 People Plan), SFMTA would develop a citywide program for notifying visitors of availability of public parking facilities, including public and private off-street facilities, on-street parking, and satellite parking facilities that would be required on high-spectator event days. The provision of satellite parking facilities, and shuttles to the Presidio, Crissy Field, Marina Green, Fort Mason, and Aquatic Park would serve to further reduce adverse impacts on parking.

4.10.11.6 NPS and Presidio Facility Access

Under Alternative E, on weekday event days in both 2012 and 2013, access to NPS and Presidio facilities would remain relatively unchanged from existing conditions. On the 11 weekend event days in 2013 when vehicular access on Mason Street would be restricted, tenants and visitors to some of these facilities north of Mason Street would be notified in advance of temporary roadway restrictions, and would be granted special parking access permits for short-term use of the facilities. Similar to Alternatives B, C and D, on days when access onto Mason Street is restricted, access would be controlled at the intersection of Crissy/Mason/McDowell, and only vehicles with permits would be permitted to access Mason Street. Vehicles leaving the facilities would continue eastbound on Mason Street and exit at the Marina Gate. Due to the substantially lower spectator estimates for the peak weekend event days in 2013 (61,000 daily spectators under Alternative B, and 20,000 daily spectators under Alternative E), it is not anticipated that vehicular access to these facilities would need to be restricted, as described for Alternative B. Access to other businesses and residents within the Presidio and Fort Mason would also need to be managed on the peak weekend event days in 2013. Tenants, vendors, and residents would be notified in advance of all event days and of any roadway restrictions that would be implemented. **Transportation Protection Measure TRA-13** would develop strategies to ensure that access to SAFR, Fort Mason, Fort Baker/Marin Headlands, and Crissy Field for NPS staff, Park Partners, residents, deliveries and registered program participants is reasonably maintained on AC34 event days.

On five peak weekend event days in 2013, when access restrictions would be implemented on Mason Street, emergency vehicle access would be provided in a manner consistent with the Public Safety Plan that would be prepared for the AC34 events. The Public Safety Plan and management strategies would address all reasonable safety and security measures, including emergency and rescue services. Visitor

use management strategies developed as part of **Transportation Protection Measure TRA-9** (visitor use management strategies) would be employed to ensure that all San Francisco Fire Department emergency access lanes are maintained at a minimum of 14 feet wide at all times and that a minimum of three feet of clear space is maintained around fire hydrants (SFFD, 2012). In addition, **Resource Protection Measure FAC 4** involves staging of emergency response vehicles (i.e., fire and medical) in key areas to meet response times due to congested roads on peak weekend event days. Vehicular access to Crissy Field would not be possible via the Crissy/Mason/McDowell intersection on these peak days; however, controlled vehicular access could be maintained from the Presidio via McDowell Avenue. Vehicular access to other facilities within the Presidio, the Marin Headlands, and Fort Baker would be maintained.

Alcatraz Island Access/Loading – Under Alternative E, access for the Alcatraz Island ferry service at Pier 33 would be the same as under Alternatives B, C, and D. On most event days, visitor access to the ferry terminal would remain similar to existing conditions. On weekend days when the northbound right lane and the parking lane of northbound The Embarcadero is closed to private vehicles for a portion of the day between Howard Street and Jefferson Street, the available northbound travel lane would be signed for local access only, and therefore, visitors to Pier 33 would continue to be able to use the existing accessibility drop-off zone.

NPS and Presidio Facility Access Impact Determination

Because access to NPS and Presidio sites, including Alcatraz Island ferry service at Pier 33, would be maintained on event days, Alternative E impacts to access to NPS and Presidio facilities would be a short term, minor to moderate, adverse impact.

4.10.11.7 Programmatic Access to NPS and Presidio Sites

Under Alternative E, there would not be any programming on NPS lands, except for SAFR, and the primary race area would be shifted east from Alternatives B and C's counterpart (would be similar to Alternative D). Therefore, under Alternative E there would be substantially fewer spectators than under Alternative B on NPS and Presidio sites. Under Alternative E, existing means of access to the NPS and Presidio sites would be maintained or expanded on AC34 event days, but ease of access and access travel times would vary somewhat by event day and expected spectator attendance.

As for Alternatives B, C and D, Alternative E would include increased shuttle service to and within the Presidio on peak weekend event days in 2012 and 2013. As part of **Transportation Protection Measure TRA-7**, the shuttle service to downtown and Crissy Field would be enhanced. On peak weekend event days in 2012 and 2013, particularly when access to Mason Street and the Crissy surface parking lots would be restricted, the Downtown and Crissy Field shuttles would enhance motorized visitor accessibility to Crissy Field destinations. All existing PresidiGo shuttle stops would be maintained during AC34 events.

- Riders would have to make at most one transfer (from one of the around the Park routes to the Downtown route). Riders can board the Downtown shuttle service at the temporary Transbay Terminal, the Embarcadero BART/Muni Metro Station or at the intersection of Union Street and Van Ness Avenue. The shuttle provides direct drop-off to several sites within the park

such as the Lombard Gate, the Letterman Digital Arts center, the YMCA and the Main Post Transit Center. The Downtown Shuttle is currently available only to Presidio residents and employees with an appropriate boarding pass as well as to members of the general public with a Muni Passport during commute hours, and open to the general public with no pass required midday on weekdays. As part of **Transportation Protection Measure TRA-7**, the Downtown service would be extended to peak weekend event days, shuttle service to downtown would be expanded on peak weekend event days.

- Additional service to Crissy Field could be either interlined with the PresidiGo Crissy Field route, or connected with the Muni 28-19th Avenue and 76-Marin Headlands bus routes and the Golden Gate Transit at the Golden Gate Bridge Toll Plaza, with the 43-Masonic on Letterman Drive, and with Golden Gate Transit and the 28-19th Avenue on Richardson Avenue. As part of **Transportation Protection Measure TRA-7**, shuttle routes serving Crissy Field would be expanded on peak weekend event days.

2012 Event Conditions

On the nine weekday event days in 2012, access to NPS and Presidio sites would remain similar to existing conditions. Similar to Alternatives B, C, and D, on weekday event days, additional Muni service would be provided on the 30L-Marina and on a supplemental 47L-Van Ness Limited, and transit capacity would be available to meet the projected ridership. Overcrowding on lines serving the Presidio and Fort Mason areas would generally not occur. Those driving to the NPS and Presidio sites would experience somewhat increased delays at intersections within the Presidio, and visitor parking availability would be very limited. Pedestrian conditions on weekday event days would generally be acceptable, with the exception of walkway conditions at the Fort Mason pinch point on Laguna Street, and at the intersection of Mason/Crissy/McDowell in the Presidio. On weekday event days, bicycle access would remain unchanged from existing conditions. On weekday event days in 2012, the number of spectators destined to the Marin Headlands and Fort Baker is expected to be very small (up to 200 spectators per day), and vehicular, pedestrian, and bicycle travel conditions would therefore remain similar to existing conditions. Overall, on the nine weekday event days in 2012, Alternative E impacts on visitor access to NPS and Presidio sites would be short term, minor to moderate, adverse impacts.

