

Appendix B

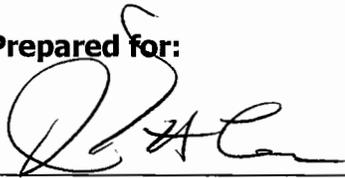
Draft Section 4(f) Evaluation

APPENDIX B
Draft
SECTION 4(F) EVALUATION

Golden Gate Bridge Physical Suicide Deterrent System Project
City and County of San Francisco and County of Marin, California

Project 2006-B-17
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The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

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1.0 INTRODUCTION

1.1 SECTION 4(f)

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 U.S.C. 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation land, wildlife and waterfowl refuges, and historic sites."

Section 4(f) specifies that the Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- 1) there is no prudent and feasible avoidance alternative to the use of the land from the Section 4(f) property; and
- 2) the program or project includes all possible planning to minimize harm to the Section 4(f) property resulting from the use.

Section 4(f) further requires consultation with Department of the Interior and, as appropriate, the involved offices of the Departments of Agriculture (USDA) and Housing and Urban Development (HUD) in developing transportation projects and programs, which use lands protected by Section 4(f). If historic sites are involved, then coordination with the State Historic Preservation Officer is also needed.

Consultation with the USDA would occur whenever a project uses Section 4(f) land from the National Forest System. Consultation with HUD would occur whenever a project uses Section 4(f) land for/on which certain HUD funding had been utilized. Since neither of these conditions applies to the proposed project, consultation with USDA and HUD is not required.

In general, a Section 4(f) "use" occurs when: 1) Section 4(f) land is permanently incorporated into a transportation facility; 2) there is a temporary occupancy of Section 4(f) land that is adverse in terms of the Section 4(f) preservationist purposes as determined by specified criteria (23 CFR §774.13[d]; and 3) Section 4(f) land is not incorporated into the transportation project, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired (constructive use) (23 CFR §774.15[a]).

1.2 SECTION 4(f) AND SECTION 106

One of the issues addressed in this evaluation concerns the application of Section 4(f) to historic resources. The consideration of historic resources under Section 4(f) differs from their consideration under Section 106 of the National Historic Preservation Act. Section 4(f) applies only to programs and projects undertaken by the U.S. Department of Transportation and only to publicly owned public parks, recreation areas, and wildlife refuges, and to historic sites on or eligible for the National Register for Historic Places (NRHP). For protected historic sites, Section 4(f) is triggered by the "use" or occupancy of an historic site by a proposed project. There is also the situation in which a project does

not actually permanently incorporate land from an historic site, but because of its proximity impacts to the historic site, is determined by the U.S. Department of Transportation to substantially impair the qualities that made the historic site eligible for the NRHP. This is referred to as a "constructive use." In addition, when a temporary occupancy of Section 4(f) land meets specified conditions (23 CFR §774.15[a]), the occupancy is considered so minimal that it does not constitute a "use" within the meaning of Section 4(f).

Section 106 is a different requirement that applies to any federal agency and addresses direct and indirect "effects" of an action on historic properties. Section 106 evaluates "effects" on an historic site, while Section 4(f) protects an historic site from "use" by a project. Therefore, even though there may be an "adverse effect" under Section 106 because of the effects upon the site, the provisions of Section 4(f) are not triggered if the project would not result in an "actual use" (permanent or certain temporary occupancy of land) or a "constructive use" (substantial impairment of the features or attributes which qualified the site for the NRHP).

2.0 DESCRIPTION OF THE PROPOSED PROJECT

The Golden Gate Bridge (Bridge) is owned and operated by the Golden Gate Bridge, Highway and Transportation District. It is located within the San Francisco Bay Area. The proposed project is located in the City and County of San Francisco and Marin County (see Figure 1). The project proposes to construct a physical suicide deterrent system along both sides of the Golden Gate Bridge (Bridge). As shown on Figure 1, the project limits are from the San Francisco Abutment to the Marin Abutment of the Bridge. The following section discusses the need for the project and provides a description of project alternatives.

2.1 PURPOSE AND NEED FOR PROJECT

The purpose of the proposed project is to consider a physical suicide deterrent system on the Bridge in order to reduce the number of injuries and deaths associated with jumping off the Bridge. The need for the project stems from the fact that the 4-foot height of the outside handrail does not sufficiently deter individuals who are not using the sidewalk for its intended purposes from climbing over the outside handrail, and there is no other physical barrier beyond the outside handrail preventing an individual from jumping once the outside handrail is scaled.

The existing non-physical measures to deter suicides on the Bridge still result in approximately two dozen deaths per year from individuals jumping off the Bridge. The non-physical measures have stopped approximately two-thirds of those individuals with the intent to commit suicide at the Bridge; despite these measures one-third are not prevented.

A complete discussion of the purpose and need for the project is provided in Chapter 1 of the Draft Environmental Impact Report/Environmental Assessment (DEIR/EA).

2.2 PROJECT DESCRIPTION

Several build alternatives have been developed that meet the purpose and need for the project and additional criteria established by the Golden Gate Bridge, Highway and Transportation District (District). The following describes alternatives under consideration.

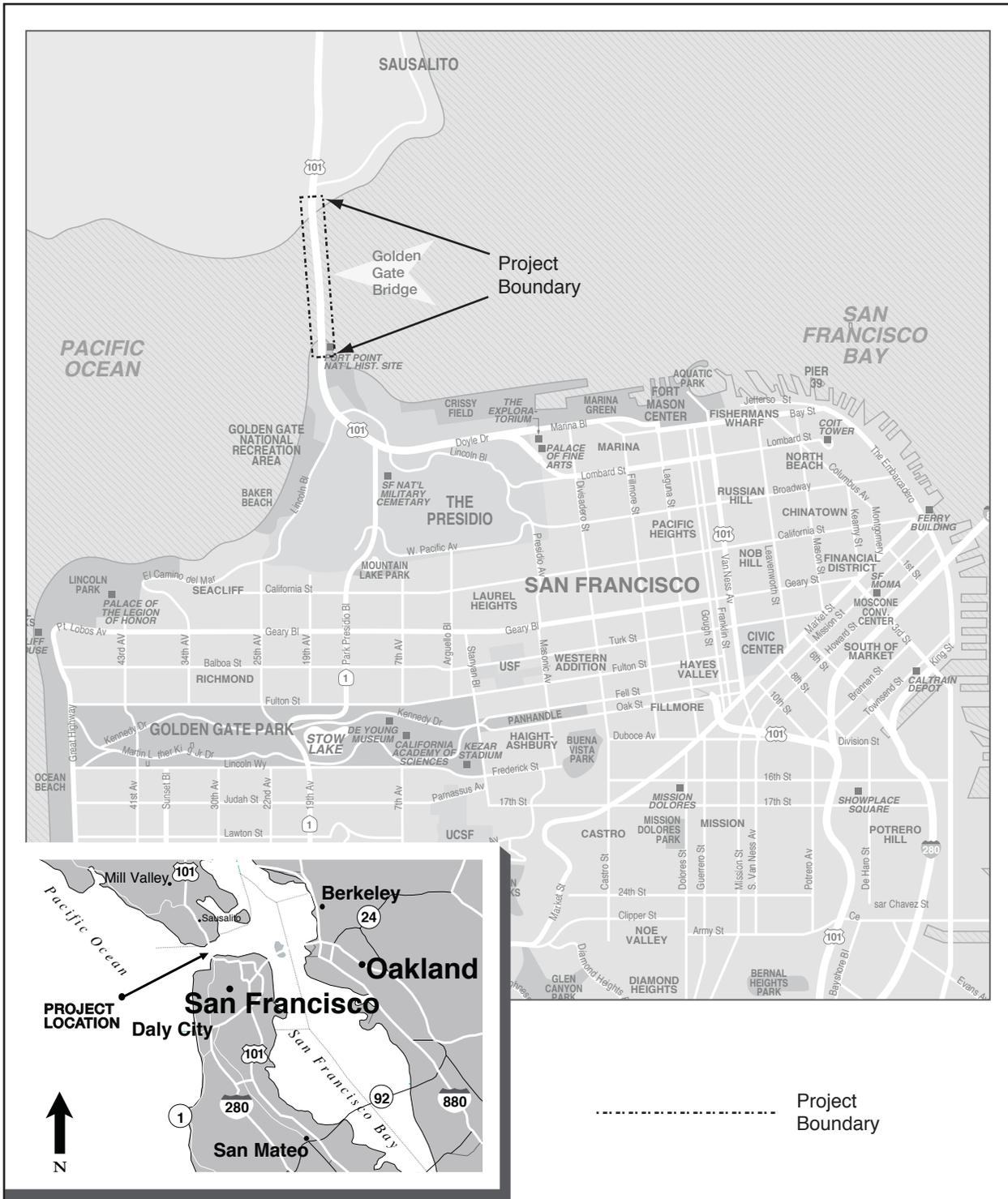


Figure 1 - Golden Gate Bridge Project Location

A more detailed discussion of the project alternatives, including exhibits, is provided in Chapter 1 of the Draft EIR/EA.

The alternatives were developed after the first phase of the project, wind tunnel testing, was completed. Wind tunnel testing on the generic concepts was performed first in order to determine the limiting characteristics of each concept with respect to wind. The wind tunnel testing and analysis determined that any physical addition to the Bridge would adversely affect the Bridge's aerodynamic stability. However, testing also determined that wind devices could be installed to mitigate the adverse effects associated with the additions.

All of the build alternatives developed and included in this document require the addition of one of two different types of wind devices. The first type of wind device is called a fairing and consists of a curved element placed at two locations below the sidewalk on the top chord of the west stiffening truss. The second type of wind device is called a winglet and consists of a curved element placed above the sidewalk at the top of the alternative posts.

Previous projects at the Bridge, such as the Public Safety Railing Project (2003) and the Seismic Retrofit Project (currently underway) were subject to Section 106 and Section 4(f) evaluations and CEQA environmental analysis. The fairing wind device and modifications to the outside handrail were previously evaluated as part of the District's seismic retrofit program. No adverse Section 106 effects or Section 4(f) uses were identified for either project. Therefore, this report will not discuss the fairing wind device. The winglet is a new feature that has not been evaluated and, as such, will be discussed in this report.

2.2.1 Build Alternatives

Alternative 1A-Add Vertical System to Outside Handrail

Alternative 1A would construct a new barrier on top of the outside handrail (and concrete rail at north anchorage housing and north pylon). The barrier would extend 8 feet vertically from the top of the 4-foot-high outside handrail for a total height of 12 feet. The barrier's vertical members would be comprised of ½-inch diameter vertical rods spaced at 6 ½ inches on center, leaving a 6-inch clear space between rods. The existing rail posts would be replaced with new 12-foot-high outside rail posts at the same locations and of the same cross-section, size, material, and color of the original posts. The top horizontal header would consist of a chevron-shaped member matching the top element of the outside handrail. The vertical rods would be attached to the horizontal header and outside handrail. The entire system would be constructed of steel that would be painted International Orange to match the material and color of the outside handrail. Transparent panels would be installed at the belvederes (widened areas located on both the east and west sidewalks) and towers on both sides of the Bridge. Transparency would be preserved through ongoing maintenance of the panels. This alternative assumes that the modification to the outside handrail on the west side of the Bridge between the two main towers and the installation of the wind fairings have been completed as part of the previously approved seismic retrofit project.

Because maintenance workers would no longer be able to climb over the outside handrail to reach the below-deck maintenance traveler, gates would be located at a spacing of 150 feet on center to generally match the locations of the existing light posts and gates on the

public safety railing. The gates would be 8 feet wide and 8 feet high (two 4-foot-wide by 8-foot-high panels), and match the appearance of the vertical system. The frame for each gate door would be constructed of 2-inch by 2-inch steel members. The gates would be located on top of the outside handrail. The outside handrail would remain in place.

Alternative 1B – Add Horizontal System to Outside Handrail

Alternative 1B would construct a new barrier on top of the outside handrail (and concrete rail at north anchorage housing and north pylon) consisting of $\frac{3}{8}$ -inch diameter horizontal steel cables at 6 inches on center leaving 5 $\frac{5}{8}$ inches clear space between cables. The cable diameter matches the cables on the public safety railing. The new barrier would extend 8 feet above the top of the 4-foot-high outside handrail for a total height of 12 feet. The existing rail posts would be replaced with new 12-foot-high outside rail posts at the same locations and of the same cross-section, size, material, and color of the original posts. The entire system would be constructed of steel that would be painted International Orange to match the material and color of the outside handrail. Transparent panels would be installed at the belvederes and towers on both sides of the Bridge. Transparency would be preserved through ongoing maintenance of the panels.

