

# Golden Gate Bridge Physical Suicide Deterrent System Project

Project 2006-B-17  
04-MRN-101-GGHT  
Federal Project #: STPL-6003(030)  
SCH # 2007062078

## DRAFT Environmental Impact Report/Environmental Assessment and Section 4(f) Evaluation



Prepared for the  
State of California Department of Transportation  
and the  
Golden Gate Bridge, Highway and Transportation District

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.



July 2008

The project proposes to construct a physical suicide deterrent system  
along both sides of the Golden Gate Bridge.

**DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL ASSESSMENT  
and Draft Section 4(f) Evaluation**

Submitted Pursuant to: (State) Division 13, California Public Resources Code  
(Federal) 42 USC 4332(2)(C) and 49 U.S.C. 303

THE STATE OF CALIFORNIA  
Department of Transportation  
and  
Golden Gate Bridge, Highway and Transportation District

7-7-08  
Date of Approval

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7/7/08  
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## GENERAL INFORMATION ABOUT THIS DOCUMENT

### What's in the Document:

The Golden Gate Bridge, Highway and Transportation District (District), in cooperation with the California Department of Transportation (Department), as assigned by the Federal Highway Administration (FHWA), have prepared this Environmental Impact Report/Environmental Assessment (EIR/EA), which examines the potential environmental impacts of the alternatives being considered for the proposed project located in the City and County of San Francisco and Marin County, California. The document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, the potential impacts from each of the alternatives, and the proposed avoidance, minimization and/or compensation measures.

### What You Should Do:

- Please read this Environmental Impact Report/Environmental Assessment. Additional copies of this document as well as the technical studies are available for review at Golden Gate Bridge Toll Plaza Administration Building.
- Attend July 22 and July 23 public meetings.
- We welcome your comments. You can view the project document and submit comments by visiting the project website @[www.ggbsuicidebarrier.org](http://www.ggbsuicidebarrier.org). You are also encouraged to attend the July 2008 public meetings and/or send your written comments to the District by the August 25, 2008 deadline.
  - Submit comments via postal mail to:  
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Golden Gate Bridge, Highway and Transportation District  
Administration Building, Bridge Toll Plaza  
P.O. Box 9000, Presidio Station  
San Francisco, California 94129-0601
  - Submit comments via email to Jeffrey Lee, [JYLee@goldengate.org](mailto:JYLee@goldengate.org)
  - Submit comments by the deadline: August 25, 2008.

### What Happens Next:

After the public circulation period, all comments will be considered, and the District will select a preferred alternative and make the final determination of the project's effect on the environment. In accordance with the California Environmental Quality Act (CEQA), in the event the District decides to proceed with the project, the District will determine whether to certify the EIR, prepare findings for all significant impacts identified, prepare a Statement of Overriding Considerations for impacts, if any, that will not be mitigated below a level of significance, and certify that the findings and Statement of Overriding Considerations have been considered. In that event, the District will then file a Notice of Determination with the State Clearinghouse and local county clerks that will identify whether the project will have significant impacts, mitigation measures were included as conditions of project approval, findings were made, and a Statement of Overriding Considerations was adopted. Similarly, if the Department, as assigned by FHWA, determines the National Environmental Policy Act (NEPA) action does not significantly impact the environment, the Department will issue a Finding of No Significant Impact (FONSI) in accordance with NEPA.

*For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please write to the District, at the address listed above; or for TDD call 711.*

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Appendix F:	Natural Environmental Study
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# **SUMMARY**

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## **S.1 JOINT CEQA/NEPA DOCUMENT**

The project is subject to federal and state environmental review requirements because the Golden Gate Bridge, Highway and Transportation District (District) proposes the use of federal funds from the Federal Highway Administration (FHWA) and/or the project requires a FHWA approval action. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The District is the project proponent and the lead agency under CEQA. FHWA's responsibility for 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 the California State Department of Transportation (Department) under its assumption of responsibility pursuant to 23 U.S.C. 327. Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA. Because NEPA is concerned with the significance of the project as a whole, it is quite often the case that a less extensive document is prepared for NEPA. One of the most commonly seen joint document types is an Environmental Impact Report/ Environmental Assessment (EIR/EA).