On the five weekend event days in 2012, the number of spectators destined to NPS and Presidio sites, as well as to other nearby spectator venues and viewing areas (e.g., the AC Village in the Marina Green) would increase over weekday conditions. On the five peak weekend event days in 2012, vehicular access on Mason Street would remain open to all vehicles. Increases in the number of pedestrians and bicyclists on Crissy Field, Fort Mason, and Aquatic Park would result in increased crowding at the Fort Mason pinch point and in Fort Mason at Jefferson Street and on the Aquatic Park Promenade at the Bath House. Parking availability in the vicinity of NPS sites in the Presidio would be more limited due to the increased demand. On the six weekend event days, additional transit service would be provided on the on the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited bus routes that would serve the Presidio, however, this additional service would not be adequate to accommodate the AC34 transit ridership demand. Enhanced service on the 22-Fillmore, 28-19th Avenue, the 43-Masonic bus routes, and the expanded shuttle service to downtown would reduce overcrowding and minimize travel time delays. However, similar to Alternatives B, C, and D, faced with the shortfall in transit capacity, reduced parking availability, and increase intersection delays, those traveling to the Presidio, Fort Mason and Aquatic Park would have somewhat increased travel

times. Under Alternative E, the increased travel times would be similar to Alternatives C and D, and would be less than under Alternative B. Similar to Alternatives B, C, and D, visitors traveling by transit may need to wait for one or more buses before being able to board, some may decide to take an alternate, less convenient bus route, some may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days. Overall, under Alternative E, on weekend event days in 2012, the effect on visitor access and travel times to NPS and Presidio sites in San Francisco would be substantially less than under Alternative B.

On weekend event days in 2012, the number of spectators destined to the Marin Headlands and Fort Baker would increase from weekday conditions, but would still be relatively small (up to 850 daily spectators). On the five weekend event days, vehicular access to Conzelman Road would remain open at all times. Therefore, on weekend event days in 2012, vehicular, pedestrian, and bicycle travel conditions in the Marin Headlands and Fort Baker would remain similar to existing conditions.

In general, on the five weekend event days in 2012, the intensity of travel time and access impacts associated with Alternative E would depend on the spectator attendance levels, but would be similar to Alternatives C and D. On the five weekend event days in 2012, Alternative E impacts on visitor access to NPS and Presidio sites would be short term, minor to moderate, adverse impacts.

2013 Event Conditions

On the 60 weekday event (race and non-race) days in 2013, access to the NPS and Presidio sites would remain similar to existing conditions. As described above for 2012 weekday event conditions, additional transit service would be provided on lines that serve the Presidio, and the additional capacity would adequately accommodate the increase transit demand. Those driving, bicycling and walking to the NPS and Presidio sites would experience congestion at similar locations as in 2012; however, the congestion would occur on more days than in 2012. On the 60 weekday event days in 2013, the number of spectators destined to the Marin Headlands and Fort Baker is projected to be relatively small (up to 250 spectators per day), and travel conditions would therefore remain similar to existing conditions. Overall, on the 60 weekday event days in 2013, Alternative E impacts on visitor access to NPS and Presidio sites would be short term, minor to moderate, adverse impacts.

On the 24 weekend events in 2013, the number of spectators destined to the NPS and Presidio sites would increase over weekday conditions. On peak and medium-high-interest weekend event days, intersection delays at unrestricted roadways within the Presidio would increase over existing conditions. Additional traffic control and management strategies would be implemented by SFPD, Park Police, and SFMTA traffic control officers to reduce congestion at the key intersections. Increases in the number of pedestrians and bicyclists on Crissy Field, Fort Mason, and Aquatic Park would result in increased crowding at numerous locations at Crissy Field, within the Presidio, as well as at locations in Aquatic Park and at the Fort Mason pinch point. These conditions would primarily occur on the five peak weekend event days. Parking availability in the vicinity of NPS sites in the Presidio would be more limited due to the increased demand and temporary closure of parking areas on East Beach (on the five peak weekend event days).

On the 13 average weekend event days (i.e., 13 of 24 weekend event days) in 2013, the additional transit service on the 30L-Marina, 30X-Marina Express, and a supplemental 47L-Van Ness Limited bus routes that would serve the Presidio would be adequate to accommodate the increased demand, because in 2013 the AC Village would be located at Piers 27-29 (rather than at the Marina Green), and the overall number of spectators destined to the waterfront between Aquatic Park and Crissy Field in 2013 on an average weekend event day would be less than on the six weekend event days in 2012. On the 11 peak and medium-high weekend event days in 2013 (with a total of 159,000 to 249,000 daily spectators to all locations), the additional transit service in San Francisco, and enhanced service on the 22S-Fillmore Short, 28S-19th Avenue Short, the 43L-Masonic Limited, and the expanded shuttle service to downtown, would not adequately accommodate demand. Faced with the shortfall in transit capacity, reduced parking availability, and increase intersection delays, those traveling to the Presidio, Fort Mason and Aquatic Park would have increased travel times. Visitors traveling by transit may need to wait for one or more buses before being able to board, some may decide to take an alternate, less convenient bus route, some may shift to other modes of travel such as bicycling and walking, and some may change their travel plans to off-peak periods or other event days. Overall, on the 24 weekend event days in 2013, the effect on visitor access and travel times to NPS and Presidio sites in San Francisco would be similar to Alternatives C and D, and less than Alternative B.

On weekend event days in 2013, the number of spectators destined to the Marin Headlands and Fort Baker would increase from weekday conditions, but would be small (between 350 and 1,000 daily spectators). As under Alternatives C and D, vehicular access to Conzelman Road would remain open on all event days under Alternative E. On the 24 weekend event days in 2013, pedestrian and bicycle access would remain similar to existing conditions, and visitors would not be anticipated to experience increased travel times.

Programmatic Access to NPS and Presidio Sites Impact Determination

Overall, on the 24 weekend event days in 2013, the intensity of travel time and access impacts would be most noticeable on the five peak weekend event days in 2013. In 2013, there would be 13 days with up to 6,700 daily spectators at the NPS and Presidio sites, six days with up to 12,200 daily spectators, and five days with up to 29,500 daily spectators. Alternative E impacts on visitor access to NPS and Presidio sites would be similar to Alternatives C and D, and substantially reduced over Alternative B conditions, particularly on weekend event days. On the 24 weekend event days in 2013, Alternative E impacts on visitor access to NPS and Presidio sites would be short term, minor to moderate, adverse impacts. Implementation of **Transportation Protection Measures TRA-1** through **TRA-13** would serve to facilitate access to the NPS and Presidio sites on events days, and would minimize impacts.

4.10.11.8 Cumulative

The transportation impacts described above for Alternative E (i.e. traffic, transit, pedestrians, bicycles, parking, access) are cumulative in nature in that they assume conditions that would be affect the transportation network in 2012 and 2013. Implementation of the Marin Headlands and Fort Baker and Management Plan, which includes improvements to 11 miles of roads in the Marin Headlands and Fort Baker, is currently underway. The Plan will improve safety and access by all transportation modes. The Alexander Avenue/Danes Drive Intersection Improvement Project, which would correct

existing deficiencies and substandard roadway conditions at the Alexander Avenue left turn to Danes Drive is currently under environmental review, and construction of this project would occur some time after 2014. This project was therefore not assumed to be completed in time for AC34 2012 or AC34 2013 events. Construction of the Presidio Parkway is ongoing and would continue throughout the AC34 2012 and AC34 2013 events. The impact analysis presented above reflects the construction roadway closures that would be in place at the time of the events, including the recent closure of Halleck Street and Marshall Street, and the modifications to the PresidiGo shuttle services.