A transparent winglet would be placed on top of the outside rail posts to ensure aerodynamic stability and impede climbing over the barrier. The winglet would be a transparent 42-inch-wide panel with a slight concave curvature extending approximately 2 feet over the sidewalk. The transparent winglet would run the length of the suicide deterrent barrier, except at the north and south towers. The transparent winglet would be notched at the suspender ropes and light posts.

Because maintenance workers would no longer be able to climb over the outside handrail to reach the below-deck maintenance traveler, gates would be located at a spacing of 150 feet on center to generally match the locations of the existing light posts and gates on the public safety railing. The gates would be 8 feet wide and 8 feet high (two 4-foot-wide by 8-foot-high panels), and match the appearance of the horizontal system. The frame for each gate door would be constructed of 2-inch by 2-inch steel members. The gates would be located on top of the outside handrail. The outside handrail would remain in place.

Alternative 2A – Replace Outside Handrail with Vertical System

Alternative 2A would construct a new vertical 12-foot-high barrier consisting of $\frac{1}{2}$ -inch diameter vertical steel rods spaced at 4 $\frac{1}{2}$ inches on center, leaving a 4-inch clear space between rods. A rub rail would be installed at the same height as the public safety railing (4 feet 6 inches). The existing rail posts would be replaced with new 12-foot-high outside rail posts at the same locations and of the same cross-section, size, material, and color of the original posts. The top horizontal header would consist of a chevron-shaped member matching the top element of the outside handrail to be removed. The vertical rods would be attached to the header and bottom barrier element. The entire system would be constructed of steel that is painted International Orange to match the material and color of the outside handrail. Transparent panels would be installed along the upper 8 feet at the belvederes and towers on both sides of the Bridge. Transparency would be preserved through ongoing maintenance of the panels. This alternative assumes that the modification to the outside handrail on the west side of the Bridge between the two main towers and the installation of the wind fairings have been completed as part of the previously approved seismic retrofit project.

Because maintenance workers would no longer be able to climb over the outside handrail to reach the below-deck maintenance traveler, gates would be located at a spacing of 150 feet on center to generally match the locations of the existing light posts and gates on the public safety railing. The gates would be 8 feet wide (two 4-foot-wide panels) and 12 feet high, and match the appearance of the vertical system. The frame for each gate door would be constructed of 2-inch by 2-inch steel members. A rub rail would be located at a height of 4 feet 6 inches, matching the height of the public safety railing.

Alternative 2B – Replace Outside Handrail with Horizontal System

Alternative 2B would construct a new 10-foot-high barrier consisting of $\frac{3}{8}$ -inch diameter steel horizontal cables. The cables in the lower 3 $\frac{1}{2}$ foot section would be spaced at 4.4 inches on center, while the cables in the upper 6 $\frac{1}{2}$ foot section would be spaced 6 inches on center. A rub rail would be installed at the same height as the public safety railing (4 feet 6 inches). The existing rail posts would be replaced with new 10-foot-high outside rail posts at the same locations and of the same cross-section, size, material, and color of the original posts. The entire system would be constructed of steel that would be painted International Orange to match the material and color of the outside handrail. Transparent panels would be installed along the upper 6 $\frac{1}{2}$ -foot portion at the belvederes and towers on both sides of the Bridge. Transparency would be preserved through ongoing maintenance of the panels.

A transparent winglet would be placed on top of the rail posts to ensure aerodynamic stability and impede climbing over the barrier. The winglet would be a clear 42-inch-wide transparent panel with a slight concave curvature extending approximately 2 feet over the sidewalk. The transparent winglet would run the length of the suicide deterrent barrier, except at the north and south towers. The transparent winglet would be notched at the suspender ropes and light posts.

Because maintenance workers would no longer be able to climb over the outside handrail to reach the below-deck maintenance traveler, gates would be located at a spacing of 150 feet on center to generally match the locations of the existing light posts and gates on the public safety railing. The gates would be 8 feet wide (two 4-foot-wide panels) and 10 feet high, and match the appearance of the horizontal system. The frame for each gate door would be constructed of 2-inch by 2-inch steel members. A rub rail would be located at a height of 4 feet 6 inches, matching the height of the public safety railing.

Alternative 3 – Add Net System

Alternative 3 would construct a horizontal net approximately 20 feet below the sidewalk and approximately 5 feet above the bottom chord of the exterior main truss. Use of such net installations for suicide prevention on other facilities have resulted in greatly reduced fatalities and suicide attempts. Should individuals jump, they would be expected to survive the fall and could be rescued. The net would extend horizontally approximately 20 feet from the Bridge and be covered with stainless steel cable netting incorporating a grid between 4 and 10 inches. The horizontal support system would connect directly to the exterior truss and be supported by cables back to the top chord of the truss. The support system for the netting would include cables that would pre-stress the netting to help keep it taut and not allow the wind to whip the netting.

The horizontal net would consist of independent 25-foot sections that could be rotated vertically against the truss to allow the maintenance travelers to be moved. The net and the steel horizontal support system would be painted to match the International Orange Bridge color. With this alternative, there would be no modifications to the above-deck Bridge features. This alternative assumes that the modification to the outside handrail on the west side of the Bridge between the two main towers and the installation of the wind fairings have been completed as part of the previously approved seismic retrofit project.

2.2.2 No-Build Alternative

The No-Build Alternative represents an alternative and a baseline for future year conditions if no other actions are taken in the study area beyond what is already in place. Under this alternative, the Bridge's sidewalks would remain open to the public, with the existing outside railing remaining four (4) feet high. The No-Build Alternative would continue the existing non-physical suicide deterrent programs at the Bridge, which include emergency counseling telephones, public safety patrols, and employee training. These programs are more fully described in Chapter 1 of the EIR/EA.

Individuals of varying heights, weights, ages, and sexes, not using the Bridge sidewalks for their intended purpose, could climb over the existing railing and jump to their death. There would be no other physical barrier preventing an individual from jumping, if the railing were to be scaled. Suicide rates under this alternative would likely follow historical trends as indicated below.

- In 2005, there were 622 known suicides in the nine Bay Area counties, of which 23 were estimated to occur at the Bridge. Further, in that same year, 58 persons contemplating suicide were successfully stopped. In 2006, 31 suicides are known to have occurred at the Bridge, while 57 individuals were stopped. Similarly, in 2007, 39 suicides occurred and 90 were stopped. The individuals taken off of the Bridge are transported to a local hospital for a psychiatric evaluation pursuant to Section 5150 of the California Welfare and Institutions Code.
- A variety of non-physical measures to deter suicides on the Bridge have been in place for many years. However, there are still approximately two dozen deaths that occur each year as a result of individuals jumping off the Bridge. The non-physical measures have stopped approximately two-thirds of those individuals with the intent to commit suicide at the Bridge; despite these measures one-third are not prevented.
- Although official figures have not been maintained through the years, since 1937 it is estimated that approximately 1,300 individuals have committed suicide by jumping off of the Bridge.

2.2.3 Construction Activities

Construction of any of the physical suicide deterrent system build alternatives would be performed in sections, beginning on the west side of the Bridge and ending on the east side of the Bridge. It is anticipated that it would take 12 to 18 months per side to complete installation of any of the alternatives. Construction operations would be staged to minimize effects on pedestrians, cyclists and motor vehicles using the Bridge.

The work on the west sidewalk would be specified to be performed weekdays during the hours when the sidewalk is not open to the public, so as not to affect the commuter and recreational use on the west sidewalk. The work on the east sidewalk would be specified to be performed primarily at night. Should it be necessary to perform work during the day on the east sidewalk, a 6-foot wide minimum clear passageway would be maintained through the work area with appropriate traffic control and other protective measures in place. These provisions have been successfully used on the seismic retrofit project, the Public Safety Railing project and during the District's on-going maintenance and operations activities.

Anticipated equipment needed during construction of the alternatives would include a boom truck for delivery of material, a crane, welding equipment, a generator, lighting for night work, and general power hand tools.

3.0 DESCRIPTION OF SECTION 4(f) PROPERTIES

The Golden Gate Bridge Physical Suicide Deterrent System Project is located in proximity to several publicly owned parks and recreational facilities of national and international prominence and local value. Additionally, the Section 106 area of potential effects (APE) contains several historic properties, including the Golden Gate Bridge (Bridge) (project site). The following description of Section 4(f) properties includes properties within the General APE and parks and recreational facilities within approximately one-half mile of the project site.

The properties within the General APE include the Bridge, Doyle Drive and the Roundhouse Gift Center. Properties within one-half mile of the project include recreational facilities that are part of the Presidio of San Francisco, Golden Gate National Recreation Area and East Fort Baker. Figures 2 and 3 show the location of these resources relative to the project site. Exhibit 3-1 lists the Section 4(f) resources in proximity to the project.

3.1 GOLDEN GATE BRIDGE

3.1.1 The Golden Gate Bridge

The Bridge is a Section 4(f) resource because it is a publicly owned historic resource and a recreation resource with uses occurring on and around the Bridge. It is a multi-component historic structure that has been determined eligible for listing in the National Register of Historic Places (NRHP), is California State Historic Landmark No. 974, and is on the California Register of Historical Resources. It is also San Francisco City Landmark No. 222. Historic resources that are listed on the NRHP and resources that are eligible for it are viewed similarly under the provisions of Section 4(f) in that all such resources are protected by Section 4(f). Listing on the NRHP, while conferring a certain distinction, does not result in additional protections to historic resources under the provisions of Section 4(f).

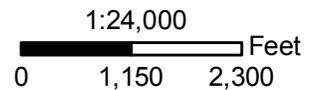
The Bridge provides recreational function through visitor serving facilities, lookout areas, and use of the Bridge sidewalks by bicyclists, joggers, and sightseers. It is one of the most well-known, frequently visited, and internationally recognized suspension bridges in the world, spanning the Golden Gate Strait at the mouth of the San Francisco Bay and connecting San Francisco and Marin Counties (see Figure 1), and receiving



Figure 2 - Section 4(f) Resources: San Francisco Approach

Legend

- Golden Gate National Recreation Area Boundary
- Presidio Boundary



Source: Imagery - NAIP 2005/2006; NPS website; GGNRA website



Legend

- Golden Gate National Recreation Area Boundary
- East Fort Baker Boundary

Figure 3 - Section 4(f) Resources: Marin Approach

1:12,000
 0 625 1,250 Feet

NORTH

Source: Imagery - NAIP 2005/2006; NPS website; GGNRA website

Exhibit 3-1 - Section 4(f) Resources in Project Vicinity

PROPERTY	HISTORIC AND RECREATION RESOURCES IN PROXIMITY TO THE GOLDEN GATE BRIDGE PHYSICAL SUICIDE DETERRENT SYSTEM PROJECT
Golden Gate Bridge	Roundhouse Gift Center Toll Plaza Undercrossing
Presidio of San Francisco	Fort Point National Historic Site Battery East Road and Bike Turnouts (formerly Battery East Area) Marine Drive Doyle Drive Crissy Field Coastal Trail (south) Golden Gate Promenade / SF Bay Trail Overlook at Fort Scott (off Coastal Trail)
GGNRA	Bluff Road Bridge Road Conzelman Road Coastal Trail (north) Battery Spencer
East Fort Baker	Vista Point and Trail Lime Point Moore Road (Lime Point Trail) Horseshoe Cove Point Cavallo

approximately 10 million visitors yearly. The Bridge has been recognized by the American Society of Civil Engineers on at least three occasions: as one of the Seven [Engineering] Wonders of the World in 1955, as a National Civil Engineering Landmark in 1984, and as a Monument of the Millennium in 2001.

The Bridge is widely considered one of the most beautiful examples of bridge engineering, both as a structural design challenge and for its aesthetic appeal. It was the largest suspension bridge in the world when it was completed in 1937 and has become an internationally recognized symbol of San Francisco. The Bridge is distinctive because of its striking design reflected by its unique and distinguishing architectural qualities and characteristics. It represents the great period of suspension bridge engineering of the 1920s and 1930s, with never-before-seen suspension bridge aesthetics that emphasized light and simplicity, rather than solidity and complexity. The Bridge embodies new shapes and forms that transcend previous bridge designs and showcase its tremendous scale and beauty.