In this case, the unique treatment of impacts to historic resources under CEQA mandates the preparation of an EIR, while the threshold is higher under NEPA, which requires preparation of an Environmental Impact Statement (EIS) only when a project has the potential to significantly affect the quality of the human environment.

Following receipt of public comments on the Draft EIR/EA and circulation of the Final EIR/EA, the lead agencies will consider actions regarding the environmental document. The District will determine whether to certify the EIR and issue Findings and a Statement of Overriding Considerations and the Department will decide whether to issue a Finding of No Significant Impact (FONSI) or require an EIS.

### **S.1.1 PROJECT COSTS AND FUNDING**

The preliminary design and environmental studies are being funded with monies from outside agencies and individuals. At the present time the District has not programmed construction funds for any build alternative



in its Capital Plan. After the conclusion of the public comment period for the Draft EIR/EA, the District Board of Directors (Board) may select a Locally Preferred Alternative at which time a funding plan will be developed for the selected alternative. Conceptual costs for all of the build alternatives, including design, construction management, materials, and equipment costs, are estimated to be \$40 to \$50 million.

## **S.2 OVERVIEW OF PROJECT AREA**

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 between the northernmost tip of the San Francisco Peninsula and the Marin Headlands at the far southern end of Marin County. The Bridge is a suspension bridge that extends over the mouth of the San Francisco Bay and links the City and County of San Francisco to Marin County. The Bridge is located in the Golden Gate National Recreation Area (GGNRA) and is surrounded by both natural and manmade landscape features, including the Presidio and Marin Headlands, the urbanized cityscape of San Francisco and the historical military structures of Fort Point and Fort Baker. The Bridge is also a primary transportation corridor within the area, as it connects Highway 101 between Marin and San Francisco.

### **S.2.1 MAJOR ACTIONS IN SAME GEOGRAPHIC AREA**

There are several projects planned or underway either on the Bridge or in the immediate vicinity of the Bridge. These projects include improvements to the Bridge and access roadways to the Bridge, as well as redevelopment of the Fort Baker site as described below.

#### **Projects on the Bridge (District is Lead Agency)**

##### **Seismic Retrofit Project**

Immediately following the 1989 Loma Prieta earthquake, a vulnerability study for the Bridge was conducted that concluded that if a high magnitude earthquake centered near the Bridge occurred, there would be a substantial risk of impending collapse of the San Francisco and Marin Approach Viaducts and the Fort Point Arch, and extensive damage to the remaining Bridge structures. After determining that retrofitting the Bridge would be more cost-effective than replacement, a construction phasing plan was developed in 1996 to retrofit the Bridge. The seismic retrofit modifications were designed to maintain the historic and architectural appearance of the Bridge. The following phasing plan reflected the degrees of structural vulnerabilities:

- Phase I retrofit the Marin (north) Approach Viaduct

- Phase II retrofit the San Francisco (south) Approach Viaduct, San Francisco (south) Anchorage Housing, Fort Point Arch, and Pylons S1 and S2
- Phase III retrofit the Main Suspension Bridge and Marin (north) Anchorage Housing and North Pylon

Phase I of the seismic retrofit project was completed in 2002. Phase II of the seismic retrofit project was completed in 2008. The third and final phase has been divided into two construction projects: Phase IIIA and Phase IIIB. Phase IIIA, which was awarded on March 28, 2008, will retrofit the north anchorage housing and north pylon. It is scheduled to be completed in three years. Phase IIIB, the seismic retrofit of the main span and towers, is planned to start in 2010. Phase IIIB includes a wind retrofit of the suspended span, including the replication of the west outside handrail between the towers and the installation of wind fairings along the same length.

### **Moveable Median Barrier**

In order to provide a physical barrier between opposing directions of traffic while still permitting the number of lanes in a particular direction to vary in accordance with peak traffic demands, the District has studied the potential installation of a moveable median barrier system on the Bridge. The system consists of concrete-filled steel segments that are linked together to form a continuous barrier across the length of the Bridge. The barrier can be moved transversely over the width of a lane by driving a barrier transfer vehicle across the Bridge.