Therefore, the previous analysis represents a cumulative impact analysis for purposes of transportation impacts. In addition, Alternative E would be a temporary event occurring over a two year period after which travel demand associated with AC34 would cease, and travel demand generated by Alternative E would not contribute to travel demand generated by future development which may occur subsequent to the proposed events.

However, since the AC34 events would occur over four months in a two-year period, it is likely that the some AC34 event days would be concurrent with other special events. Annual special events are typical in San Francisco. Generally, special events lead to an increase in parking demand in their vicinity, as event attendees try to park within walking distance of their final destination. Special events also lead to a temporary increase in vehicle trips and a temporary increase in transit demand. Depending on the type of special event, day of week, venue location, number of attendees, and whether increased transit is provided for these events, special events concurrent with AC34 event days could increase the number of spectators, vehicles, bicyclists, and affect LOS operating conditions over those reported for just AC34 events above.

Fleet Week Assessment

Cumulative impacts in 2012 for Alternative E include the effects of spectator visitation during Fleet Week, an annual event that historically has drawn large crowds of visitors to the same waterfront areas as AC34 events are expected. Unlike Alternatives B, C, and D, under Alternative E, a portion of the AC34 2012 races would occur in October 2012 during Fleet Week, which is scheduled to occur between October 4 and October 8, 2012. Alternative E assumes that the second AC45 races occur daily between Thursday, October 4, 2012 and Sunday, October 7, 2012. Based on pedestrian counts conducted on Saturdays before and during Fleet Week in 2011, the net-new visitor increase to the waterfront on October 4th through October 7th due exclusively to AC34 activities (i.e., additional visitors that would not already be on the waterfront attending Fleet Week activities) is projected to be between 5 and 20 percent of the observed conditions during Fleet Week. The estimated percentage increase in visitors at the various NPS sites, as developed by ORCA Consulting, is presented in **Table TRA-59**. These factors were used to estimate the conditions that would occur for combined Fleet Week and AC34 events in October 2012.

Table TRA-60 compares the intersection LOS conditions for typical Saturday midday peak hour conditions with those experienced during Fleet Week at selected key locations for which Fleet Week 2011 data was available. As shown, vehicle delays at the study intersections during Fleet Week are generally higher than on a typical Saturday, except at those locations were traffic management strategies (general traffic restrictions) had been implemented, such as along Marina Boulevard and

TABLE TRA-59: ESTIMATE OF INCREMENTAL AC34 VISITATION FOR NPS AREAS DURING FLEET WEEK FOR AC34 2012 – ALTERNATIVE E

NPS Area	AC34 2012 Visitor Increment over Fleet Week Visitation (%)
SAFR	18%
Fort Mason	19%
East Crissy	17%
West Crissy	12%
Crissy Picnic	10%
Marin Headlands	5%
Fort Baker	5%
SOURCE: ORCA, 2012	

TABLE TRA-60: ALTERNATIVE E: FLEET WEEKEND SCENARIO FOR THE PREFERRED ALTERNATIVE – INTERSECTION LOS AC34 2012 AND AC34 2013 – SATURDAY MIDDAY PEAK HOUR

			Existing		Existing Fleet Weekend[c]		AC34 2012 Fleet Weekend Plus AC34	
#	Intersection		Delay[a,b]	LOS	Delay[a,b]	LOS	Delay[a,b]	LOS
1	Mason St [d, e]	Yacht Rd	18.0 (eb)	C	12.3 (wb)	B	-- [e]	N/A
2	Marina Blvd [d, e]	Lyon St	46.2	D	25.5	C	-- [e]	N/A
5	Mason St [d, e]	Crissy Field Ave East	27.1 (wb)	D	12.8 (wb)	B	-- [e]	N/A
6	Mason St [d, e]	Crissy Field Ave West	11.5 (wb)	B	11.7 (sb)	B	-- [e]	N/A
8	Lincoln Ave	25th Ave	18.6 (nb)	C	**67.3 (nb)**	**F**	**67.4 (nb)**	**F**
9	Lincoln Blvd	Merchant Rd	31.3 (nb)	D	30.8 (nb)	D	32.1 (sb)	D
15	Lombard St	Lyon St	19.4 (eb)	C	**42.4 (eb)**	**E**	**50.1 (eb)**	**F**
19	Bay St	Van Ness Ave	20.7	C	40.8	D	42.9	D
23	Alexander Ave	U.S. 101 NB ramps	**>50 (wb)**	**F**	**>50 (wb)**	**F**	**>50 (wb)**	**F**
25	Alexander Ave	Ft. Baker (East) Rd	13.9 (wb)	B	15.0 (wb)	B	15.4 (wb)	C
28	Bunker Rd	Danes Dr	10.9 (sb)	B	12.6 (sb)	B	12.7 (sb)	B

[a] Delay presented in seconds per vehicle. For unsignalized intersections, delay and LOS presented for worst approach. Worst approach indicated by ( ).
[b] Intersections operating at LOS E or LOS F conditions highlighted in bold.
[c] Traffic counts collected on Saturday, October 8th, 2011.
[d] The Mason Street gate was managed by U.S. Park Police on Saturday during Fleet Week and traffic was prevented from entering Crissy Field at peak times; at the same time westbound traffic on Marina Blvd was restricted at times. Thus, overall Saturday traffic volumes on Marina Blvd and Mason St were lower during Fleet Week events than on a typical weekend.
[e] Per Table TRA-27, for combined Fleet Week plus AC34 conditions, Mason Street between Lyon Street and the Warming Hut would have restricted access, except for emergency vehicles, staff, permitted tenants, and scheduled program participants.

SOURCE: Adavant Consulting / LCW Consulting, 2012

Mason Street. LOS operating conditions were worse (i.e., LOS E and LOS F) at locations further away from the waterfront but on the general travel routes towards the waterfront, such as at the intersections of Lombard/Lyon and Lincoln/25th. Traffic conditions in the vicinity of Fort Baker and Marin Headlands, which are further away from the Fleet Week events, were comparable to those that can be experienced on a good weather weekend.

Table TRA-60 also presents intersection LOS conditions for the Fleet Week plus AC34 races. Traffic volumes for this scenario were estimated by increasing the number of vehicles observed at the study intersections during Fleet Week 2011 by the growth factors presented in **Table TRA-59.** The resulting traffic volumes reflect the additional visitors and additional vehicles that would travel to the waterfront for the AC34 events. No traffic reduction credit was taken for those intersection approaches where traffic volumes during Fleet Week were lower than those observed on a typical weekend day. As indicated in **Table TRA-60**, under conditions with both Fleet Week and AC34 events, intersection delays would be expected to increase, however, intersection LOS would remain similar to the Fleet Week conditions.