Combining Art Deco and Streamline Moderne design with advanced engineering technologies, and situated against a dramatic coastal backdrop, the Bridge has been described as an environmental sculpture and is widely noted for its harmonious blending of the natural and built environment. The extraordinary setting intensifies the visual power of the Bridge. From its north-south alignment, the Bridge provides panoramic views of the rugged beauty and urban diversity that surround it, encompassing the Marin hills, the Presidio of San Francisco Historic Landmark District, the skyline of San Francisco, Alcatraz and Angel Islands of San Francisco Bay, and the wide expanse of the Pacific Ocean and coastline. It is one of the most photographed places in the world, with views of the Bridge typically taken from Golden Gate National Recreation Area (GGNRA) beaches and trails southwest of the Bridge, San Francisco Bay, the Presidio, Fort Point, Fort Baker, the Marin Headlands, and from the air. The setting and the views contribute to the popularity of the sidewalks and to people's affection toward the structure.

Character-Defining Features of the Bridge

The primary character-defining elements and decorative features of the Bridge and its contributing elements are its major structural elements (the suspension Bridge anchorages, pylons, towers, main cables, suspender ropes, main span, and side spans), the plate girder bridge, arch bridge, and truss bridges of the approaches, the southern approach roadway, Round House, and Toll Crossing Underpass.

The Art Deco / Moderne design of these structures is a high-ranking character-defining feature of all of these structures and their use within the overall Bridge. The outside handrail from the original construction and outside handrail replicated to match original, as well as the layout of the sidewalks – width and construction around towers and pylons – that allow pedestrian use of Bridge, are essential character-defining features of the property (see Exhibit 3-2). The sidewalks have been extended and widened, and serve as important, human-scale features of the Bridge that make it readily accessible to the commuting and visiting public.



Pedestrians have access to the eastern pathway during daylight hours (from 5:00 a.m. to 6:00 p.m. or 9:00 p.m. depending on the season). Bicyclists have toll-free 24-hour access to either the eastern or the western pathways depending on the day, hour, and season.

Other character-defining features that are important in conveying the artistic value of the property are the electroliers (light posts), the International Orange paint color, and remaining concrete railings. The outside handrails are simplified modest, uniform elements placed far enough apart to allow motorists an unobstructed view. The electroliers (light posts) have a lean, angled form and the portal bracing of the main towers have decorative cladding.

Contributing Elements of the Bridge

The basic components of the main suspension span and side spans, the pylons, approach viaducts, and Fort Point Arch, are also interconnected with the other contributing elements: the Presidio Approach Road, the Roundhouse, and the Toll Plaza Undercrossing (Bridge Number 34 0069). The bridge number is the official structure number assigned by the California State Department of Transportation (Department) to track structure maintenance. The underpass is an original component of the Bridge that appears to be eligible as a contributing element of the Bridge, but was not individually evaluated in the 1993 or 1997 survey.

3.1.2 The Roundhouse Gift Center

The Roundhouse Gift Center (see Exhibit 3-3) is a Section 4(f) resource because it is a contributing element of the Golden Gate Bridge historic property (MacDonald, 1993) and was determined eligible for the NRHP (MacDonald, 1995). The Roundhouse Gift Center is part of a complex of buildings designed and built as part of the original Bridge project. It was designed and built in 1939. It was remodeled in 1955 and again in 1987. Although the interior was completely altered, the exterior of the building has changed very little.



3.1.3 Toll Plaza Undercrossing

The Toll Crossing Underpass (Bridge Number 34 0069) is a Section 4(f) resource because it is a contributing element of the Golden Gate Bridge. It is an original component of the Bridge, completed in 1936. The tunnel-like undercrossing is a single span concrete tee beam structure designed to allow vehicular traffic and pedestrians to cross from one side of the roadway to the other underneath the Toll Plaza using surface streets. Department bridge logs indicate that the undercrossing is about 33 feet long and 291 feet wide, and that it has not undergone major widening or extension since it was completed.

3.2 PRESIDIO OF SAN FRANCISCO

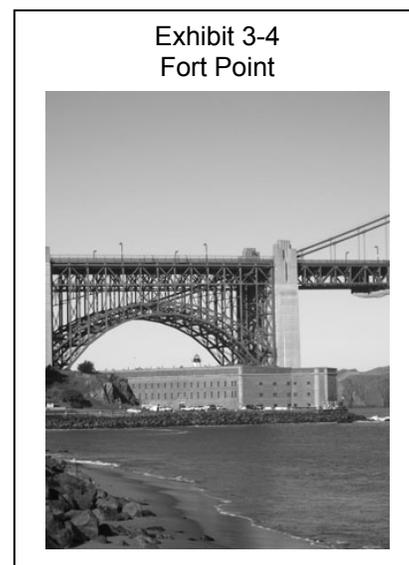
The Presidio of San Francisco (the Presidio) is a Section 4(f) resource because it is a publicly owned recreation area and historic property and a unit of the GGNRA national park. It is also listed in the NRHP (register # 66000232) and is a National Historic Landmark District (NHL). It is located in the northwesternmost point of the San Francisco peninsula, bordered in the north and the west by the San Francisco Bay and the Pacific Ocean, respectively (see Figure 2). The property is approximately 600-hectares (1,491 acres) and includes several significant historic sites and recreation areas. In 1998, management of the Presidio was divided between two federal agencies: the Presidio Trust manages the inland 1,168 acres of the Presidio and the National Park Service retains management of the 323 waterfront acres. The Trust's mission is to preserve and enhance the natural, cultural, scenic, and recreation resources of the Presidio for public use in perpetuity, and to achieve long-term financial sustainability.

The Presidio's diverse points of interest include historic military forts and batteries, forests, beaches, and spectacular vistas. Along the approximately 37 miles of trails within the Presidio, recreational activities include walking, jogging, biking, camping, sightseeing, and bird watching. On the waterfront, visitors can surf and windsurf, sail, fish, and swim. The Presidio Trails and Bikeways Plan is the guide for directing a network of trails and bikeways that would enhance the public's exploration and experience of the Presidio, while also protecting its natural and cultural resources. The plan identifies three basic trail classifications: pedestrian trails, multi-use trails, and on-street bikeways. The Presidio also includes the following recreational facilities: a golf course; swimming pool; volleyball, basketball, and tennis courts; gymnasium; bowling center; several small playgrounds, athletic fields, and picnic areas; and a group camping area. More than five million visitors enjoy the Presidio annually.

Pedestrian, bicycle, and vehicular access to the Presidio is provided at the following locations: Lincoln Boulevard (at the southwest), Arguello Boulevard (at the south), Presidio Boulevard and Broadway (at the southeast), Lombard Street and Gorgas Avenue (at the east), and Marina Boulevard (at the northeast). Vehicular access to the Presidio is also available from Doyle Drive via the off-ramp to Merchant Road at the Golden Gate Bridge Toll Plaza. Highway 101 crosses through the northern part of the Presidio, from the Toll Plaza to the eastern boundary of the Presidio. Veterans Boulevard carries Highway 1 on a north-south alignment through the Presidio NHL and intersects with Doyle Drive just northwest of the Cavalry Stables buildings. In addition, the Presidio provides 11 miles of pedestrian trails and 14 miles of bicycle access including The Coastal Trail, the Golden Gate Promenade, and the Presidio trail system.

3.2.1 Fort Point National Historic Site

Fort Point (see Exhibit 3-4) is a publicly owned historic and recreation resource, is listed on the NRHP, is a part of the Presidio NHL and is, therefore, a Section 4(f) resource. It is also a National Historic Site (CA-SFr-48H). The fort is located under the Fort Point Arch of the Bridge on the eastern side. The fort is a Civil War-era structure built between 1853



and 1861 and is the only brick casemated coastal defense fort on the Pacific Coast of its kind. It is listed on the California Register of Historical Resources and is a Civil Engineering Landmark (Garaventa, 1993). The fort is an important educational resource and provides recreational opportunities including, fishing, surfing, and views of the Bay.

3.2.2 Battery East Road Bike and Pedestrian Turnouts

The Battery East Road Bike and Pedestrian Turnouts are used for recreational purposes, are a part of the GGNRA, and are thus considered a Section 4(f) resource (see Exhibit 3-5). The area includes a collection of Civil War-era batteries, which extend along the area parallel to Battery East Road. The area provides views of the Bridge, the Bay, and downtown San Francisco. It also includes picnic tables available for public use and interpretive signs describing the historic value of the batteries.

Exhibit 3-5
Battery East Road Turnout



3.2.3 Marine Drive

Marine Drive is a Section 4(f) resource because it is a publicly owned road within the GGNRA with significant recreational function. It runs concurrently with the Golden Gate Promenade/SF Bay Trail (see Figure 2) from the Bridge until just before Torpedo Wharf, offering visitors walking, jogging, biking, and sightseeing opportunities.

3.2.4 Doyle Drive

Doyle Drive is a publicly owned historic resource eligible for the NRHP and is considered a Section 4(f) property. It is the south approach to the Golden Gate Bridge carrying Route 101 through the general area of potential effects (APE). Doyle Drive is also a contributing element of the Golden Gate Bridge and of the Presidio NHL because it was originally constructed in conjunction with the Bridge.

3.2.5 Crissy Field

Crissy Field is a Section 4(f) resource because it is a publicly owned recreation area within the Presidio NHL. It is a beach and public walkway located east of the Bridge (see Number 14, Figure 2). During the Presidio's military use, Crissy Field was an important airfield. Today it consists of a 22-acre tidal marsh restoration area, a promenade, and a beach area. Recreational opportunities include walking, jogging, and biking along the promenade trail, waterfront and beach activities, picnicking, bird watching, and sightseeing, including views of the Bridge.

3.2.6 The Coastal Trail (South of Bridge)

The Coastal Trail is a Section 4(f) resource because it is a publicly owned trail within the GGNRA national park and the Presidio NHL. It runs through the Presidio west of Lincoln Boulevard, along the windswept Coastal Bluffs, past historic batteries, down to Baker Beach, and farther south to Ocean Beach.

3.2.7 The Golden Gate Promenade/SF Bay Trail

The Golden Gate Promenade/SF Bay Trail is a Section 4(f) resource because it is a publicly owned paved pedestrian walkway and a recreational resource within the Presidio NHL and the GGNRA national park (see Exhibit 3-6). It is located to the east of the Bridge, and runs east from Fort Point to Fort Mason and on to Aquatic Park, hugging the Bay's edge (see Number 17, Figure 2). This bicycle and pedestrian path also connects the Bay Bridge Bay Trail segment with the east and west sidewalks of the Golden Gate Bridge and provides views of the Bridge and the Bay.

Exhibit 3-6
G.G. Promenade / SF Bay Trail



3.2.8 Overlook at Fort Scott (off Coastal Trail)

The overlook at Fort Scott is a Section 4(f) resource because it is a publicly owned overlook located within the Presidio NHL. It is located west of Lincoln Boulevard off the Coastal Trail and offers recreational sightseeing opportunities including views of the Pacific Ocean and the Marin Headlands.

3.3 GOLDEN GATE NATIONAL RECREATION AREA

The Golden Gate National Recreation Area (GGNRA) is a Section 4(f) resource because it is a publicly owned national park. It is the world's largest urban national park and covers a total area of 75,500, acres of land and water, including approximately 28 miles of coastline. It is used extensively by the public for a variety of recreational uses and has numerous trails and vista points on the Marin and San Francisco portions bordering the Bay. The GGNRA receives 17 million recreational visitors annually. The area also includes several historically significant sites.

There is a broad range of recreational opportunities available on GGNRA lands, including camping, hiking, visiting historic structures, visiting natural area, sightseeing, bird watching, participating in public programs, beach activities, water sports, and fishing, among others. Recreational facilities include the Crissy Field Center, Alcatraz Island Visitor Center, Fort Point Bookstore, Marin Headlands Visitor Center, Muir Woods Visitor Center, Presidio Visitor Center, and many other smaller facilities.

Access to the GGNRA is provided by Highways 1, 101, and 280 from the north and south San Francisco Bay Area, and by Highway 880 from the East Bay. Pedestrian and bicycle access points are numerous, and include local streets and trail networks.

All land immediately surrounding the Bridge and its approaches (including the Presidio and East Fort Baker) is part of the GGNRA. The Golden Gate Bridge, Highway and Transportation District (District) was granted a right-of-way easement across the Presidio of San Francisco and Fort Baker Military Reservation in 1931 for construction, operation, and maintenance of the Bridge (Payne, 1931). This right still exists and is administered by the GGNRA. The proposed construction staging areas are located on GGNRA lands (refer to Number 4 in Figures 2 and 3).

3.3.1 Bluff Road

Bluff Road (see Exhibit 3-7) is a Section 4(f) resource because it is a publicly owned road within the GGNRA national park. It is located in the Marin Headlands, west of Hwy 101 (see Number 21, Figure 3). Currently this road is not open to the public due to security needs.