### **Golden Gate Bridge Main Cable Restoration Project**

The Bridge has two main cables which pass over the tops of the two 746-foot-tall towers. The main cables rest at the top of the towers in huge steel castings called saddles. The main cables serve as the “hangers” for the 250 pairs of vertical suspender ropes which in turn hold the Bridge’s roadway. The existing paint system on the exterior of the main cables is now showing signs of weathering and must be recoated after the existing paint is removed. To preserve the massive main cables for years to come, this three-year project includes construction of a temporary cable access system; removal of small portions of the existing main cable exterior wire adjacent to the cable bands; wrapping and installation of new wire wrapping; removal of the original packing from the cable band joints and caulking grooves and replacement with a modern sealant; reconditioning and replacement of cable shrouds; and painting of the main cables, cable bands, and cable bolts.

### **Bridge Security Enhancements**

Construction began in May 2006 on the Bridge North Approach Physical Security Improvements Project. The security enhancements include new gates, fencing, and lighting, as well as the installation of automated

vehicle barriers and new equipment such as sensors and cameras. Construction was completed in 2006. It is anticipated that construction of the South Approach Physical Security Improvements Project will commence in late 2008. The improvements contemplated for the South Approach are similar to the improvements constructed at the North Approach.

### **Other Projects in Geographic Area**

#### **South Access to the Bridge: Doyle Drive Project (San Francisco County Transportation Authority, California State Department of Transportation and Federal Highway Administration are lead agencies)**

Doyle Drive, located within the Presidio of San Francisco, winds 1.5 miles along the southern edge of San Francisco Bay and connects the San Francisco peninsula to the Bridge and the North Bay. Originally built in 1936 with narrow lanes, no median, and no shoulder, Doyle Drive is approaching the end of its useful life. Currently, it is used by nearly 120,000 vehicles every weekday.

The Doyle Drive Project considered several alternatives to improve the seismic, structural, and traffic safety of Doyle Drive within the setting and context of the Presidio of San Francisco and its purpose as a National Park. The Draft Environmental Impact Statement/Environmental Impact Report (EIS/R) Section 4(f) Evaluation was released on December 30, 2005 and considered a No-Build Alternative, Replace and Widen Alternative, and Presidio Parkway Alternative.

Based on consultation with agencies, interested parties, and the citizen's advisory group, the San Francisco County Transportation Authority Board selected the Presidio Parkway as the Preferred Alternative to be identified in the Final Environmental Impact Report (FEIR). The Presidio Parkway design replaces the existing structures with a new parkway-type roadway that includes short tunnels, new access, and improved views from within the Presidio.

#### **Fort Baker Reuse Plan (GGNRA is the lead agency)**

Following transfer of Fort Baker from the Army to the National Park Service (NPS), a reuse concept was developed that included a conference and retreat center at Fort Baker, which will include programs furthering the NPS mission to conserve natural and historic resources and provide for their public enjoyment. NPS coordinated with private, public, and non-profit organizations to develop the reuse plan. NPS has contracted with a San Francisco development firm to create the retreat and conference center called "Cavallo Point, The Lodge at the Golden Gate" that will have 142 rooms, each with an average size of 600 square feet. The centerpiece of the project is the Institute at the Golden Gate, which will host lectures and provide a forum for environmentalists, researchers,

and policymakers to address environmental issues. The Golden Gate National Parks Conservancy will develop and manage the institute. The homes and other buildings that ring Fort Baker's 10-acre parade ground will be restored, and an 8,000-square-foot healing arts center and medicinal herb garden will be built. Cars will be largely banished and guests urged to walk, ride bikes, or take a shuttle.

The Fort Baker Plan also includes creating a waterfront park that will provide panoramic views of the Bridge, San Francisco Bay, the San Francisco skyline, and Alcatraz. Under the proposed plan, Fort Baker's waterfront and other open space will be transformed to create a multitude of opportunities for visitors to enjoy the area's scenic beauty, including hiking, biking, sailing, kayaking, picnicking and exploring. The U.S. Coast Guard Station and the Bay Area Discovery Museum will remain at Fort Baker.