While transit ridership for Fleet Week conditions is not available, based on SFMTA experience during these events, all bus and light rail lines serving The Embarcadero and the northern waterfront are heavily utilized. During typical Fleet Week weekends, to relieve overcrowding, accommodate surges in visitors arriving and leaving the waterfront, and to encourage transit use for access to the waterfront for Fleet Week events, SFMTA typically supplements the F-Market & Wharves historic streetcar and 47-Van Ness bus route. Four extra motor coach runs, are added to the F-Market & Wharves line to supplement service from 7:30 a.m. to 9:00 p.m., while six extra motor coach runs are added to supplement the 47-Van Ness line from 7:30 a.m. to 8:00 p.m.

Under Fleet Week plus AC34 conditions, transit demand would increase over existing conditions, and the bus lines serving Crissy Field and Fort Mason would be expected to experience substantial crowding. As indicated on **Table TRA-27**, it is anticipated that the enhanced service on the 30L-Marina, 30X-Marina Express, and the supplemental 47L-Van Ness Limited (**Transportation Protection Measure TRA-2**), the augmented service on the 22S-Fillmore Short, the 28S-19th Avenue Short, and the 43L-Masonic Limited (**Transportation Projection Measure TRA-6**), and expanded shuttle service to downtown on weekends (**Transportation Protection Measure TRA-7**) would be implemented to accommodate the combined Fleet Week and AC34 spectator transit demand to and from the waterfront on the two weekend event days.

As indicated above, the number of pedestrians and bicyclists in the vicinity of the NPS sites are also estimated to increase over Fleet Week conditions, although the percentage increase would vary based on the location (i.e., as indicated in **Table TRA-59,** increases of up to 18 percent)**. Table TRA-61** presents a comparison of the pedestrian walkway and PAOT LOS for Fleet Week conditions (based on information collected in October 2011), and estimated combined Fleet Week plus AC34 event conditions for Saturday midday peak hour conditions. In general, under conditions with both Fleet Week and AC34 events occurring concurrently, walkway operating conditions would be similar to those experienced under typical Fleet Week conditions. Increased congestion would be experienced, particularly at locations that operate at LOS D, LOS E or LOS F on Fleet Week event days. At the Moore Road walkway in Fort Baker, the LOS would change from LOS C to LOS D conditions. As

indicated in **Table TRA-61**, the number of PAOT analysis sites that would experience LOS D to LOS F conditions would increase over typical Fleet Week conditions. The Crissy Field West Picnic Area and Fort Baker PAOT, which experience LOS C or better conditions on typical Fleet Week event days, would experience LOS D conditions with concurrent event operations.

4.10.11.9 Conclusion

Alternative E would have short-term and temporary transportation impacts ranging from minor adverse to major adverse impacts, varying by event day and the number of spectators traveling to and from the spectator venues and secondary viewing areas; with impacts generally less intense than Alternative B. Under Alternative E, however, potential major adverse impacts would result from the additional travel demand generated by the AC34 events in both 2012 and 2013. **Transportation Protection Measures TRA-1** through **TRA-13** have been identified to manage and reduce the severity of the major adverse impacts, and reduce major impacts at some locations to moderate adverse or minor adverse.

4.10.12 Transportation Protection Measures

Transportation impacts resulting from the travel demand generated by the proposed project would be similar for all action alternatives, and would vary only in the location and intensity of impacts at certain spectator venues and secondary viewing areas.

4.10.12.1 Transportation Protection Measure TRA-1: People Plan for National Parks Area

The City would develop and implement a People Plan for NPS lands and the Presidio that would identify transit service, and vehicle, pedestrian, and bicycle management strategies for access to and from the NPS lands and the Presidio by visitors, employees, and AC34 spectators and then made available to the public as part of the public review of this document as a supplementary document in draft, subject thereafter to final review and approval by NPS, addressing all transit measures that would provide parklands access, including, at a minimum, the following:

- Origin and termini for all improved transit to within ¼ mile of parklands, where possible;
- Commitment to provide direct Muni augmented service to Crissy Field on peak and high medium peak weekend race days in 2012 and 2013 (See TRA-6);
- Improved accessibility measures for disabled persons; and
- Improved bicycle circulation and safety measures, particularly around SAFR and Fort Mason and the Marina Green.

TABLE TRA-61: ALTERNATIVE E: PREFERRED ALTERNATIVE – WALKWAY AND PAOT LOS – FLEET WEEK AND AC34 2012 CONDITIONS – SATURDAY MIDDAY PEAK HOUR

Analysis Location			Existing Fleet Week Weekend (2011) Conditions	AC34 2012 Fleet Week Weekend Plus AC34 Conditions
Walkway Analysis Locations				
1	Aquatic Park	Jefferson St NE entry into Aquatic Park	**D**	**D/C**
2	Aquatic Park	Promenade at Bath House	**E**	**E/D**
3	Aquatic Park	Promenade at west end of Aquatic Park	C	C
4	Fort Mason	Promenade at east end of Fort Mason	C	C
5	Fort Mason	Fort Mason Pinch Point on Laguna St	**F**	**F/D**
6	Crissy Field E.	Class I Multi-use Trail	C	**C**
7	Crissy Field E.	Waterfront Entry	B	C
8	Crissy Field E.	Promenade at Wetlands	B	B
9	Crissy Field W.	East End of Airfield	B	**C**
10	Crissy Field W.	West End of Airfield	B	B
11	Crissy Field W.	Picnic Promenade - East of Picnic Area	B	C
12	Crissy Field W.	Picnic Promenade – near Warming Hut	B	B
13	Fort Point	Marine Drive to Fort Point	**D**	**D/C**
14	Presidio - Other	Crissy/Mason/McDowell Intersection	**D**	**D/D**
15	Presidio - Other	Long Ave/Lincoln Blvd Intersection	C	**D/C**
16	Presidio - Other	Coastal Trail on West Side of Bridge	C	C
17	Presidio - Other	Coastal Trail on East Side of Bridge	C	C
18	Marin Headlands	Battery Spencer Main Walkways	B	B
19	Fort Baker	Center Road	C	C
20	Fort Baker	Moore Road	C	**D**
21	Fort Baker	Sommerville Road	B	B
PAOT Analysis Sites				
1	Aquatic Park		**F**	**F**
2	Fort Mason		**E**	**F**
3	Crissy Field East		**D**	**E**
4	Crissy Field West		A	C
5	Crissy Field West Picnic Area		C	**D**
6	Fort Point		C	C
7	Golden Gate Bridge Toll Plaza Overlook		**D**	**D**
8	Marin Headlands - Battery Spencer		**D**	**D**
9	Fort Baker		C	**D**

[a] LOS represents conditions during the peak hour of the day for each location, which may vary by location. Typically, the peak walkway period would be between noon and 2:00 p.m., and the peak PAOT would occur between 1:00 and 4:00 p.m.

[b] Walkway analysis locations or PAOT sites operating at LOS D, LOS E or LOS F conditions highlighted in bold.