3.3.2 Bridge Road

Bridge Road (the lower road shown in Exhibit 3-7) is a Section 4(f) resource because it is a publicly owned road within the GGNRA national park. It is located in the Marin Headlands, west of Hwy 101 (see Number 22, Figure 3). Currently this road is not open to the public due to security needs.

3.3.3 Conzelman Road

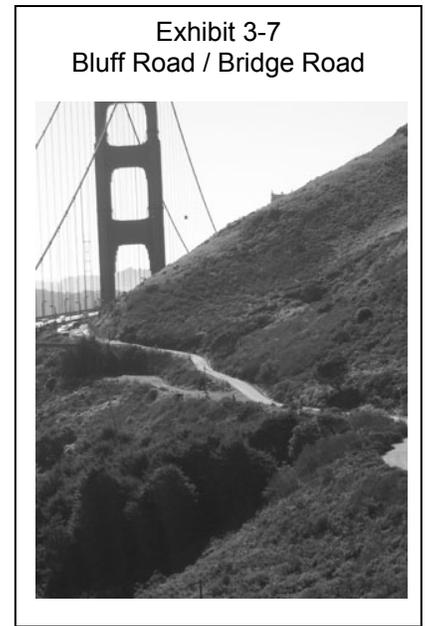
Conzelman Road is a Section 4(f) resource because it is a publicly owned road with recreational function within the GGNRA national park. It runs beneath Hwy 101 just south of Vista Point, connecting East Fort Baker and the Marin Headlands (see Number 23, Figure 3), and providing lookouts and views of the Bridge, the San Francisco Skyline, and the Pacific Ocean.

3.3.4 The Coastal Trail (North)

The Coastal Trail (Exhibit 3-8) is a Section 4(f) resource because it is a publicly owned trail with significant recreational function, located within the GGNRA national park. The trail, accessible from the Conzelman Road lookout parking lot on the west side of the Bridge, runs northwest through the Marin Headlands and connects with a system of other trails, including the Dipsea Trail (see Number 24, Figure 3). Following the Coastal Trail north, it leads to Muir Beach, Fort Cronkhite, and Stinson Beach (via the Dipsea Trail) and continues north. The Coastal Trail and connecting trail system provide hiking and sightseeing opportunities including visual access to the Bridge, the San Francisco Skyline, the surrounding coastal bluffs, and the Pacific Ocean. The Coastal Trail is part of a larger statewide system of trails designed to offer visual and physical access to the state's coastal resources.

3.3.5 Battery Spencer

Battery Spencer is a Section 4(f) resource because it is a publicly owned historic site and a part of the GGNRA national park. It is located in the Marin Headlands, west of the Bridge and is accessible by a trail off Conzelman Road (see Number 25, Figure 3). Completed in 1897, the battery provided important protection to the Golden Gate; it was disarmed by 1943. Today it remains a popular point of public and historic interest.



3.4 EAST FORT BAKER

East Fort Baker is a Section 4(f) resource because it is a publicly owned historic and recreation resource, is part of the GGNRA national park, and is listed on the NRHP. It is a 335-acre property at the center of the GGNRA system located in Marin County at the northeast foot of the Bridge (see Figure 3). It includes the Horseshoe Cove waterfront area with over a mile of rocky bay shoreline, Lime Point, Cavallo Point, many historic army buildings, and several historic batteries. The Army acquired Fort Baker in 1866. Forts Baker, Barry, and Cronkhite Military Reservations, dating back to the mid-1800s, functioned as important coastal defense elements. Between 1872 and 1876, barbette batteries were constructed at Point Cavallo (Battery Cavallo) on the ridge above Lime Point (Cliff and Ridge Batteries), and on Gravelly Beach to the west (Gravelly Beach Battery). The NRHP lists the forts together (USNPS 1992a:12/12/73, #73000255) due to their significant architecture, landscape architecture, and part in the history of the U.S. Army for the period 1850-1960. The forts are also included on the California Register of Historical Resources (CAL/OHP 1976:150,185).

Recreational activities at Fort Baker include active land-based activities such as bicycling, dog activities, and jogging/ running; water-based activities like fishing/crabbing, boating/kayaking, and wind surfing; and passive land-based activities such as hiking/walking, sightseeing, photography, and picnicking. Other activities include flying model planes and kites, beach play, roller-blading, and wading.

A comprehensive Fort Baker Reuse Plan is currently being implemented at the fort; its goal is to enhance the recreational opportunities available to the public and add additional visitor serving resources. The fort's projected reopen date is the summer of 2008.

3.4.1 Vista Point and Trail

As a publicly owned recreation area, Vista Point is considered a Section 4(f) resource. Vista Point is a scenic overlook area and visitor turnout from the highway on the northern approach to the Bridge, accessible from northbound US 101 only. It is located in Marin County at the northern end of the Bridge (see Number 28, Figure 3), also known as the Golden Gate Observation Area. The Department designed and built this facility adjacent to the North Abutment in 1961-1962. It was not part of the original Bridge design and construction project and is not a contributing element of the Bridge property.

It is, however, a popular visitor attraction because of its views of the Bridge and the San Francisco skyline. It also provides a parking area, free up to four hours, and restroom facilities for persons who walk on the Bridge or the nearby trails and sightseers.

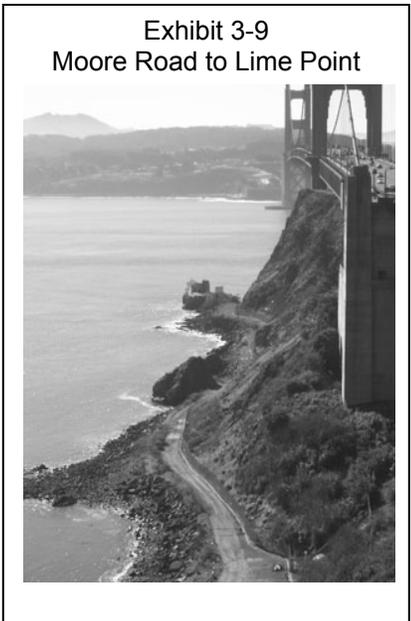
Vista Point is also the location of the Lone Sailor Naval Memorial, dedicated on April 14, 2002, to all of the Sea Services – Navy, Marine Corps, Coast Guard, and Merchant Marine. A memorial was constructed and dedicated on the scenic overlook with a replica of *The Lone Sailor*®. Improvement to Vista Point included statue placement, the creation of a memorial, and other site enhancements.

3.4.2 Lime Point

Lime Point is a Section 4(f) resource because it is a recreational resource that is part of the core area of East Fort Baker (see Exhibit 3-9; Number 27, Figure 3). Lime Point is one of the first peninsulas of land seen when traveling under the Bridge by water. It houses the U.S. Coast Guard Light Station, established in 1883. The trail along this peninsula is currently closed to the public due to security needs.

3.4.3 Moore Road (Lime Point Trail)

Moore Road is a Section 4(f) resource because it is a publicly owned road and trail within East Fort Baker and the GGNRA (see Exhibit 3-9). It is located east of Hwy 101 and runs along a small peninsula between Lime Point and the core area of East Fort Baker (see Number 31, Figure 3). Moore Road was constructed to connect Lime Point with Horseshoe Cove and the developed area of East Fort Baker. Today it provides a recreational trail from the Lime Point Lighthouse along the Bay's edge to Horseshoe Cove and into East Fort Baker, with views of the Bridge looking south. Currently this road is closed to the public due to security needs.

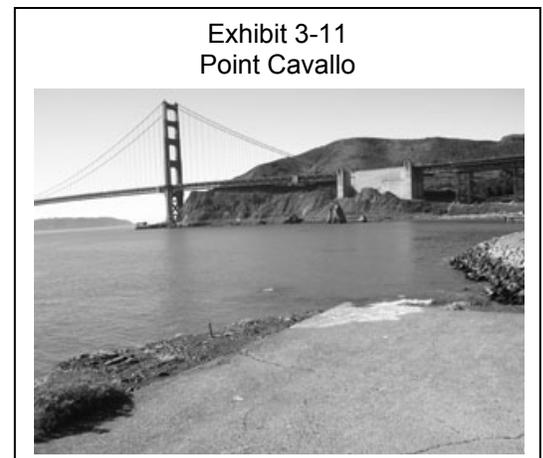
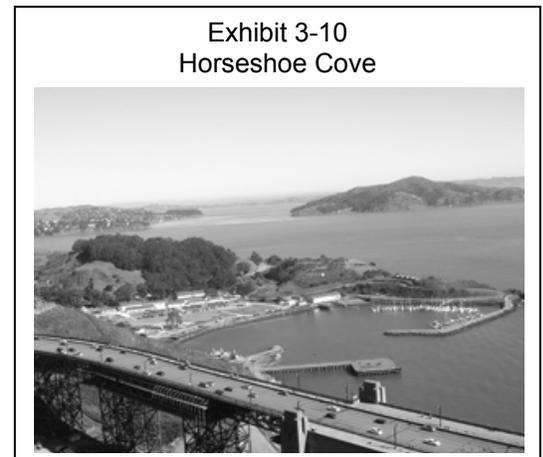


3.4.4 Horseshoe Cove

Horseshoe Cove is a Section 4(f) resource because it is a publicly owned recreation resource and a part of East Fort Baker and the GGNRA national park (see Exhibit 3-10). The cove and associated waterfront extend around the shoreline between Lime Point on the west and Point Cavallo on the east. It is a core area of the fort and offers recreational functions including, walking, biking, jogging, waterfront activities, and sightseeing, with views of the Bay and the Bridge.

3.4.5 Point Cavallo

Point Cavallo is a Section 4(f) resource because it is a publicly owned recreation resource within East Fort Baker and the GGNRA national park (see Exhibit 3-11). The point is the peninsula to the east of Horseshoe Cove (see Number 29, Figure 3). Its recreational functions include walking, hiking, and sightseeing opportunities, with views of the Bay and the Bridge.



4.0 IMPACTS TO SECTION 4(F) PROPERTIES

Potential Section 4(f) uses by the project are discussed below as they relate to the Golden Gate Bridge (Bridge), its contributing structures and properties within the general area of potential effects (APE), and within one-half mile of the Bridge.

4.1 GOLDEN GATE BRIDGE

4.1.1 The Golden Gate Bridge

No-Build Alternative

The No-Build Alternative would not use this Section 4(f) resource.

Alternative 1A: Add Vertical System to Handrail

This alternative would add an 8-foot-high vertical rod system to the outside handrail for a total height of 12 feet. The addition of an 8-foot-high barrier would affect the character of the Bridge because of introduced visual elements at the east and west sidewalks, the physical change of the outside handrail on the sidewalks, and changes to pedestrian, bicycle, and motorist views.

Evaluation of Section 4(f) Use by Alternative 1A

While Alternative 1A would not remove the outside handrail, it would alter the outside handrail. The placement of an 8-foot barrier on top of the outside handrail would substantially alter the pedestrian experience from the sidewalk and obscure views of the main suspension ropes, which are also character-defining features of the Bridge. Alternative 1A would result in a permanent Section 4(f) use of the Bridge because it would substantially alter character-defining elements of the Bridge, including its relationship to the setting (the views), which contribute to the integrity of the Bridge's significant historic features and its eligibility for NRHP listing.

The physical alteration of the Bridge through the installation of the 8-foot high barrier on top of the outside handrail would alter the recreational experience of pedestrians and cyclists on the sidewalks because structural changes created by the barrier would physically alter the views from the sidewalks. This would represent a permanent Section 4(f) use.

Alternative 1B: Add Horizontal System to Handrail

This alternative would add an 8-foot-high horizontal cable system and transparent winglet to the outside handrail for a total height of 12 feet. The addition of an 8-foot-high barrier on top of the outside handrail would affect the character of the Bridge because of introduced visual elements at the east and west sidewalks, the physical change of the outside handrail on the sidewalks, and changes to pedestrian, bicycle, and motorist views.

Evaluation of Section 4(f) Use by Alternative 1B

While Alternative 1B would not remove the outside handrail, it would alter the outside handrail. The placement of an 8-foot horizontal cable barrier on top of the outside

handrail supported by vertical posts would substantially alter the pedestrian experience from the sidewalk and obscure views of the main suspension ropes, which are also character-defining features of the Bridge. Alternative 1B would result in a permanent Section 4(f) use of the Bridge because it would substantially alter the character-defining elements of the Bridge, including its relationship to the setting, which contribute to the integrity of the Bridge's significant historic features and its eligibility for NRHP listing.

The physical alteration of the Bridge through the installation of the 8-foot high barrier on top of the outside handrail would alter the recreational experience of pedestrians and cyclists on the sidewalks because structural changes created by the barrier would physically alter the views from the sidewalks. This would represent a permanent Section 4(f) use.