The lodge will be open in the summer of 2008. Currently, most of the historic military post area is an active construction site; it is closed and off-limits to the public. Historic buildings are being rehabilitated to national historic preservation standards to ensure that the significant historic features are maintained. Landscape improvements, such as the restoration of the main parade ground to its historic period, are also part of the project.

### **The Presidio – Environmental Remediation Program (Presidio Trust is the lead agency)**

When the Presidio was a military post, the Army disposed of waste at 15 landfill sites. These range in size from one to five acres and primarily contain building debris and fill soils. The landfills sometimes contain metals (such as lead), pesticides, or other chemicals. The Presidio Trust is now removing some of these landfills and restoring the sites as native plant areas or forest groves. The Presidio Trust is also removing several petroleum sites, typically where the Army once housed large petroleum storage tanks, pipelines, or vehicle repair areas. The Presidio Trust, Environmental Remediation Program's goal is to ensure that all areas of the park are accessible for public enjoyment.

## **S.3 PURPOSE AND NEED**

The purpose of the proposed project is to consider a physical suicide deterrent system on the Bridge that reduces the number of injuries and deaths associated with individuals jumping off the Bridge. The specific 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. 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 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.

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

## **S.4 PROPOSED ACTION**

The proposed project is located in the City and County of San Francisco and Marin County. The project proposes to construct a physical suicide deterrent system along both sides of the Bridge. The project limits are from the San Francisco Abutment to the Marin Abutment of the Bridge.

### **S.4.1 ALTERNATIVES UNDER CONSIDERATION**

Several build alternatives have been developed that meet the purpose and need for the project and additional criteria established by the District. 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 inclusion 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.

The following build alternatives would impede the ability of individuals to jump from the Bridge, as well as generally satisfy the criteria established by the District. The following summarizes alternatives under consideration. A more detailed discussion of the project alternatives, including exhibits, is provided in Chapter 1 of the Draft EIR/EA.

#### **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, which would consist of ½-inch diameter vertical rods spaced at 6 ½-inch intervals, would extend 8 feet vertically from the top of the 4-foot-high outside handrail for a total height of 12 feet. 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.

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 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). The new barrier, which would consist of 3/8-inch horizontal cables at 6-inch intervals, would extend 8 feet above the top of the 4-foot-high outside handrail for a total height of 12 feet. 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. A transparent winglet would be placed on top of the outside rail posts to ensure aerodynamic stability and impede climbing over the barrier.

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 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 ½-inch diameter steel rods spaced at 4 ½-inch intervals. A rub rail would be installed at the same height as the public safety railing (4 feet 6 inches). 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.

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.

### **Alternative 2B – Replace Outside Handrail with Horizontal System**

Alternative 2B would construct a new 10-foot-high barrier, consisting of 3/8-inch horizontal steel cables. 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 6½-foot portion at the belvederes and towers on both sides of the Bridge. A transparent winglet would be placed on top of the rail posts to ensure aerodynamic stability and impede climbing over the barrier.

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.

### **Alternative 3 – Add Net System that Extends Horizontally from Bridge (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. The net would extend horizontally approximately 20 feet from the Bridge. 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 net and the steel horizontal support system would be painted to match the International Orange Bridge color

### **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, as well as implement Bridge modifications approved as part of the seismic upgrade project.

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.

## **S.5 PROJECT IMPACTS**

The project would be constructed on the Bridge. There would be no changes to the existing uses of the Bridge or land uses surrounding the

Bridge. As part of the EIR/EA analysis, the following environmental issues were considered but no adverse impacts were identified. There is no detailed discussion regarding these issues in this document.

Growth	Hazardous Materials
Farmlands/Timberland	Air Quality
Community Impacts	Noise
Utilities/ Emergency Services	Energy
Hydrology and Floodplain	Paleontology
Water Quality /Stormwater Runoff	Geology, Seismicity, Topography

Impact areas discussed in the EIR/EA include Land Use and Recreation, Visual/Aesthetics, Cultural Resources and Biological Resources. The impacts of the build alternatives within each of these resource areas are summarized below. Construction and cumulative impacts also are summarized below.