SOURCE: ORCA Consulting LLC, 2012

4.10.12.2 Transportation Protection Measure TRA-2: AC34 People Plan Specific Provisions

The City shall implement elements of the People Plan identified as Mitigation Measures M TR-1a through M-TR-1d in *The 34th America's Cup and James R. Herman Cruise Terminal and Northeast Wharf Plaza EIR*. Elements of the September 2011 People Plan, to facilitate access by all modes to and from the AC34 event venues, while maintaining acceptable conditions for residents, commuters, businesses and visitors, are currently being developed by the appropriate City agencies and the project sponsor.

Traffic Monitoring and Management Program. As a means to reduce congestion in the vicinity of the venue sites and on access roadways to and from the sites, the City shall develop and implement a Traffic Monitoring and Management Program that could include the following measures:

- Preferred spectator routes;
- Bus priority streets;
- New bus lanes;
- Extension of existing bus-only lanes;
- Bicycle priority streets;
- On-street parking restrictions;
- Traffic control officer deployment;
- Coordination with other events (e.g., ballgames; roadway construction projects);
- Roadway closures;
- Restricted access streets;
- Diversion plans related to roadway closures;
- Event signage including weekend detour signs; and
- Media announcements of roadway closures and detour signs.

Transit Operating Plan. As part of the People Plan, the City shall develop and implement a transit operating plan addressing NPS parkland sites to provide additional transit service to accommodate peak transit demands during the AC34 project events. Elements of the plan could include, but are not limited to:

- Increased service hours and frequency on 30X-Marina Express, which would run every eight minutes on all event days, including weekends.

- Supplemental 30L-Marina, which would run every six minutes in the peak direction of travel (e.g., towards the waterfront through the mid-afternoon, and from the waterfront through the evening). The service would run between the Caltrain terminal and the intersection of Beach/Broderick (via Third/Fourth, Stockton, Broadway, Van Ness, and Lombard). See **Figure TRA-7**, page 4.10-46.

- Supplemental 47L-Van Ness, which would run every ten minutes in the peak direction of travel throughout the day. Service would be provided between the Civic Center BART/Muni station and North Point Street, via Van Ness Avenue. See **Figure TRA-7**.

- Increased frequencies on the F-Market & Wharves historic streetcar between the Ferry Building and Fisherman's Wharf (i.e., at Pier 39), which would run every five minutes throughout the day.

- New E-Embarcadero historic streetcar service between Caltrain and Pier 39. This service would need to use the double-ended historic streetcars, and would run every 20 minutes throughout the day.

- Supplemental Muni Metro Shuttle. This light rail vehicle service would run within the Market Street tunnel between the Embarcadero station and the West Portal station. Shuttle service would be provided every 20 minutes on weekends only.

- Golden Gate Transit would augment two bus routes for peak weekend race day service (the 93 and 4 bus routes). These routes would both be configured to serve local drop-off/pick-up service in San Francisco, using the bus stops currently shared with Muni and already used for inbound drop-off and outbound pick-up. In addition, Golden Gate Ferry would provide additional high-speed boats during the peak weekend race days from Larkspur and Sausalito.

- Increased PresidiGo shuttle frequency and weekend service on Downtown, Crissy Field and Presidio Hills routes, pending funding.

- AC Transit would augment the Berkeley (F) Route, the Oakland (NL) Route, and the Alameda (O) Route to provide extra service for peak weekend race days. In addition, the City is working with AC Transit on the feasibility of extending the existing route network beyond the Temporary Transbay Terminal on weekends, considering that the primary spectator areas would be along The Embarcadero west to Crissy Field.

- SamTrans would augment the SamTrans 120 line to the Daly City BART station on peak weekend race days to provide additional transit service northbound during the morning period and southbound during the afternoon period.

- BART would augment service to and from the East Bay and South Bay by providing additional cars to existing scheduled trains, and to run special "event" trains. Trip planning strategies for visitors destined to and from the San Francisco International Airport and the Oakland International Airport would be pursued by the City and BART, along with MTC.

- Caltrain would augment regular service with two extra weekend trains in each direction during peak weekend race days.

- WETA would run additional ferry service during peak weekend race days on the Vallejo, Alameda/Oakland, and Harbor Bay routes. In addition, limited event service may be available at the new Oyster Point ferry terminal in South San Francisco that is projected to be open by 2012. WETA is also considering providing limited event service to Treasure Island on the augmented Alameda/Oakland service, provided that ADA complying modifications can be made at Pier 1 at Treasures Island.

- Blue & Gold would augment regular ferry service between San Francisco and Tiburon, as well as between San Francisco and Angel Island, during the midday peak period on peak weekend race days.

Satellite Parking Facility Program. As a means to reduce the number of vehicles traveling to and from the northern waterfront, the City shall implement satellite parking facilities and frequent transit or shuttle service between the satellite parking facilities and the various venues. Parking facilities could include existing public and private garages and lots, as well as other undeveloped parcels such as Mission Bay Lot A and Candlestick Park. In the vicinity of the Presidio, UCSF Parnassus campus, and USF parking facilities have been identified as potential satellite parking facilities that would serve spectators destined to the Presidio.

Public Information Program. As a means to facilitate access to and from venues and spectator viewing areas by all modes, while encouraging the use of transit and alternate modes, the City shall develop and implement a Public Information Program. For event days that overlap with other special events, a coordinated public information program shall be developed and provided to the public. The program shall provide:

- Access information for all modes before, during and after the events;
- Maps and guidelines;
- Special signage;
- Marketing campaign to encourage transit use and bicycle use to event sites;
- Web-based event information;
- Media and press releases to update information on a regular basis; and
- Public information for commuters, businesses and deliveries.

4.10.12.3 Transportation Protection Measure TRA-3: Presidio and NPS Sites Public Information Program

As a means to facilitate access to and from venues and spectator viewing areas by all modes, while encouraging the use of transit and alternate modes, the City would develop and implement a Public Information Program. For event days that overlap with other special events, a coordinated public information program would be developed and provided to the public. This would be available for NPS and Presidio Trust review and coordination on parklands at least 30 days in advance of each annual race series, and available to the public online at least 10 days in advance of each race series. The program would include, but not be limited to:

- Staffed information kiosks located at the Jefferson Street entrance to SAFR, and near the Mason/Marina entrance to Crissy Field:

- Digital and physical special signage for general and specific visitor support information;

- Web-based special event information, possibly through a free cell phone application, and printed materials, on race schedule, safe bicycle routes, visitor orientation information, transit schedules, etc.

4.10.12.4 Transportation Protection Measure TRA-4: Presidio and NPS Sites Roadway Management Strategies

Tables TRA-25 through Table TRA-27 present the roadway management strategies determined as part of this transportation analysis by alternative and profile day. These roadway management strategies would be implemented by the City for adjacent roadways to parklands in San Francisco, in coordination with NPS and the Trust. The NPS and Trust would undertake those measures related to parklands and Trust roadways identified therein for coordination with the City. These would use a set of trigger points to initiate roadway restrictions for the various profile days for 2012 and 2013. The ICS Operations Section Chief and respective Division Supervisor would make a decision for either NPS or Trust based on observable conditions, past experience, professional judgment and take action. The Roadway Management Strategies outline the actions and responsible agencies (e.g., NPS, Presidio Trust, CHP, SFPD, U.S. Park Police, SFMTA traffic control officers, etc.). The City would be responsible for developing agreements for support services with the various responsible agencies.