Alternative 2A: Replace Outside Handrail with Vertical System

This alternative would replace the outside handrail with a 12-foot-high vertical barrier constructed of ½-inch diameter vertical steel rods. A rub rail would be installed at the same height as the public safety railing (4 feet 6 inches). The construction of a 12-foot-high barrier would affect the character of the Bridge because of introduced visual elements at the east and west sidewalks, the physical change of the outside handrail on the sidewalks, and changes to pedestrian, bicycle, and motorist views.

Evaluation of Section 4(f) Use by Alternative 2A

Alternative 2A would replace the outside handrail with a 12-foot-high vertical barrier. The removal of the outside handrail (a character-defining element of the Bridge), would significantly alter the pedestrian experience along the sidewalks (another character-defining element) and obscure views of the main suspension ropes, which are also character-defining features of the Bridge. Alternative 2A would result in a permanent Section 4(f) use of the Bridge because it would remove or substantially alter the character-defining elements of the Bridge, including its relationship to the setting, which contribute to the integrity of the Bridge's significant historic features and its eligibility for NRHP listing.

The physical alteration of the Bridge through the installation of a 12-foot high vertical barrier would alter the recreational experience of pedestrians and cyclists on the sidewalks because structural changes created by the barrier would physically alter the views from the sidewalks. This would represent a permanent Section 4(f) use.

Alternative 2B: Replace Outside Handrail with Horizontal System

This alternative would replace the outside handrail with a 10-foot-high horizontal cable system and transparent winglet. The construction of this barrier would affect the character of the Bridge because of introduced visual elements at the east and west sidewalks, the physical change of the outside handrail on the sidewalks, and changes to pedestrian, bicycle, and motorist views.

Evaluation of Section 4(f) Use by Alternative 2B

Alternative 2B would replace the outside handrail with a 10-foot-high horizontal barrier and transparent winglet. The removal of the outside handrail (a character-defining element of the Bridge), would significantly alter the pedestrian experience along the sidewalks (another character-defining element) and obscure views of the main suspension ropes, which are also character-defining features of the Bridge. Alternative 2B would result in a permanent Section 4(f) use of the Bridge because it would remove or substantially alter the character-defining elements of the Bridge, including its relationship to the setting, which contribute to the integrity of the Bridge's significant historic features and its eligibility for NRHP listing.

The physical alteration of the Bridge through the installation of the 10-foot high barrier would alter the recreational experience of pedestrians and cyclists on the sidewalks because structural changes created by the barrier would physically alter views from the sidewalks. This would represent a permanent Section 4(f) use.

Alternative 3: Add Net System

This alternative would construct a horizontal net approximately 5 feet above the bottom chord of the exterior main truss and approximately 20 feet below the sidewalk. The net would project approximately 20 feet from the Bridge and be covered with a stainless steel 4-inch to 10-inch grid cable netting. The horizontal support system would connect directly to the exterior truss and be supported by cables back to the top chord of the truss. The net would result in impacts to the character of the Bridge because of the introduced visual elements.

Evaluation of Section 4(f) Use by Alternative 3

Alternative 3 would not affect the character-defining elements of the Bridge seen from the Bridge sidewalk and roadway, or alter the pedestrian experience along the sidewalks. However, the net would be visible to pedestrians at the Bridge towers. From this viewpoint on the Bridge, the net would be visible across the lower portion of the pedestrian's viewshed but would not block views of the surrounding landscape. It would, however, substantially alter the exterior main truss (a character-defining feature of the Bridge), which contributes to the integrity of the Bridge's significant historic features, and its eligibility for NRHP listing. It would also introduce the use of non-historic materials – the cable netting – diminishing the Bridge's historic integrity. Alternative 3 would therefore result in a permanent Section 4(f) use of the Bridge because it would substantially alter character-defining elements of the Bridge, including its relationship to the setting, which contribute to the integrity of the Bridge's significant historic features and its eligibility for NRHP listing.

The physical alteration of the Bridge through the installation of the net system along the lower portion of the pedestrian viewshed would alter the recreational experience of pedestrians and cyclists at the Bridge towers. The extension of the net vertically from the Bridge creates a physical barrier to views from this location. This would represent a permanent Section 4(f) use.

4.1.2 The Roundhouse Gift Center

The proposed build alternatives would not result in a Section 4(f) use of the Roundhouse because they would not permanently incorporate land into the project, nor would they temporarily occupy any land within the resource. The proposed alternatives would not substantially impair the historic quality of this resource. The proposed project would not cause a constructive use of the Roundhouse Gift Center because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic resource.

4.1.3 Toll Plaza Undercrossing

The proposed build alternatives would not result in a Section 4(f) use of the Toll Plaza Undercrossing because they would not permanently incorporate land into the project, nor would they temporarily occupy any land within the resource. The proposed alternatives would not substantially impair the historic quality of this resource. The proposed project would not cause a constructive use of the Toll Plaza Undercrossing because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic resource.

4.2 THE PRESIDIO OF SAN FRANCISCO

4.2.1 Merchant Road Parking Lot

The construction staging area within the Presidio along Merchant Road at the south side of the Bridge may be used under all build alternatives for a portion of the construction period. This staging area is currently a District parking lot that includes 25 publicly available stalls. The closure of this parking lot during construction would eliminate public access to the parking spaces, which would represent a temporary occupancy of the Section 4(f) land.

During this period of time construction equipment may be stored at the parking lot. Storage of construction equipment would not physically change the land and would be temporary. All construction equipment would be removed prior to completion of construction.

Although the public parking stalls would not be available during construction of the project, there are several other areas near the Bridge that offer public parking, including the District's east parking lot below the Roundhouse Gift center and the NPS parking lot off Lincoln Boulevard and Battery East Road. On weekends and after 3:30 p.m. during the week, the District's west parking lot adjacent to the Toll Plaza is also available for public use. The available parking supply should be sufficient to compensate for the temporary loss of 25 stalls.

4.2.2 Fort Point National Historic Site

The proposed build alternatives would not result in a Section 4(f) use of Fort Point because they would not permanently incorporate land into the project, nor would they temporarily occupy any land within this historic site. The alternatives would not have severe impacts that substantially impair the historic quality of this resource, nor would they substantially alter views of the Bridge from Fort Point because of the distance and upward

viewing angle of the Bridge from Fort Point. The proposed project would not cause a constructive use of the Fort Point National Historic Site because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic resource.

4.2.3 Battery East Road Bike and Pedestrian Turnouts

The project build alternatives would not result in a Section 4(f) use of this property because no land would be permanently incorporated into the project, nor would any land be temporarily occupied by it. Views of the Bridge from the turnouts would not be substantially altered by the build alternatives and the alternatives would not result in severe impacts that would substantially impair the quality the recreational resource. The proposed project would not cause a constructive use of the Battery East Road Bike and Pedestrian Turnouts because the proximity impacts would not substantially impair the protected activities, features, or attributes of the recreational resource.

4.2.4 Marine Drive

The project build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any land be temporarily occupied by it. Views of the Bridge enjoyed by people using the drive recreationally would not be substantially altered by the build alternatives, and the alternatives would not substantially impair the quality of this recreational resource. The proposed project would not cause a constructive use of Marine Drive because the proximity impacts would not substantially impair the protected activities, features, or attributes of the recreational resource.

4.2.5 Doyle Drive

The project build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any land be temporarily occupied by it. The build alternatives would not have a severe impact that substantially impairs the historic quality of the Section 4(f) resource, nor would the views enjoyed by drivers on Doyle Drive be substantially altered. The proposed project would not cause a constructive use of Doyle Drive because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic resource.

4.2.6 Crissy Field

The project build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any land be temporarily occupied by it. There are distant views of the Bridge from Crissy Field, which would not be substantially altered by any of the build alternatives, nor would the alternatives cause severe impacts that would substantially impair the quality of this resource in any other way. The proposed project would not cause a constructive use of Crissy Field because the proximity impacts would not substantially impair the protected activities, features, or attributes of the recreational resource.

4.2.7 Coastal Trail (South)

The project build alternatives would not result in a Section 4(f) use of this trail because no land would be permanently incorporated into the project nor would any be temporarily occupied by it. The build alternatives do not have the potential to substantially impair the quality of the trail: views of the Bridge from the trail would not change substantially. The proposed project would not cause a constructive use of the Coastal Trail because the proximity impacts would not substantially impair the protected activities, features, or attributes of the recreational resource.

4.2.8 The Golden Gate Promenade/SF Bay Trail

The project build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any land be temporarily occupied by it. Views of the Bridge from this trail would not be substantially altered by the build alternatives, nor would the alternatives substantially impair the quality of this recreational resource. The proposed project would not cause a constructive use of the Golden Gate Promenade/SF Bay Trail because the proximity impacts would not substantially impair the protected activities, features, or attributes of this recreational resource.

4.2.9 Overlook at Fort Scott (off Coastal Trail)

The project build alternatives would not result in a Section 4(f) use of this property because no land would be permanently incorporated into the project, nor would any land be temporarily occupied by it. Views of the Bridge would not be substantially altered by the build alternatives nor would they result in severe impacts that would substantially impair the quality of this recreational resource. The proposed project would not cause a constructive use of the Overlook at Fort Scott because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic and recreational resource.

4.3 GOLDEN GATE NATIONAL RECREATION AREA

4.3.1 Bluff Road

The project build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any land be temporarily occupied by it. Because the roadway is closed to the public, alteration of the views from this roadway would not affect recreation users at this time. Should the roadway be reopened to the public in the future, it can be anticipated that changes to views of the Bridge from the road would be noticeable to users of this resource. Changes to these views, however, would not be anticipated to severely impair the quality of this resource that would be used for a variety of recreational activities. The proposed project would not cause a constructive use of Bluff Road because the proximity impacts would not substantially impair the protected activities, features, or attributes of the recreational resource.

4.3.2 Bridge Road

The project build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any land be temporarily occupied by it. Because the roadway is closed to the public, alteration of the views from this roadway would not affect recreation users at this time. Should the roadway be reopened to the public in the future, it can be anticipated that changes to views of the Bridge from the road would be noticeable to users of this resource. Changes to these views, however, would not be anticipated to severely impair the quality of this resource that would be used for a variety of recreational activities. The proposed project would not cause a constructive use of Bridge Road because the proximity impacts would not substantially impair the protected activities, features, or attributes of the recreational resource.

4.3.3 Conzelman Road

The project build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any land be temporarily occupied by it. Views of the Bridge enjoyed by people using the road recreationally would not be substantially altered by the build alternatives. The alternatives would not result in severe impacts that substantially impair the quality of this resource. The proposed project would not cause a constructive use of Conzelman Road because the proximity impacts would not substantially impair the protected activities, features, or attributes of the recreational resource.

4.3.4 Coastal Trail (North)

None of the project build alternatives would result in a Section 4(f) use of this trail because no land would be permanently incorporated into the project nor would any be temporarily occupied by it. The build alternatives do not have the potential to substantially impair the quality of the trail: views of the Bridge from the trail would not change substantially. The proposed project would not cause a constructive use of the Coastal Trail because the proximity impacts would not substantially impair the protected activities, features, or attributes of the recreational resource.

4.3.5 Battery Spencer

The proposed build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any be temporarily occupied by it. The build alternatives would not have any severe impacts that would substantially impair the historic quality of the post. The proposed project would not cause a constructive use of Battery Spencer because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic resource.

4.4 EAST FORT BAKER

4.4.1 Vista Point and Trail

No-Build Alternative

The No-Build Alternative would not use this Section 4(f) resource.

Alternative 1A: Add Vertical System to Handrail

This alternative would add an 8-foot-high vertical rod system to the outside handrail for a total height of 12 feet. The addition of an 8-foot-high barrier would alter the views toward the Bridge from Vista Point and Trail because of introduced visual elements at the east and west sidewalks. The barrier would not alter the views of the Bay and San Francisco from the viewpoint.

Evaluation of Section 4(f) Use by Alternative 1A

Alternative 1A would not result in a Section 4(f) constructive use of Vista Point and Trail: the proximity impacts of this alternative would not substantially impair the activities, features, and attributes for visitors to this scenic overlook.

Alternative 1B: Add Horizontal System to Handrail

This alternative would add an 8-foot-high horizontal cable system and transparent winglet to the outside handrail for a total height of 12 feet. The addition of an 8-foot-high barrier on top of the outside handrail would impact the views towards the Bridge from Vista Point and Trail because of introduced visual elements at the east and west sidewalks. The barrier would not alter the views of the Bay and San Francisco from the viewpoint.