### **S.5.1 LAND USE AND RECREATION**

Installation of the proposed physical suicide deterrent system would not impact existing land uses. It would not change the use of the Bridge, limit public access, or affect vehicular travel across the Bridge. Installation of a physical suicide deterrent system on the Bridge would, however, affect the recreational experience of pedestrians and bicyclists using the Bridge sidewalks.

### **S.5.2 VISUAL/AESTHETICS**

The visual impacts of project alternatives were determined by assessing the visual resource change due to the project and predicting viewer response to that change. The first step in determining resource change was to assess the compatibility of the proposed project with the visual character of the existing landscape. The second step was to compare the visual quality of the existing resources with projected visual quality after the project is constructed. The resulting level of visual impact and visual change was determined by combining the severity of the resource changes with the degree to which people were likely to respond to the change. Several key criteria were used to assess the visual impact of the proposed project alternatives:

- Visual compatibility with the landscape features
- Visual dominance of the proposed project alternatives
- Potential obstruction or expansion of views



### **Visual Impacts by Alternative**

Generally, views towards the Bridge would not be substantially affected by installation of the physical suicide deterrent system, with visual impacts ranging from negligible to minimally adverse. Views from the Bridge would be most noticeably impacted, with visual impacts ranging from adverse to strongly adverse. The horizontal net alternative would have the least impact to views from the Bridge.

The No-Build Alternative would continue current suicide deterrent programs operations on the Bridge, described in more detail in Chapter 1 of the EIR/EA, but would not make any physical changes to the Bridge. A portion of the west outside handrail (between the towers) is planned to be replicated to improve the aerodynamic stability of the Bridge as part of another project. That project was approved as part of the seismic upgrade program, with the appropriate environmental and Section 106 clearances.

In regards to the views towards the Bridge, alternatives 1A, 1B, 2A, and 2B would primarily have minimally adverse visual impacts. However, from Viewpoint 4 (Vista Point), Alternatives 1A, 1B, 2A, and 2B would have an adverse visual impact because the physical suicide deterrent system would be a co-dominant visual feature in a landscape with high viewer sensitivity, altering views of the Bridge and interfering with views of the larger landscape. Conversely, visual impacts from Viewpoint 2 (Baker Beach) would be negligible for Alternatives 1A, 1B, 2A, and 2B due to the distant viewing location, which affords low view blockage and high visual compatibility. Overall, the primary visual change associated with these alternatives to views towards the Bridge would be the appearance of a higher outside railing on the Bridge with the commensurate increased International Orange coloring to the landscape.

Visual impacts associated with Alternative 3 to views of the Bridge would generally be minimally adverse, with the exception of an adverse visual impact from Viewpoint 4 (Vista Point) and negligible visual impacts from Viewpoints 2 (Baker Beach) and 3 (North Fishing Pier). The primary visual change associated with Alternative 3 would be the introduction of a strong horizontal element to the outside of the Bridge in contrast to the existing verticality of the Bridge. From the majority of viewpoints towards the Bridge, Alternative 3 would be a subordinate visual feature with low to moderate visual compatibility and moderate view blockage, representing minimally adverse visual impacts. Alternative 3 would have an adverse visual impact from Viewpoint 4 as the net would be visible across the total field of view. Visual impacts associated with Alternative 3 would be negligible from Viewpoints 2 and 3 due to the distant viewer location and upward viewing angle, respectively.

Alternatives 1A, 1B, 2A, and 2B would have adverse to strongly adverse visual impacts to views from the Bridge, in particular, the sidewalk and car views. Primary visual changes associated with these alternatives to

views from the Bridge include raising the height of the outside Bridge railing such that it would extend across a viewer's total field of view. These alternatives would be dominant visual features, with moderate to low visual compatibility with the existing landscape features and moderate view blockage.

As Alternative 3 would be located beneath the Bridge span, it would have a negligible visual impact to views from the Bridge. However, Alternative 3 would be visible from the sidewalk at the Bridge tower (Viewpoint 14), introducing a horizontal element that would visually widen the Bridge. This would create low visual compatibility with moderate view blockage from the Bridge, demonstrating an adverse visual impact from this particular view from the Bridge.