The roadway management strategies identify San Francisco waterfront access roads to be restricted and/or temporarily redesignated for bike, transit, and pedestrian use during peak and medium high weekend race days in 2012 and 2013. They also identify where there would be a need for re-routing traffic and other traffic management, such that principal intersections (adjacent to or providing access to parklands) that operate at LOS E or LOS F would be managed by City traffic and parking control officers to facilitate improved movements and reduce adverse impacts. On days with restricted access, for example, to Mason Street and McDowell Avenue, public access would be supported with an enhanced shuttle service on Mason Street; registered program participants, otherwise, may be required to sign up in advance for special permits for the peak AC34 weekend days when such roadways are restricted. Restricted NPS and Trust roadways/areas, designated in these tables, would include, but not be limited to:

- In San Francisco, the area north of Bay Street east of Van Ness Avenue and Fillmore Street, the area north of Chestnut Street between Fillmore Street and Lyon Street. In addition, access to Upper Fort Mason would be restricted on high attendance event days.
- Within the Presidio, Mason Street between Lyon Street and the Warming Hut, Long Avenue, McDowell Avenue between Lincoln Boulevard and Crissy Field Avenue, and Crissy Field Avenue.
- Within the Marin Headlands, Conzelman Road between Alexander Avenue and McCullough Road, and the Barry-Baker tunnel.

4.10.12.5 Transportation Protection Measure TRA-5: Traffic Control Officers at Intersections

Traffic control officers would facilitate traffic, bicycle, and pedestrian flows to ensure overall safety for users of all modes, and to reduce overall delays at intersections. At intersections identified as operating at LOS E or LOS F on weekend event days, and at other key intersections, traffic control officers, SFPD, or U.S. Park Police, as appropriate, would be deployed during peak and other congested race periods in 2012 and 2013 to assist with traffic control. SFMTA and/or SFPD would manage San Francisco intersections, and U.S. Park Police and NPS would manage intersections within parklands.

A combined City and U. S. Park Police would manage the interface at intersections between those on federal lands and those under City jurisdiction. CHP would manage intersections within Caltrans jurisdictions (e.g., temporary Doyle Drive intersection with Marina Boulevard).

North of the Golden Gate Bridge, CHP and NPS would manage traffic intersections under their jurisdiction, such as northbound and southbound U.S. 101 ramps at Alexander Avenue, the intersection of Alexander Avenue and Danes Drive, and other adjacent intersections to Fort Baker and the Marin Headlands, including the Barry-Baker tunnel.

4.10.12.6 Transportation Protection Measure TRA-6: Enhanced Muni 22-Fillmore, 28-19th Avenue, and 43-Masonic Bus Service

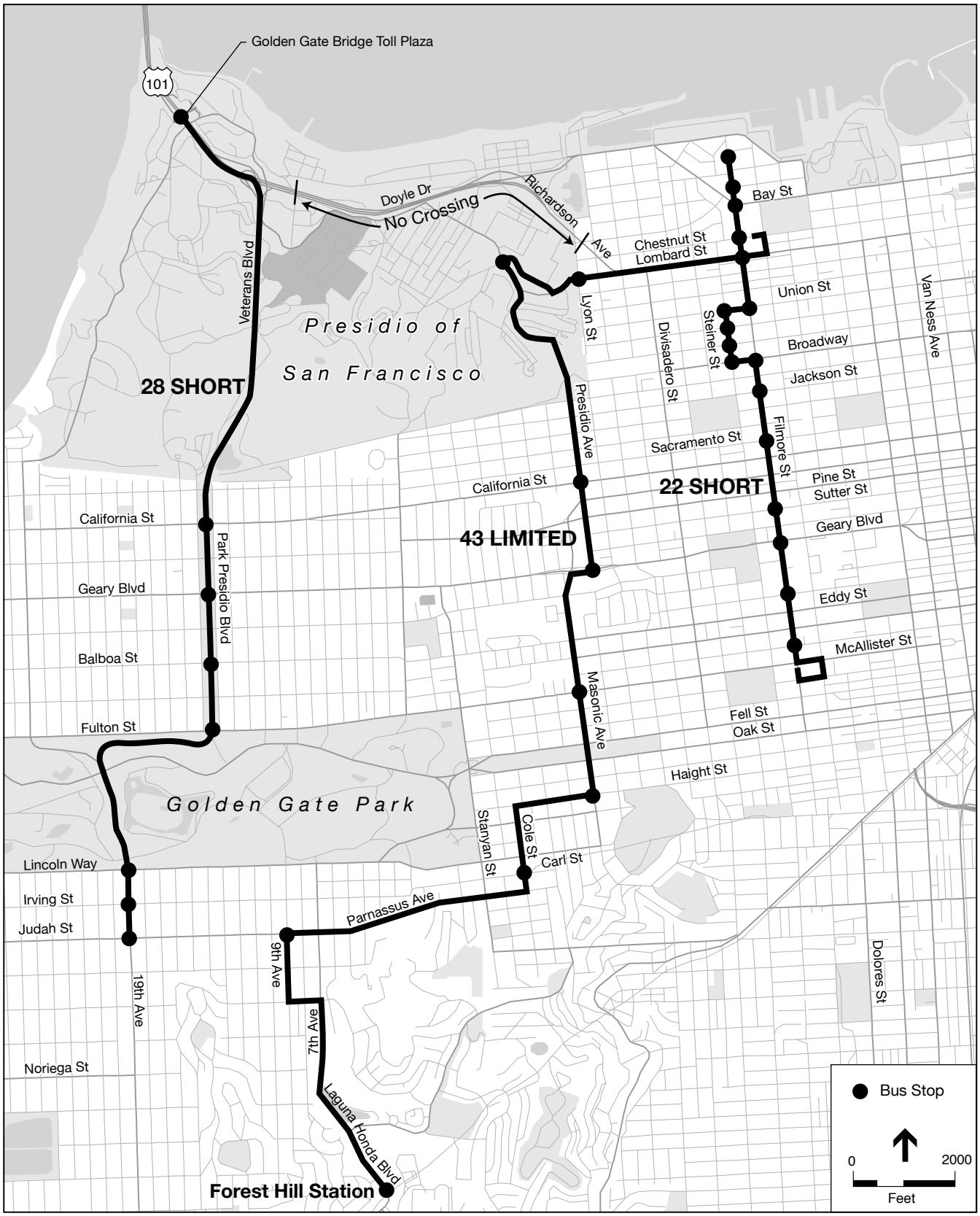
SFMTA would provide additional bus service on the enhanced 22-Fillmore, 28-19th Avenue, and the 43-Masonic routes. The three enhanced routes are presented on **Figure TRA-8**, and would include:

22S-Fillmore Short. The 22S-Fillmore Short would run local between Marina Boulevard and McAllister Street, where there is a trolley coach turnaround loop. It would connect with the 30-Chestnut, the augmented 30X-Marina Express and 30L-Marina Limited, the 45 Union/Stockton and 41-Union Street lines, and the 24-Divisadero, 1-California, 2-Clement, 3-Jackson, 38/38L-Geary, 31-Balboa and 5-Fulton lines. Fillmore Street has one travel lane in each direction, and therefore is too narrow for the limited stop bus to bypass the local buses).