Evaluation of Section 4(f) Use by Alternative 1B

Alternative 1B would not result in a Section 4(f) constructive use of Vista Point and Trail: the proximity impacts of this alternative would not substantially impair the activities, features, and attributes for visitors to this scenic overlook.

Alternative 2A: Replace Handrail with Vertical System

This alternative would replace the outside handrail with a 12-foot-high vertical barrier constructed of ½-inch diameter vertical steel rods. A rub rail would be installed at the same height as the public safety railing (4 feet 6 inches). The construction of a 12-foot-high barrier would affect the views of the Bridge from Vista Point and Trail because of introduced visual elements at the east and west sidewalks. The barrier would not alter the views of the Bay and San Francisco from the viewpoint.

Evaluation of Section 4(f) Use by Alternative 2A

Alternative 2A would not result in a Section 4(f) constructive use of Vista Point and Trail: the proximity impacts of this alternative will not substantially impair the activities, features, and attributes for visitors to this scenic overlook.

Alternative 2B: Replace Handrail with Horizontal System

This alternative would replace the outside handrail with a 10-foot-high horizontal cable system and transparent winglet. The construction of this barrier would affect the views of the Bridge from Vista Point and Trail because of introduced visual elements at the east and west sidewalks. The barrier would not alter the views of the Bay and San Francisco from the viewpoint.

Evaluation of Section 4(f) Use by Alternative 2B

Alternative 2B would not result in a Section 4(f) constructive use of Vista Point and Trail: the proximity impacts of this alternative would not substantially impair the activities, features, and attributes for visitors to this scenic overlook.

Alternative 3: Add Net System

This alternative would construct a horizontal net approximately 5 feet above the bottom chord of the exterior main truss. The net would project approximately 20 feet from the Bridge and be covered with a stainless steel 4-inch to 10-inch grid cable netting. The horizontal support system would connect directly to the exterior truss and be supported by cables back to the top chord of the truss. The introduced horizontal elements would change the view of the main truss of the Bridge from Vista Point and Trail. The barrier would not alter the views of the Bay and San Francisco from the viewpoint.

Evaluation of Section 4(f) Use by Alternative 3

Alternative 3 would affect the views of the Bridge because of the alteration to the main truss. The change to the views of the main truss would alter the views from Vista Point and Trail. The proposed project would not cause a constructive use of Vista Point and Trail because the proximity impacts would not substantially impair the activities, features, and attributes for visitors at this scenic overlook.

4.4.2 Lime Point

The proposed build alternatives for the project do not constitute a Section 4(f) use of this resource. No land would be permanently incorporated or temporarily occupied by these alternatives. Lime Point offers views of the Bridge, which, because of the angle of the view, would not be substantially altered by the build alternatives. The alternatives would not result in severe impacts that substantially impair the quality of this resource. The proposed project would not cause a constructive use of Lime Point because the proximity impacts would not substantially impair the protected activities, features, or attributes of the recreational resource.

4.4.3 Moore Road

The project build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any land be temporarily occupied by it. Views of the Bridge enjoyed by people using the road recreationally would not be substantially altered by the build alternatives. The proposed project would not cause a constructive use of Moore Road because the proximity impacts would not substantially impair the protected activities, features, or attributes of the recreational resource.

4.4.4 Horseshoe Cove

Views of the Bridge are available from Horseshoe Cove, but are secondary to its other recreational functions. The build alternatives would not substantially impair any of the qualities, which qualify this resource for Section 4(f) protection. In addition, the alternatives would not result in the permanent incorporation or temporary occupancy of

this resource. The proposed project will not cause a constructive use of Horseshoe Cove because the proximity impacts will not substantially impair the protected activities, features, or attributes of the recreational resource.

4.4.5 Point Cavallo

Point Cavallo provides views of the Bay and the Bridge. The proposed build alternatives do not have the potential to result in the substantial impairment of Bridge views from this resource. No land would be permanently incorporated or temporarily occupied by the alternatives. The proposed project would not cause a constructive use of Point Cavallo because the proximity impacts would not substantially impair the protected activities, features, or attributes of the recreational resource.

4.5 SUMMARY OF PROJECT USES OF SECTION 4(F) RESOURCES, BY ALTERNATIVE

The No-Build Alternative would not use any Section 4(f) resources. All of the build alternatives modify the Bridge, which is an historic resource. All of the build alternatives modify existing Bridge components and introduce new elements. Specifically, build alternatives modify either the outside handrails or the main truss. All of the build alternatives would alter the recreational experience of Bridge users. Additionally, all of the build alternatives would require construction staging areas. The temporary closure of the Merchant Road parking lot staging area within the Presidio would remove 25 public parking spaces during a portion of the construction period, which would be a temporary occupancy of the area. The matrix below summarizes the Section 4(f) uses by resource and project alternative.

Table 4-1 Section 4(f) Uses by Alternative

		Alt 1A	Alt 1B	Alt 2A	Alt 2B	Alt 3	No Build
Golden Gate Bridge	Golden Gate Bridge	P	P	P	P	P	--
	- Handrail and Sidewalk	P	P	P	P	--	--
	- Main Truss	--	--	--	--	P	--
	- Recreational Use	P	P	P	P	P	--
	Roundhouse Gift Center	--	--	--	--	--	--
	Toll Plaza Undercrossing	--	--	--	--	--	--
Construction Staging Areas	Merchant Road Parking Lot	T	T	T	T	T	--

P = Permanent Section 4(f) Use
 T = Temporary occupancy
 -- = No Section 4(f) Use

5.0 AVOIDANCE ALTERNATIVES

The feasibility and safety constraints described in Section 6.0 regarding the development and evaluation of project alternatives limited the opportunity to develop alternatives that could completely avoid adverse effects to the Golden Gate Bridge (Bridge) as an historic property. Construction of a physical suicide barrier is an action that clearly would cause adverse direct effects to the Bridge historic property. Every build alternative results in a Section 4(f) use of the Bridge. The Golden Gate Bridge, Highway and Transportation

District (District) criteria did require that the project alternatives meet the requirements of state and federal historic preservation laws (Criterion 7). The District designed the alternatives in a manner that would minimize the effect the project may have on the historic property to the extent possible. As part of this effort, the District examined other bridges in California, throughout the United States, and elsewhere in the world to assess potential designs for the barrier on this bridge.

The only alternative that would avoid effects to the Bridge as an historic property and therefore not cause a Section 4(f) use of the property is the No-Build Alternative. Although this alternative would avoid any Section 4(f) use of the Bridge, it is not prudent and feasible because it does not satisfy the purpose and need of the proposed project. In accordance with 23 CFR 774.117, the following six factors were considered when evaluating whether the No-Build alternative would be prudent.

- Compromises the project so that it is unreasonable given the purpose and need;
- Results in unacceptable safety or operational problems;
- After reasonable mitigation, still causes; severe social, economic, or environmental impacts, severe disruption to established communities; severe environmental justice impacts or severe impacts to other federally protected resources
- Results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
- Causes other unique problems or unusual factors; or
- Involves multiple factors listed above that while individually minor, cumulatively causes unique problems of extraordinary magnitude.

5.1 NO-BUILD ALTERNATIVE

The No-Build Alternative represents conditions if no other actions are taken. The No-Build Alternative would continue the existing non-physical suicide deterrent programs at the Bridge, which include emergency counseling telephones, public safety patrols, and employee training. While the continuance of these programs would avoid any effects to Section 4(f) resources, it would not address the approximately two dozen deaths that continue to occur every year at the Bridge. Therefore, it does not meet the purpose and need of the project, which includes impeding the ability of an individual to jump off the Bridge. As such, it compromises the project so that it is unreasonable given the purpose and need.

6.0 MEASURES TO MINIMIZE HARM

6.1 ALTERNATIVE DEVELOPMENT PROCESS

During the initial screening process, concepts were evaluated for their ability to ensure the continued aerodynamic stability of the Bridge and their responsiveness to the District performance criteria (See Section 1.2 of the EIR/EA for a list of these criteria). Wind tunnel testing was performed to ensure that any design would not cause the Bridge to be unstable in winds. During this phase of the project, conceptual designs were evaluated for their performance during high winds to determine which concepts would and would not affect the aerodynamic stability of the Bridge. It was found that very small changes in the

shape of the Bridge cross-sections (including the spacing and design of rail and fence elements) could have a significant impact on the Bridge's aerodynamic stability during high winds. Conceptual designs that significantly affected the aerodynamic stability of the Bridge under high winds were eliminated from further consideration.

Other concepts were eliminated for their inability to impede individuals from jumping from the Bridge or could create a hazard to sidewalk users. For example, Short Fence Systems below 6 feet in height were considered ineffective as a deterrent to climbing based on the ease with which an individual could jump over such a height. Similarly, systems that utilized barbed wire or electric shock transmission would create a hazard to sidewalk users and lead to injury to someone coming in contact with the system. Other groups of concepts eliminated during initial screening included enclosed walkways, chain link fence, electric fences, barbed wire, short systems, and lasers.

The three groups of concepts carried forward into the environmental document included 1) vertical rods 2) horizontal cables, and 3) horizontal net. Design criteria were established at a sufficient level to define the overall limits and basic forms of physical suicide deterrent system concepts. The design criteria included considerations to ensure the aerodynamic stability of the Bridge, a barrier height range depending on whether the existing outside handrail was retained (12-foot height) or removed (10-foot height), barrier top treatment to impede climbing, and spacing of barrier members (4 inches to 6 inches) in accordance with codes (buildings 4 inches and bridges 6 inches) for pedestrian outside handrails. Section 1.7 of the EIR/EA provides a detailed discussion of the alternative development process.

6.2 ALTERNATIVE FEATURES THAT MINIMIZE HARM

The constraints associated with the development of project alternatives in accordance with the intent of the purpose and need to impede the ability of individuals to jump from the Bridge, limited the opportunity to design alternatives that could completely avoid affecting the appearance of the Bridge. Construction of a physical suicide deterrent barrier is an action that would physically alter the visual appearance of the Bridge. There would be no visual impacts associated with the No Build Alternative.

The range of alternatives was developed to minimize the visual changes to the Bridge to the maximum extent possible, while providing feasible concepts that responded to the established criteria. Architectural considerations included developing a physical suicide deterrent system compatible with the existing structural and ornamental forms, as well as with the exterior and safety railings. Because the predominant forms of the Bridge are oriented either horizontally or vertically, the primary elements of the physical suicide barrier system were positioned in horizontal or vertical arrays. The other significant aesthetic concern was related to minimization of the various view perspectives of the Bridge. These perspectives include driver, pedestrian, and panoramic. It was determined that any new feature or element must be in visual harmony with the existing Bridge and must minimize impacts to Bridge user view perspectives.

The selection of the spacing, sizing and shape of elements maintained the existing architectural themes of the Bridge and maintained views through the designs, either through the vertical or horizontal elements, or through the transparent panels located at the belvederes. All of the build alternatives also utilize the existing material and International Orange color of the Bridge.

Measures incorporated into the design of Alternatives 1A and 2A are the use of ½ inch vertical rods which remain consistent with the strong vertical line form created by the Bridge towers, suspender ropes, and light posts. Measures incorporated into the design of Alternatives 1B and 2B are the use of 3/8-inch horizontal cables, which are consistent with the design of the public safety railing and the horizontal line form established by horizon of the blue-green waters of the San Francisco Bay. These alternatives also include transparent panels at the belvederes and around the Bridge towers so as to continue to provide unobstructed viewing opportunities from the sidewalks.

Alternative 3, the horizontal net system, represents the strongest contrast with the strong verticality of the Bridge but provides unobstructed views across the San Francisco Bay from the Bridge sidewalks. The net would disrupt a small portion of the views towards the San Francisco Bay looking down from the Bridge sidewalks.

Maintaining the public access to the Bridge during construction was also an important consideration, as well as maintaining emergency vehicle access. The measures to be implemented (see Sections 6.5 and 6.6) ensure continued access to the Bridge.

6.3 MEASURES TO MINIMIZE EFFECTS TO HISTORIC PROPERTY

In order to mitigate the adverse effect of the build alternatives on the historic property, a draft Memorandum of Agreement (MOA) will be developed and will be coordinated with the Department. The No-Build Alternative would have no adverse effects on the historic property.

The MOA will stipulate various activities that will be conducted to address adverse effects the build alternatives would have on the Bridge. These measures will provide a visual and historic record of the Bridge that will be available to researchers, the public, and users of the Bridge. The Department will be responsible for carrying out these measures, insuring that: a) the Bridge is properly recorded through photography, written documentation, and educational/interpretive material; b) this documentation and educational/interpretive material is appropriately distributed; and c) other portions of the historic property within the project study are protected and monitored. Prior to the start of any work that could adversely affect any characteristics that qualify the Bridge as a historic property, the Department shall ensure that the recordation measures specified are completed.