### S.5.3 CULTURAL RESOURCES

In general, construction of project alternatives 1A, 1B, 2A, 2B, or 3 would cause direct adverse effects to the Bridge historic property, which has been determined eligible for listing in the National Register of Historic Places (NRHP). The addition of any of these barrier systems will be an alteration to the historic property that is not consistent with the Secretary of Interior's Standards for the Treatment of Historic Properties. In general, these physical, or direct, adverse effects include complete or partial removal of character-defining features of the Bridge (railings), and/or alteration of character-defining features of the Bridge (railings and stiffening truss). The alternatives would also cause indirect adverse effects, including introduction of visual elements out of character with the property, change in the character of its use as a historic property, addition of barrier systems where none were originally, use of non-historic material (transparent panels, transparent winglets, metal rods, and cable netting), as well as alteration of the pedestrian experience on the Bridge.

The project alternatives have similar overall adverse effects on the Bridge, as summarized in the following table by the effect the project will have on the various aspects of historic integrity of the property:

**Summary of Effects on the Bridge**

Aspects of Historic Integrity	Project Effects
Location	<i>Not Adverse</i>
Design	<i>Adverse</i>
Setting	<i>Not Adverse</i>
Materials	<i>Adverse</i>
Workmanship	<i>Adverse</i>
Feeling	<i>Not Adverse</i>
Association	<i>Not Adverse</i>

There are three aspects of the Bridge's historic integrity that will not be adversely affected by the project. The project will not affect the Bridge's historic integrity of location and setting, as it will not cause the structure to be moved, and it will not impact the physical environment around the historic property. The project will not affect the feeling and association of the property because it will retain its expression of overall aesthetic and historic sense of the particular period of time it was constructed in the 1930s.

The integrity of design would be adversely affected by the project because Alternatives 1A, 1B, 2A, and 2B significantly alter the original design of the railings and the pedestrian experience from the sidewalks of the Bridge, and because Alternative 3 would introduce a non-historic visual element to the trusses at the sides of the Bridge. The integrity of materials and workmanship of the railings would be significantly diminished under Alternatives 1A, 1B, 2A, and 2B. Although this construction would not affect most of the materials and workmanship of this structure, the alterations under Alternatives 1A, 1B, 2A, and 2B would adversely affect the railings, and Alternative 3 would alter the stiffening trusses – both character-defining features of the Bridge.

#### **S.5.4 BIOLOGICAL RESOURCES**

The proposed project would not result in a direct disturbance of plant communities or aquatic habitats. The Bridge is in a developed condition and the proposed staging areas are denuded of vegetation and are covered by gravel and compacted dirt, or paved. However, given the proximity of the proposed staging areas within GGNRA lands to large expanses of coastal scrub habitat, and the known presence of Mission blue butterfly and the potential presence of special-status plant species within adjacent and nearby areas, the use of the staging areas with the avoidance measures identified in Section 2.4 would not result in the loss of special-status species and the degradation of adjacent habitats. Implementation of Alternatives 1A, 1B, 2A, and 2B, however, would introduce transparent panels at the belvederes on both sides of the Bridge. This could create the potential for bird collisions, however, implementation of the avoidance measures in 2.4 would determine whether the transparent panels would pose a substantial collision risk to birds, and if needed, implement appropriate design measures to deter bird collisions. A Natural Environmental Study (NES) was prepared and is included as Appendix F of the EIR/EA.

The four staging areas located within GGNRA lands have and/or continue to be used for similar activities associated with the Golden Gate Bridge Seismic and Wind Retrofit Project. As part of the Golden Gate Bridge Seismic and Wind Retrofit Project, a Biological Assessment was prepared (pursuant to the requirements of Section 7 of the federal Endangered Species Act) and a subsequent Biological Opinion was issued by the U.S.

Fish and Wildlife Service (USFWS). These documents addressed potential impacts from construction activities and use of staging areas within GGNRA lands on federally-listed species and other sensitive biological resources.