28S-19th Avenue Short. The 28S-19th Avenue Short would run between the 19th Avenue & Judah Street intersection and the Golden Gate Bridge Toll Plaza. This enhanced route service would run as a local, and referred to as a short line to differentiate it from the regular 28-19th Avenue that also serves the Marina, and from the 28L-19th Avenue Limited that currently runs on a different route. The bus would connect with the N-Judah Muni Metro line, the 71-Haight-Noriega at Lincoln Way, and the 5-Fulton, 31-Balboa, 38/38L-Geary, and 1-California.

Construction of the Presidio Parkway creates over a mile-long barrier separating Crissy Field to the north from the Presidio to the south. This barrier extends from McDowell Avenue in the west and the intersection of Richardson Drive and Francisco Street in the east. Terminating the route at the Toll Plaza would avoid congestion along the temporary roadways, and it would provide access to viewing points at Fort Point and the west end of the Crissy Field. All the other SFMTA buses would serve the east side of the Presidio. From the Toll Plaza, spectators would be able to walk down the hill or connect with the Golden Gate Transit Route 4 bus, or other GGT buses that stop at the Toll Plaza, and the Presidio shuttles to connect to Crissy Field.

43L-Masonic Limited. The 43L-Masonic Limited would run between Forest Hill Station (connecting with the K, L, M and T Muni Metro lines) and the current terminal at Chestnut and Fillmore. The limited stops would be: Forest Hill Station; 9th & Judah; Carl & Cole; Masonic at Haight and Fulton; Presidio at Geary and California, and Chestnut & Fillmore. The 43L-Masonic Limited would also stop at the intersection of Lombard/Lyon for access to the east end of Crissy Field (via the intersection of Richardson Drive/Francisco Street).



SOURCE: LCW Consulting

AC34 / Environmental Assessment (210317)

Figure TRA-8

AC34 Additional SFMTA Augmented Service

Preliminary SFMTA service plans for these routes proposes ten-minute headway service on peak weekend event days in 2012 and 2013 (i.e., six days in 2012 for Alternatives B, C and D and five days for Alternative E, and 11 to 24 days in 2013 for all Alternatives).

4.10.12.7 Transportation Protection Measure TRA-7: Expanded Shuttle Service

Existing shuttle service between downtown and Crissy Field, and within the Presidio, may be increased and routes may be adjusted in response to the nature of the event day and observed demand on the shuttle routes, such that headways of 10 minutes between shuttles could be expected during peak weekend event days. This service would either be operated by PresidiGo, within limits of PresidiGo capacity and available funding, or by other shuttle service.

4.10.12.8 Transportation Protection Measure TRA-8: Golden Gate Transit Augmented 4 Short Route

On peak weekend event days during AC34 2012 and 2013, an augmented Golden Gate Transit Route 4 Short line would run between the Manzanita park-and-ride lot (at the U.S. 101/Highway 1 interchange) and San Francisco, and would stop at Conzelman Road in the southbound direction, and at Vista Point in the northbound direction, in order to serve the Fort Baker and Marin Headlands area. The City, in its work with the Golden Gate Transit District, would ensure that stops in both directions meet ADA requirements both for boarding/unloading and with respect to an accessible path of travel to primary viewing destinations. Alternatively, if accessibility standards cannot be met, an alternate shuttle service may be required between the Conzelman Road stop and primary viewing areas or to nearby viewing areas such as Fort Baker. During peak periods, the augmented Golden Gate Transit Route 4 line would operate at 7.5 minute headways between buses. Signage would be placed along U.S. 101 southbound prior to the Manzanita parking lot, similar to what is currently done for the Muir Woods remote parking/shuttle arrangement, to alert drivers to this option.

4.10.12.9 Transportation Protection Measure TRA-9: Visitor Use management and monitoring strategies

Visitor Use management and monitoring strategies would be developed for NPS AC34 primary venues and viewing areas affecting NPS lands and facilities with identification of pre-determined points where a ladder of escalating management actions could be implemented to mitigate adverse impacts of crowding on access as well as provide for orientation and information to ensure smoother visitor flows on arrival and departure from the shoreline areas.

Demand distribution strategies implemented by the Project Sponsors would proactively manage the distribution of spectators, and would include on-approach strategies that would provide guidance to spectators as they approach the event areas and directing spectators to available transportation operations. On-site crowd management strategies would include management actions, such as bicycle separations from pedestrian flows at affected areas, to ensure visitor safety, minimize congestion at key locations, and optimize distribution of visitors.

Management actions would be location-specific to reflect the different peaking characteristics and spectator volumes for the various locations. Crowd levels would be monitored during the events through the Incident Command System in concert with City staff. Visitor use management and monitoring would include the following:

Personnel. Staffing plans would be developed for the various spectator attendance levels for each viewing location. Both the headcount requirements and the labor mix would be driven by combined visitor flow and destination estimates, and NPS Event Management experience. For the lowest attendance levels, crowds would be managed primarily by law enforcement and ICS personnel, except that resource monitors would be in place for all event days per Section 7 permit Conservation Measures. To accommodate higher attendance levels and pathway flow rates, additional law enforcement personnel would be scheduled, as incident rates would increase in proportion to visitor flow volumes and crowding levels. Personnel staffing would be planned as a mix of static and "floating" positions; floating positions would be responsible for area coverage, whereas stationary positions would manage critical visitor flow points to location (including at intersections to facilitate pedestrian crossings) as situations warrant. Some shift occurrences would be planned in advance, such as for the beginning and ending of major events. SFPD would provide additional commissioned officers who would be deputized to work with NPS in NPS areas during AC34 race days, especially on 2012 and 2013 weekends and Fridays.

Barriers, Barricades, and Other Flow Management Equipment. A mix of soft barriers (e.g., removable aesthetic flow management guides) and hard barriers (sawhorse signs and portable parade barriers) provided by the City would be stationed at key entry points. This equipment would either be set in place or removed, as necessary according to site conditions. Soft barriers would be used primarily to frame entry and exit points, and to steer arriving and departing visitors through the defined entry points when very crowded or congested. Hard barriers would be used when it is necessary to temporarily restrict or suspend access into a given area – usually when conflicts in flow of different modes may occur or the maximum safe crowding condition has been reached in a given area, or in response to urgent safety considerations. When this equipment is in place, personnel would be assigned to support visitor management, re-direct the visitor flow to nearby areas, and to be in position to quickly remove this equipment once adequate public space has become available. City-staff would assist with this, especially to maintain safe bicycle and pedestrian passage at key congestion points on peak weekends.

Signage. Signage would be installed to call attention to closed sensitive resource areas in NPS areas, as well as to key services at entry points on City property adjacent to NPS sites. Signage would provide visitors with wayfinding options at key decision-making points. The signage, developed by the City, would integrate directional and informational components to educate and alert visitors on how to navigate to/through the impacted areas. Signs would be designed to be seen from a distance and during peak crowding conditions. Signage would be sized and elevated with simple text and universal icons representing specific services (restrooms, information, first aid, etc.). Any signage on NPS lands would conform to its sign regulations.