The Bridge has been the subject of partial recordation by the Historic American Engineering Record (HAER) Program and the recordation conducted for mitigation for this project will be designed to augment this previous work.

- Large-format (4- by 5-inch, or larger, negative size) black-and-white photographs will be taken showing the Bridge in context, as well as details of its historic engineering features, contributing elements, and character-defining features. The views specifically will include the existing east and west outside railings, concrete railing at the north pylon, and exterior trusses of the Bridge as these are the features that would be adversely affected by one or more of the proposed alternatives. The photographs will be processed for archival permanence in accordance with the Historic American Engineering Record (HAER) photographic specifications. If necessary, each view will be perspective-corrected and fully captioned.

The recordation will follow the National Park Service's HAER Guidelines, and the report format, views, and other documentation details will be coordinated with the Western Regional Office of the NPS, Oakland, California. Oblique aerial photography will be considered as a photographic recordation option in these coordination efforts. It is anticipated that the recordation of the Bridge will be completed to level I or level II HAER-written data standards, and will include archival and digital reproduction of historic images, plans, and drawings.

Copies of the documentation will be offered to the San Francisco Public Library, Marin Public Library, Environmental Design Archives (UC Berkeley), Golden Gate National Recreation Area, Presidio Trust, Caltrans District 4 Office of Cultural Resource Studies, and the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento. The documentation also will be offered in printed and electronic form to any repository or organization upon which the District, the Department, and SHPO, through consultation, may agree. The electronic copy of the report could be placed on an agency or organization's Web site.

- Preparation of a historical and educational brochure presenting the history of suicide prevention efforts at the Bridge. The brochure will be made available on-site at the Bridge, Presidio National Historic Landmark, select Golden Gate National Recreation Area locations, and online at the District Web site (<http://www.goldengate.org/>) during the construction period.
- Installation of interpretive signs or display panels at the Round House Gift Center and the Vista Point to describe the project for the duration of construction. Signs should incorporate content prepared for the brochure and summarize the history of suicide prevention efforts at the Bridge.

The District will ensure the protection of the remainder of the historic property within the project limits during construction of the suicide barrier, as well as the Fort Point National Historic Site, located below the Fort Point Arch component of the Bridge. The District will ensure against incidental damage to the remainder of the Bridge historic property and the Fort Point property by hiring an independent Environmental Compliance Monitor (ECM) who will periodically monitor the site during construction and will prepare monthly reports documenting compliance and protection. These reports will be submitted to the District and GGNRA.

6.4 ALTERNATIVES CONSIDERED AND REJECTED

Using the Golden Gate Bridge, Highway and Transportation District (District) criteria, the technically feasible alternatives were evaluated for their ability to meet the criteria. Based on the findings of this evaluation, the following alternatives were withdrawn from further study.

6.4.1 No Public Access to Sidewalks

This alternative would close the Bridge sidewalks to pedestrian and bicycle traffic. It was removed from further consideration because the sidewalks are currently used by approximately 10 million visitors a year and by up to 5,000 bicyclists a day (commuters and recreational users). Their closure to the public would remove this very popular tourist destination. The sidewalks are also an integral link in the California Coastal Trail, the

Ridge Trail and the Bay Trail. The closure would eliminate this important link to the state and regional trail systems and would prevent bicycle commuting in this corridor. Therefore, this alternative was removed from further consideration.

6.4.2 Vertical and Horizontal Wire Mesh Added to Railing

This alternative would construct a 10-foot-high barrier of vertical and horizontal wire mesh on top of the railing for a total height of 14 feet. It was removed from further consideration because it would not meet the following District criteria.

- Criterion 8. Must have minimal visual and aesthetic impact on the Bridge
- Criterion 3. Must be able to be maintained as a routine part of the District's ongoing Bridge maintenance program and without undue risk of injury to District employees

6.4.3 Curved Top Horizontal Cable Members Replacing Railing

This alternative would construct a 14-foot-high barrier using horizontal cable members and a curved top. It was removed from further consideration because of its excessive height and the visual intrusion from the curved top. It would also impair the ability of maintenance personnel to access the underside of the Bridge. It would not meet the following District criteria.

- Criterion 8. Must have minimal visual and aesthetic impact on the Bridge
- Criterion 5. Must continue to allow access to the underside of the Bridge for emergency response and maintenance activities

6.4.4 Curved Top Diagonal Wire Mesh Replacing Railing

This alternative would construct a 12-foot-high diagonal wire mesh barrier with a curved top. It was eliminated because the diagonal wire mesh conflicted with the horizontal and vertical elements of the Bridge. It would also impair the ability of maintenance personnel to access the underside of the Bridge and would not be maintained as a routine part of Bridge maintenance program. It would not meet the following District criteria.

- Criterion 3. Must be able to be maintained as a routine part of the District's ongoing Bridge maintenance program and without undue risk of injury to District employees
- Criterion 5. Must continue to allow access to the underside of the Bridge for emergency response and maintenance activities
- Criterion 8. Must have minimal visual and aesthetic impact on the Bridge

6.4.5 Vertical Glass Pickets Replacing Railing

This alternative would construct a 12-foot-high vertical glass barrier along the Bridge. It was eliminated from further consideration because it would introduce a new source of light and glare which could cause safety concerns, it could not be maintained as a routine part

of the Bridge maintenance program, it would be difficult to allow access to the underside of the Bridge, and it would not utilize the existing architectural vocabulary of the Bridge. Therefore, it would not meet the following District criteria.

- Criterion 2. Must not cause safety or nuisance hazards to sidewalk users, including pedestrians, bicyclists, District staff, and District contractors/security partners
- Criterion 3. Must be able to be maintained as a routine part of the District's ongoing Bridge maintenance program and without undue risk of injury to District employees
- Criterion 5. Must continue to allow access to the underside of the Bridge for emergency response and maintenance activities
- Criterion 9. Must be cost-effective to construct and maintain

6.5 CONSTRUCTION SEQUENCING

Construction of any of the new physical suicide deterrent system build alternatives would be performed in sections, beginning on the west side of the Bridge and ending on the east side of the Bridge. It is anticipated that it would take 12 to 18 months per side to complete construction of any of the barriers. Construction operations would be staged to minimize effects on pedestrians, cyclists and motor vehicles using the Bridge. The Bridge sidewalks would remain open to the public during daytime hours, consistent with current operations.

The work on the west sidewalk would be specified to be performed weekdays during the hours when the sidewalk is not open to the public, so as not to affect the commuter and recreational use on the west sidewalk. The work on the east sidewalk would be specified to be performed primarily at night. Should it be necessary to perform work during the day on the east sidewalk, a 6-foot wide minimum clear passageway would be maintained through the work area with appropriate traffic control and other protective measures in place.

These provisions have been successfully used on the seismic retrofit project, the Public Safety Railing project and during the District's on-going maintenance and operations activities.

6.6 TEMPORARY ROADWAY CLOSURES

Construction activities would not require the closure of the Bridge sidewalks. Construction would be limited to one side of the Bridge at a time. Emergency vehicle access would always be maintained during construction activities. Access would not be affected because project construction activities would not affect traffic volumes or traffic flow on the Bridge. Construction activities may require the periodic closure of vehicle travel lanes. If necessary, work requiring access from the Bridge deck would only be permitted during weekday non-peak Bridge traffic hours; therefore, lane closures would not contribute to any increase in traffic delays. The project work may also require temporary closures of parts of Conzelman Road.

Construction staging areas would be needed. Construction staging areas are located near the San Francisco and Marin Abutments of the Bridge. There are four proposed construction staging areas in the GGNRA. These proposed staging areas are located on the northern side of the Bridge in Marin County below the Marin Approach and Span 4 backspan. One is an existing gravel area located in a switchback of Conzelman Road and the other three are gravel areas located under the northern span of the Bridge, which are currently being used for similar staging, maintenance activities and other Bridge operations.

There is one proposed construction staging area to the south of the Bridge, located adjacent to the Bridge toll plaza within the Presidio. The proposed area is an existing paved employee parking lot with 25 public spaces, located just west of the toll plaza off Merchant Road.

Project-related construction equipment and materials would be stored within one or more of these construction staging areas. A containment plan and Best Management Practices (BMPs) for storage activities would be required in the construction contracts and project specifications and implemented by the construction contractor to ensure that there are no environmental effects related to the storage of these materials and equipment. No expansion of the construction staging areas would be permitted. From the staging areas, workers would access the activity areas on the Bridge with small customized equipment.

7.0 COORDINATION

7.1 PUBLIC INVOLVEMENT PROGRAM OVERVIEW

A public involvement program has been developed to guide the Golden Gate Bridge, Highway and Transportation District (District) through a comprehensive public information and outreach process for the Golden Gate Bridge Physical Suicide Deterrent System Study.

The public involvement program provides a variety of communication methods to educate the public on the current scope of the study, including its impacts and benefits. Thorough information will be provided to educate the public about the study, and at targeted project milestones the study team will solicit input and feedback from the public and agencies as to their specific needs, issues, concerns, and recommendations. By educating through a variety of informative communication tools, the community and agencies will be well-equipped to provide meaningful public input.

Key elements to the public involvement plan include:

- Educating the public and agencies through effective communication tools
- Providing multiple opportunities for input on study alternatives
- Managing and organizing comments received, and presenting input in a concise manner to decision makers

7.1.1 Public Web site and Public Comment System

On May 11, 2007, public outreach activities were initiated by launching the public Web site (<http://www.ggbsuicidebarrier.com>). The Web site was developed with a fully integrated public comment system and provides a fair and factual presentation of the evaluation process and ongoing opportunities for public input.

The interactive public comment system is designed to provide stakeholders with a Web-based platform for submitting comments on the study and the environmental document. The public comment system is altered at key milestones to solicit input specific to key phases of the project.

7.1.2 Wind Study Report

On May 24, 2007, a Wind Study Report was released which detailed the effects of wind on long-span bridges, documented the wind testing, summarized the results and provided initial concepts for a physical suicide deterrent system. The report was presented to the Building and Operating Committee of the Board of Directors (Board) at their regularly scheduled meeting at 10:00 a.m. on Thursday, May 24, 2007. A media briefing packet was circulated and the report was posted on the public Web site. For approximately two months following the release of the report, the public comment system was structured to solicit specific feedback on the wind study report and the design concepts presented.

7.1.3 Agency Early Consultation

On June 14, 2007, the Notice of Preparation (NOP) was issued for the environmental document. The NOP was mailed to more than 70 agencies to solicit input on which alternatives and issues should be evaluated in the environmental document. On July 17, 2007, an agency consultation meeting was held to receive comments on the NOP.

7.1.4 Bridge District Board Meetings

As all Board meetings are open to the public, public comments received during formal public comment periods will be part of the public record and will be incorporated into the process and the environmental document. In addition, all comments received at District Board meetings will be reviewed by the project team for consideration as they may relate to the Golden Gate Bridge Physical Suicide Deterrent System Study.

7.1.5 Release of the Draft EIR/EA

The release of the Draft EIR/EA is a major opportunity for public involvement and education. With the release of the document, the generic concepts will be increasingly refined, and the environmental impacts, including visual, historic, and cultural resources, will be disclosed. Two public open houses will be held to provide information about the project alternatives and to allow the public, agencies, and organizations to provide comments. Informational materials, including a Citizens' Guide and a fact sheet, will be developed to help the public digest the complex technical data contained in the environmental document. These tools will aid the public in understanding the study and help solicit focused comments on the facts of the environmental document.

7.1.6 Media Relations

The District Public Information Officer will conduct all media communications, create media packets, and attend public meetings, as necessary.

7.2 HISTORIC RESOURCES

The District, in conjunction with the Department, is continuing consultation with SHPO following 36 CRF 800.6, to arrive at a resolution of the adverse effect. (The following assumes that consultation with SHPO under Stipulation XI of the Section 106 PA has occurred.) The Department, in accordance with Stipulation XI of the Section 106 PA, will prepare a draft Memorandum of Agreement (MOA) to memorialize measures that would mitigate the adverse effect this undertaking would have on the historic property. The MOA signatory parties will be the District, the Department, and SHPO. The District sent a letter to interested parties in April 2008 notifying interested individuals and organizations that the project is anticipated to have an adverse effect on the Golden Gate Bridge and to solicit their input. Any responses to this letter will be included in future drafts of this document and the environmental document.