### **S.5.5 CONSTRUCTION IMPACTS**

Construction of the physical suicide deterrent system would be done in sections, beginning on the west side of the Bridge and ending on the east side of the Bridge. Public access to the Bridge would be maintained throughout the construction period; there would be no closure of the sidewalks. Work on the east and west sidewalks would primarily occur during weekday hours when the sidewalks are closed to the public. Any construction on the east sidewalk during the day would provide a minimum 6-foot clear passage along the sidewalk. Construction would take place during non-peak hours (generally, peak hours are weekday commute periods and weekend afternoons) to minimize impacts to vehicles and other users of the Bridge. Lane closures would only be permitted during non-peak hours. It is anticipated that it would take 12 to 18 months per side to complete construction.

Five potential staging areas have been identified. Four proposed construction staging areas are 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 and maintenance activities. There is one proposed construction staging area on the south side of the Bridge within the Presidio. This area is currently a District parking lot with some stalls available to the public, located just west of the Toll Plaza off Merchant Road. These staging areas would be occupied temporarily during installation of the physical suicide deterrent system. Construction equipment and materials would be located within one or more of these construction staging areas.

Construction activities would be limited to the Bridge or the construction staging areas, areas already developed and used for staging and maintenance activities. Potential construction impacts include temporary transportation impacts, temporary noise and air quality impacts, temporary parking displacements, and temporary exposure to hazardous materials. All impacts, except temporary parking displacement, would be mitigated through provisions in construction contracts agreed to by the District and their contractors. The contracts would include project-specific specifications. Any potential impacts to biological resources would be mitigated through avoidance measures identified in the Natural Environmental Study prepared for the project. The District would monitor its contractors' work to ensure that the work is performed in compliance with all applicable safety and environmental laws.

## **S.5.5 CUMULATIVE IMPACTS**

### **Land Use**

The proposed project would not contribute to cumulative land use impacts. Related projects, including the Doyle Drive Project and the Fort Baker Reuse Plan, cumulatively contribute to land use change in the project area. However, both projects would have beneficial impacts to the project area, as the Doyle Drive Project would improve traffic flow through the project area and improve access to recreational facilities, and the Fort Baker Reuse Plan would enhance public recreational opportunities through the creation and improvement of recreational facilities. The project would make no contribution to cumulative land use impacts because it does not change the use of the Bridge or any surrounding areas and it fully retains the existing function of the Bridge.

### **Recreation**

The proposed project would contribute to cumulative recreational impacts, through the reduction in the field of views from the Bridge, which would alter the recreational experience of pedestrians and bicyclists using the Bridge sidewalks. None of the build alternatives, however, would affect land that is currently being used for recreation in the project vicinity. All areas proposed for potential use as construction staging areas are currently being used for similar staging and maintenance activities and are physically separated from recreational uses on surrounding properties. The alteration of the pedestrian and bicyclists' recreational experience on the Bridge, in the context of the absence of any other impacts to recreational facilities in the project area, would not be considered cumulatively considerable.

### **Visual/Aesthetics**

The proposed project would not contribute to cumulative visual impacts at the landscape units, individually or collectively. Landscape units include the Presidio, the Toll Plaza, the San Francisco Bay, the Marin Headlands, and Fort Baker. For each landscape unit, the permanent visual changes that would result from the project were evaluated. The cumulative analysis considers the cumulative effects of the project on views as documented for particular viewpoints from each of the landscape units. The No-Build Alternative would have no impact on visual quality since it would not change the existing visual environment. As Alternatives 1A, 1B, 2A, 2B, and 3 would be located on the Bridge, visual changes by landscape unit would be limited to the views of the Bridge from each respective landscape unit. All of the build alternatives would cause a minimally adverse change to the existing visual quality at the San Francisco Bay and Fort Baker landscape units. Alternatives 1A, 1B, 2A, and 2B would cause a minimally adverse change to the existing visual quality at the Toll Plaza and Marin Headlands landscape units.

Alternative 3 would cause a negligible change to the existing visual quality at the Toll Plaza and Marin Headlands landscape units. These minor changes to visual resources, in light of the other projects in the vicinity (see Section 2.1.1, Land Use), would not result in cumulative adverse visual impacts.