Safety Measures (dynamic). Although all policies in effect within the NPS lands would remain in effect, some additional protection measures would need to be implemented that are event-specific,

such as public path zones in which bikes must either be walked, or not be permitted at all. For example, the high volumes of pedestrians and bicyclists expected along the Aquatic Park Promenade during peak AC34 conditions would necessitate a walking-only policy during many of the AC34 events, as would the pinch-point at Fort Mason. City staff or "ambassadors" would be stationed by the City near these areas (Fort Mason pinch-point, Mason/Marina intersection, Fort Mason/Gashouse Cove entry, Laguna and Bay Street, etc). Other joint measures would be planned by NPS, Presidio Trust and the City to facilitate efficient loading and unloading of highly-attended viewing locations.

Changeable Message Signs. Changeable message signs would be used by the City on city lands near parklands, including the southbound approaches of the Presidio Parkway, to guide arriving and departing vehicles and pedestrians, and to call attention to a major condition or service (such as by providing directions to the central bus pickup location immediately adjacent to parklands).

Two-way Radios. Two-way radio communication would be facilitated by the City and provided for all personnel involved in multi-jurisdictional crowd control, for reasons of crowd flow, safety and for emergency situations. For locations with multiple staff personnel, radio equipment requirements would be driven by staff member responsibility, as messages communicated via radio are often unique to each role, and personnel would likely be transmitted on different channels. In the case where multiple personnel are performing similar duties at the same location (e.g., at the same pathway intersection), radio use may be restricted to only one within that paired team.

Portable Public Announcement Systems. Portable public announcement systems (similar to those devices used by park tour guides) provided by the City to NPS and U.S. Park Police could be used at peak congested periods, such as departures at the end of the day to inform or direct visitors to safe crossings to allow crowd control personnel to clearly communicate to large volumes of spectators passing through a key area (such as to inform bicyclers that they are approaching a no-riding zone). Equipment requirements would be determined based upon planned activity within each zone.

Information Stations. Information stations or hubs, as provided by Project Sponsors, would be placed in the vicinity of key primary park entry points (e.g., Mason Street and Marina Boulevard, Jefferson Street entry near SAFR). These stations would offer general information, viewing times and locations with expected low crowding levels, and transit information, and would also serve to shift demand away from crowded venues and times. Event viewing tips would be featured by the City at key arrival points, such as Aquatic Park and Marina Green (similar to the tip board program featured at the Disney theme parks).

Special Activity Programming. Additional programmed activities supplementing the AC34 races may be scheduled at permitted venues near the event viewing locations. Although these activities would function primarily to enhance the overall spectator experience (due to gaps between races), these would also be used to strategically manage inbound and outbound pedestrian flow at the viewing locations. For example, scheduling a popular activity or performance at Marina Green immediately after a major race event would serve to spread the departure rate of spectators across a larger period of time, thus reducing the intensity of roadway congestion and peak demand on public transportation services in that vicinity.

Communication Channels. Communication channels and real-time information would be managed and disseminated by Project sponsors in coordination with jurisdictional IC teams. This may include traditional media, web, email, twitter, and SMS, to aid in the distribution of demand across all event activities. Some of these, such as SMS blasts and tweets, would also help to inform pedestrian spectators while on site, such as board sailors, and other water recreationalists, as to when races are over, or to advise visitors to avoid certain exit routes due to congestion.

4.10.12.10 Transportation Protection Measure TRA-10: Temporary Bicycle Lanes/Routes

SFMTA would implement temporary bicycle lanes within the curb parking or curb travel lane on peak weekend event days (six days in 2012 for Alternatives B, C, and D and five days for Alternative E, and 11 to 24 days in 2013 for all alternatives) to connect with existing Class I and Class II facilities to provide a continuous safe bicycle route between SAFR and Crissy Field. Streets where temporary bicycle lanes would be implemented on all or a portion of the street include:

- Van Ness Avenue between North Point Street and Bay Street (within curb bus lane)
- Bay Street between Van Ness Avenue and Laguna Street (within curb parking lane and right-turn-only lane)
- Cervantes Street between Bay Street and Marina Boulevard (within curb parking lane).

A City traffic control officer would be stationed at the Laguna/Beach Street pinch point. NPS and the City would investigate potential improvements at this location to determine if short-term improvements to provide additional bicycle and pedestrian right-of-way could be implemented for AC34 2012 or 2013 events.

A temporary alternative bicycle route on Cervantes Street between Bay Street and Marina Boulevard would be signed. On peak event days, temporary parking restrictions would be implemented on the east curb of Cervantes Street, north of Bay Street (a bicycle lane is currently provided on Bay Street between Laguna Street and Cervantes Street).

4.10.12.11 Transportation Protection Measure TRA-11: Temporary Bicycle Parking

SFMTA would provide temporary secure and managed bicycle parking at key locations serving the NPS sites for 2012 and 2013 peak and medium-high weekend race days (six days in 2012 for Alternatives B, C and D, and five days for Alternative E, and 11 days in 2013 for all alternatives), consistent with the bicycle parking demand identified in **Table TRA-28** (page 4.10-32) for NPS sites. The location of the bicycle parking stations and number of bicycles to be accommodated at each station shall be determined by NPS, in coordination with the City, but at a minimum would include Crissy Field and SAFR.

4.10.12.12 Transportation Protection Measure TRA-12: NPS Parking Management Plan

NPS would actively manage parking lots/area at Crissy Field, West Bluff, and Battery East on all peak weekend event days (six days in 2012 for Alternatives B, C and D, five days in 2012 for Alternative E,

and 11 days in 2013 for all alternatives). In addition, Crissy East would be actively managed on 13 other average race weekend days, and ten peak race weekdays in 2013. Fort Baker and Conzelman Road in the Marin Headlands would be actively managed on two peak race weekend days in 2012, and five peak weekend race days in 2013, as needed.

4.10.12.13 Transportation Protection Measure TRA-13: NPS Staff, Park Partners, Residents, Deliveries, and Registered Program Participants Access to the Presidio and NPS Sites

NPS and the Presidio Trust, in coordination with the City, would develop access strategies for NPS staff, Park Partners, residents, deliveries and registered program participants. This would be developed to provide access to SAFR, Fort Mason, Fort Baker/Marin Headlands, and Crissy Field during peak and medium-high weekend race days when some roadways would be closed to the general public. The strategy would include an identification of vehicular access points and control methods into the restricted areas, alternative means of access (e.g., shuttle bus), and parking locations, and preferred days and times for access (e.g., before 10 a.m.) and deliveries (weekdays only). Most permits/identifications issued to those other than staff, employees and residents would require pre-arrangements, most likely performed via internet. On-site customer parking, when available, would be strictly limited to the duration of the visit.

4.10.13 Mitigation Measures

Under all action alternatives, except for Alternative B – Sponsor Proposed Project, any potential effects on transportation would be addressed by site-specific protection measures and management actions with no mitigation warranted. Due to the potential for major impacts associated with Alternative B, additional funding would be required for mitigation measures in order to ensure this alternative, if selected, were feasible.

4.10.14 References

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