8.0 LEAST HARM ANALYSIS AND CONCLUDING STATEMENT

Because there are no feasible and prudent avoidance alternatives to the project, during the evaluation of the build alternatives several factors will be considered so as to identify the alternative that causes the least overall harm in light of the Section 4(f) preservation purposes. The least overall harm is determined by balancing the following factors:

- The ability to mitigate adverse impacts to each Section 4(f) property
- The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;
- The relative significance of each Section 4(f) property;
- The views of the officials with jurisdiction over each Section 4(f) property;
- The degree to which each alternative meets the purpose and need for the project;
- After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
- Substantial differences in costs among the alternatives.

This analysis will incorporate input from the agencies and members of the public during circulation of the Draft EIR/EA, as well as from the outcome of the Section 106 consultation process and the resulting MOA. The conclusions of this analysis will be presented in the Final Section 4(f) Evaluation that will be circulated with the Final EIR/EA.

9.0 OTHER PARK, RECREATIONAL FACILITIES, AND HISTORIC PROPERTIES EVALUATED RELATIVE TO THE REQUIREMENTS OF SECTION 4(f)

This section of the document discusses parks, recreational facilities, and historic properties found within or adjacent to the project area that do not trigger Section 4(f) protection either because: 1) they are not publicly owned; 2) they are not open to the public; 3) they are not eligible historic properties; 4) the project does not permanently use the property and does not hinder the preservation of the property; or 5) the proximity impacts do not result in constructive use.

9.1 PUBLIC PARK AND RECREATION FACILITIES

9.1.1 The Presidio Golf Course

The Presidio Golf Course is a 4(f) resource because it is a publicly owned recreation area located within the Presidio National Historic Landmark District (NHL). It is located south of the Golden Gate Bridge (Bridge) between Park Presidio Boulevard and Arguello Avenue (see Number 13, Figure 2). Founded in 1885 as a course for military officers, today it provides recreational function as a public golf course and visitor serving area.

This resource's primary recreational function is as a golf course. The project build alternatives would not result in a Section 4(f) use of this property as the project would not result in the permanent incorporation or temporary occupancy of any land within this resource. Views of the Bridge would not be substantially altered by the build alternatives nor would the build alternatives result in severe impacts that would substantially impair the quality of the overlook. The proposed project would not cause a constructive use of Presidio Golf Course because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic and recreational resource.

9.1.2 Eagles Point Overlook

The Eagles Point Overlook is a Section 4(f) resource because it is a publicly owned overlook located within the GGNRA national park. It is located south of the Presidio along the Coastal Trail. Recreational opportunities include views of the Pacific Ocean and the Marin Headlands.

The project build alternatives would not result in a Section 4(f) use of this property because no land would be permanently incorporated into the project, nor would any land be temporarily used by it. Views of the Bridge would not be substantially altered by the build alternatives nor would they result in severe impacts that would substantially impair the quality of the overlook. The proposed project would not cause a constructive use of the Eagles Point Overlook because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic and recreational resource.

9.1.3 Baker Beach

Baker Beach is a Section 4(f) resource because it is a publicly owned recreation area and a part of the Presidio NHL. It is a mile-long beach located south of Fort Scott and west of Lincoln Boulevard (see Exhibit 9-1; Number 2, Figure 2). Recreational opportunities at

the beach include sunbathing, wading, fishing, picnicking, and sightseeing; the beach provides panoramic views of the Bridge and the Marin Headlands.

The project build alternatives would not result in a Section 4(f) use of this property because they would not permanently incorporate land into the project, nor would they temporarily occupy any land within the resource. Views of the Bridge from the beach would not be substantially altered by any of the build alternatives, nor would the alternatives produce severe impacts that would substantially impair the quality of this nearby resource. The proposed project would not cause a constructive use of the Baker Beach because the proximity impacts would not substantially impair the protected activities, features, or attributes of the recreational resource



9.1.4 China Beach

China Beach is a Section 4(f) resource because it is a publicly owned recreation area and an element of the GGNRA national park. This small wind-protected cove lies on the Pacific Ocean between Baker Beach and Lands End (see Number 21, Figure 2). During the late 19th century, Chinese fisherman utilized the cove's protection to anchor boats and camped on its shores. Today it provides recreational opportunities including picnicking, sunbathing, surf play, and views of the Marin Headlands and the Bridge.

The project build alternatives would not result in a Section 4(f) use of this property because they would not permanently incorporate land into the project, nor would they temporarily occupy any land within the resource. Views of the Bridge from the beach would not be substantially altered by any of the build alternatives, nor would the alternatives produce severe impacts that would substantially impair other qualities of this nearby resource. The proposed project would not cause a constructive use of China Beach because the proximity impacts would not substantially impair the protected activities, features, or attributes of the recreational resource.

9.1.5 Kirby Cove

Kirby Cove is a Section 4(f) resource because it is a publicly owned recreation area and a part of the GGNRA national park. It is located at the foot of the Marin Headlands just west of the Bridge (see Number 26, Figure 3). Recreational opportunities including secluded campsites, hiking trails, and waterfront activities.

None of the project build alternatives would result in the Section 4(f) use of this area because no land would be permanently incorporated into the project, nor would any be temporarily occupied by it. Among the many recreational functions of Kirby Cove, distant views of the Bridge are provided from this resource. No proposed build alternatives would substantially impair this or any other quality of the resource. The proposed project would not cause a constructive use of Kirby Cove because the proximity impacts would not substantially impair the protected activities, features, or attributes of the recreational resource.

9.2 HISTORIC RESOURCES

9.2.1 The Marina Viaduct

The Marina Viaduct is a Section 4(f) resource because it is a publicly owned historic resource. The viaduct was determined to be individually eligible for the NHRP in 1987 and is listed in the state Bridge maintenance system (Bridge 34 0014). This structure is a part of Doyle Drive and a contributing element of the Golden Gate Bridge and the Presidio NHLHD (see Exhibit 9-2; Number 9, Figure 2).

Exhibit 9-2
Marina Viaduct



The project build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any land be temporarily occupied by it. The build alternatives would not have a severe impact that substantially impairs the historic quality of resource. The proposed project would not cause a constructive use of the Marina Viaduct because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic resource.

9.2.2 The Presidio Viaduct

The Presidio Viaduct is a Section 4(f) resource because it is a publicly owned historic resource. The viaduct was determined to be individually eligible for the NHRP in 1987 and is listed in the state bridge maintenance system (Bridge 34 0019). This structure is a part of Doyle Drive and a contributing element of the Bridge and the Presidio NHLHD (see Exhibit 9-3; Number 10, Figure 2).

Exhibit 9-3
Presidio Viaduct



The project build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any land be temporarily occupied by it. The build alternatives would not have a severe impact that substantially impairs the historic quality resource. The proposed project would not cause a constructive use of the Presidio Viaduct because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic resource.

9.2.3 Fort Winfield Scott

Fort Winfield Scott is a Section 4(f) resource because it is an historic resource of the Presidio NHLHD. It is located west of Hwy 101 off Lincoln Boulevard, near the gun batteries and the coastal bluffs in the western portion of the Presidio (see Number 1, Figure 2). It was established in 1912 to house the Coastal Artillery Corps of the San Francisco Bay Area. It became a sub-post of the Presidio in 1946 when World War II ended. Today it remains a point of public and historic interest. Its historic buildings and barracks built in the Mission Revival architectural style, contribute to the Presidio's status as a NHLHD.

The proposed build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any be temporarily occupied by it. The build alternatives would not have any severe impacts that substantially impair the historic quality of the fort. The proposed project would not cause a constructive use of Fort Winfield Scott because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic resource.

9.2.4 Main Post

The Main Post is a Section 4(f) resource because it is a publicly owned historic resource within the Presidio NHL. It is located in the center of the Presidio south of Crissy Field (see Number 15, Figure 2). It is the founding spot of the original Spanish garrison established there in 1776. The Post includes many historic building, and therefore contributes to the status of the Presidio as a NHL.

The proposed build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any be temporarily occupied by it. The build alternatives would not have any severe impacts that substantially impair the historic quality of the post. The proposed project would not cause a constructive use of the Main Post because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic resource.

9.2.5 Fort Cronkhite

Fort Cronkhite is a Section 4(f) resource because it is a publicly owned historic and recreation resource and a part of the GGNRA national park. It is located in the Marin Headlands, west of the Bridge, on the northern edge of the Rodeo Lagoon. The Pacific Ocean and Rodeo Beach are just west of the fort. Built between 1939 and 1945 as a military mobilization post, it continues to provide visitors a well-preserved example of typical post architecture, and offer access to hiking trails and nearby waterfront activities.

The proposed build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any be temporarily occupied by it. The build alternatives would not have any severe impacts that substantially impair the historic quality of the fort, nor would the alternative substantially impact the recreational function of the fort. The proposed project would not cause a constructive use of the Fort Cronkhite because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic and recreational resource.

9.2.6 West Fort Miley

West Fort Miley is a Section 4(f) resource because it is a publicly owned historic resource, listed on the NRHP and an element of the GGNRA national park. It is located along the Pacific Coast near the Cliff House. It offers views of the Pacific Ocean, Sutro Heights Park, and Ocean Beach.

The proposed build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any be temporarily occupied by it. The build alternatives would not have any severe impacts that substantially impair the historic quality of the fort. The proposed project would not cause a

constructive use of the West Fort Miley because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic resource.

9.2.7 Palace of Fine Arts

The Palace of Fine Arts is a Section 4(f) resource because it is a publicly owned historic resource and recreation area; it is a designated San Francisco Historic Landmark and is eligible for the NHRP by the SHPO. Recreational opportunities include walking along the lagoon, viewing the Palace's unique architecture, and use of the surrounding lawns.

The proposed build alternatives would not result in a Section 4(f) use of the Palace of Fine Arts because they would not permanently incorporate land into the project, nor would they temporarily use any land within the resource. The alternatives would not have severe impacts that substantially impair the historic or recreational quality of this resource. The proposed project would not cause a constructive use of the Palace of Fine Arts because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic and recreational resource.

9.2.8 Battery Chamberlin

The Battery Chamberlin is a Section 4(f) resource because it is a publicly owned historic resource located within the Presidio NHL. It is located north of Baker Beach and is accessible from the Coastal Trail (see Number 11, Figure 2). Completed in 1904, today the battery still holds a gun and disappearing carriage similar to the ones originally used at the battery. Visitors can view a gun demonstration and visit the small underground cartridge room.

The proposed build alternatives would not result in a Section 4(f) use of this resource. No land would be permanently incorporated into the project, nor would any be temporarily occupied by it. The build alternatives would not have any severe impacts that substantially impair the historic quality of the battery. The proposed project would not cause a constructive use of Battery Chamberlin because the proximity impacts would not substantially impair the protected activities, features, or attributes of the historic resource.

9.3 CONSTRUCTION STAGING AREAS

All of the build alternatives would result in the temporary occupancy of one or more of the five construction staging areas discussed below. The No-Build Alternative would not use these Section 4(f) resources. Construction staging areas are located near the San Francisco and Marin Abutments of the Bridge, as shown on Figures 2 and 3 of this report.

9.3.1 Golden Gate National Recreation Area (Four Areas)

There are four proposed construction staging areas within GGNRA lands. One is an existing gravel area located in a switchback of Conzelman Road. The other three are gravel areas located under the northern span of the Bridge, which are currently being used for similar staging

Exhibit 9-4
Northern Bridge Span Staging Area



and maintenance activities (See Exhibit 9-4). These proposed areas, in their existing conditions, provide no inherent historic or recreational function. They would be occupied temporarily during the construction of the project. Such occupancy would have no adverse impact on the preservationist purpose of Section 4(f), nor would it produce severe impacts that would substantially impair the quality of surrounding Section 4(f) resources.

9.3.2 The Presidio and Golden Gate Bridge (One Area)

There is one proposed construction staging area within the Presidio and the Bridge located just west of the toll plaza off Merchant Road. The proposed area currently provides employee and public parking (25 parking stalls are available for public use). This proposed area provides no inherent historic function. It would be occupied temporarily during the construction of the project. The temporary occupancy would have no adverse impact on the preservationist purpose of Section 4(f), nor would it produce severe impacts that would substantially impair the quality of surrounding Section 4(f) resources.

10.0 LETTERS AND OTHER CORRESPONDENCE

Letter dated June 18, 2008 from Jeffrey Y. Lee, PE, to Greg McConnell regarding temporary occupancy of project staging areas (see Appendix E of the EIR/EA).

[Additional letters and correspondence to be provided in Final Section 4(f) Evaluation]