### **Cultural Resources**

Construction of alternatives 1A, 1B, 2A, 2B, or 3 would cause cumulative adverse effects to the Bridge historic property. Previous projects at the Bridge, such as the Public Safety Railing Project (2003) and the Seismic Retrofit Project for the Bridge (currently underway) were subject to Section 106 effects analysis and CEQA impacts analysis. No adverse effects to character-defining features, or the qualities that qualify the Bridge for listing in the NRHP, were identified for either project. The State Historic Preservation Office (SHPO) concurred with these findings, and the previous determination that the Bridge is eligible for listing in the NRHP remains valid.

Many projects have, however, altered the Bridge property since its construction in 1937, including 1980s and 1990s projects. Construction of Alternatives 1A, 1B, 2A, 2B, or 3 would, therefore, contribute to an adverse cumulative effect on the Bridge property in consideration of these past projects. No reasonably foreseeable adverse effects of future projects have been identified. Projects in the planning process will not cause physical modifications to the character-defining features of the Bridge. The project alternatives would not cause an adverse cumulative effect to the Bridge as a historic property in consideration of known future projects.

### **Biological Resources**

The proposed project would not contribute to cumulative biological impacts. Construction-related activities would be limited to the Bridge and to five staging areas, which are denuded of vegetation and are either paved or graveled. The avoidance measures being implemented as part of the Golden Gate Bridge Seismic and Wind Retrofit Project to protect sensitive biological resources bordering and near the staging areas within Golden Gate National Recreational Area (GGNRA) lands would continue to be implemented as part of the proposed project. The continuation of these avoidance measures for the additional duration of this project would not contribute to cumulative biological impacts.

## **S.6 COORDINATION WITH PUBLIC AND OTHER AGENCIES**

A public involvement program has been developed that provides a variety of communication methods to educate the public on the current scope of the study, including its impacts and benefits. For more detail concerning

this program, see Chapter 4 of the EIR/EA. 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

### **S.6.1 INITIAL AGENCY COORDINATION**

Agency coordination was initiated on June 14, 2007 with the issuance of the Notice of Preparation (NOP) for the environmental document. The NOP was mailed to over 70 agencies to solicit input on the alternatives and issues that should be evaluated in the environmental document. On July 17, 2007, an agency consultation meeting was held at the District to receive comments on the NOP.

### **S.6.2 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 environmental impacts, including visual and historic, 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 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. The Draft EIR/EA will be on the project website ([www.ggbsuicidebarrier.org](http://www.ggbsuicidebarrier.org)) and people/public will be able to comment directly on the website if they prefer.

### **S.6.3 HISTORIC RESOURCES COORDINATION**

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 Department, in accordance with its Programmatic Agreement with FHWA, the Advisory Council on Historic Preservation and the State Historic Preservation Officer (SHPO), will prepare a draft Memorandum of Agreement (MOA) to memorialize measures that would mitigate the adverse effect this undertaking will have on the historic property. The MOA signatory parties will be the Department and SHPO. The District will be a concurring party. The District sent a letter to interested parties in April 2008 notifying interested individuals and organizations regarding the project and the

potential for it to have an adverse effect on the Bridge and to solicit their input.

#### **S.6.4 PERMITS AND APPROVALS**

The Bridge and staging areas are located on land owned by the Federal Government and currently administered by the National Park Service (NPS)/GGNRA. Installation of the proposed physical suicide deterrent system may need a permit from the U.S. Coast Guard for construction activities over navigable waters and the San Francisco Bay Conservation and Development Commission.

Based on the findings of the Natural Environment Study, attached as Exhibit F, no "take" of endangered species would occur. Therefore, no permits would be required under the California Endangered Species Act. Additionally, the project will have "no effect" pursuant to Section 7 of the Federal Endangered Species Act. Further, no other permits for the loss or alteration of biological resources would be required.

As part of the Section 106 process, it will be necessary to obtain concurrence from the State Historic Preservation Officer on the Finding of Effect and approval of the MOA. The District, as the CEQA Lead Agency, would certify the EIR and the Department, as the NEPA lead agency, would approve the EA and issue the FONSI.



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