

## **2.2.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

The constraints associated with the development of project alternatives in accordance with the purpose and need for the project, 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. 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. All of the build alternatives would be constructed of steel that would be painted International Orange to match the material and color of the Bridge.

There would be no visual impacts associated with the No Build Alternative.

Measures incorporated into the design of Alternatives 1A and 2A are the use of 1/2 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.

The Memorandum of Agreement (MOA) to be developed as part of the Section 106 consultation process will include photographic recordation of the existing features and views of and from the Bridge in order to partially mitigate visual impacts (see Section 2.3 Cultural Resources).

## **2.3 CULTURAL RESOURCES**

### **2.3.1 REGULATORY SETTING**

“Cultural resources” as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act of 1966, as amended, (NHPA) sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures and objects included in or eligible for the National Register of Historic Places. Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory Council, FHWA, State Historic Preservation Office (SHPO), and the California State Department of Transportation (Department) went into effect for Department projects, both state and local, with FHWA involvement. The PA implements the Advisory Council's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to the Department. The FHWA's responsibilities under the PA have been assigned to the Department as part of the Surface Transportation Project Delivery Pilot Program (23 CFR 773) (July 1, 2007).

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the "use" of land from historic properties. See Appendix B for specific information regarding Section 4(f).

Historical resources are considered under the California Environmental Quality Act (CEQA), as well as California Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places listing criteria. It further specifically requires the Department to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Office (SHPO) before altering, transferring, relocating or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or are registered or eligible for registration as California Historical Landmarks.

## **2.3.2 AFFECTED ENVIRONMENT**

### **Cultural Resource Studies**

In evaluating cultural and historical resources, several cultural resource studies were prepared by JRP Historical Consulting, LLC for the project, in consultation with the District and the Department. These historical and cultural resources reports include the Historic Property Survey Report (HPSR) and Historic Resource Evaluation Report (HRER), completed May 2008, and the Finding of Effect (FOE), completed May 2008. These

reports utilized a number of previous studies of the Bridge as referenced in each of the documents. This section summarizes the information contained in the HPSR/HRER and FOE (JRP, 2008). A draft MOA will be developed for the project and will be coordinated with the Department.

## **Methodology**

### **Research Methods**

The Bridge has been the subject of extensive documentation and historical analysis since the time of its construction (1933-1937). Background research on the property and its surroundings was undertaken during the initial stages of the project and this research continued throughout the refinement of the project alternatives, project meetings, fieldwork, and effects analysis. This research included pre-field, background and resource-specific research through review of previous studies of the Bridge, as well as archival research focused on the location of the proposed project: the railings, sidewalk and visitor experience of the Bridge. The most detailed previous studies and most relevant archival resources are listed below, and a comprehensive list of materials consulted is provided in the HRER.

- National Park Service, “National Historic Landmark Nomination for the Golden Gate Bridge,” (August 13, 1997), submitted to SHPO but not designated as a National Historic Landmark (NHL).
- Caspar Mol, MacDonald Architects, “Caltrans Architectural Inventory and Evaluation Form for the Golden Gate Bridge,” November 1993, prepared for the “HASR: Proposed Seismic Retrofit Project for the Golden Gate Bridge,” (1995).
- Charles Derleth Papers, manuscript collection, including Consulting Board of Engineers for the Golden Gate Bridge. Water Resources Center Archives, University of California, Berkeley.
- Irving F. Morrow (and Gertrude C. Morrow) Collection, 1914-1958, including drawings, plans and sketches for the Golden Gate Bridge, Environmental Design Archives, College of Environmental Design, University of California, Berkeley.
- Frank L. Stahl, Daniel E. Mohn, and Mary C. Currie, The Golden Gate Bridge: Report of the Chief Engineer, Volume II, May 2007 (San Francisco, CA: Golden Gate Bridge, Highway and Transportation District, 2007). This 2007 report, a supplement to The Golden Gate Bridge Report of the Chief Engineer, September 1937 by Joseph P. Strauss, provides a comprehensive history of the improvements and other modifications to the Bridge since its completion in 1937.

Research also included the recognized sources of information about historical resources in California. JRP requested a records search at the

Northwest Information Center in March 2007. JRP also reviewed the NRHP, the Office of Historic Preservation (OHP) Determinations of Eligibility for the NRHP, California Inventory of Historic Resources, California Historical Landmarks, and California Points of Historical Interest to identify the current status of the Bridge and its contributing elements, and to identify any other resources in the Focused Area of Potential Effects (Focused APE).

The Bridge historic property and the extensive previous investigations of its history provided the basis for the historic context, as well as additional research conducted for the project. JRP historians Rebecca Meta Bunse and Christopher McMorris conducted archival research in the Environmental Design Archives and Water Resources Center Archives at UC Berkeley in June 2007. This research supplemented ongoing review of material from the District files, and material collected from various libraries and repositories, including: Department District 4, Maps Files; Historic Photograph Collection, San Francisco Public Library; Historic American Buildings Survey, Library of Congress; California Room and government documents at the California State Library in Sacramento; Bancroft Library at UC Berkeley; and University of California, Davis.

### **Field Methods**

The Bridge historic property was subject to extensive inventory and evaluation as part of two survey efforts in the 1990s: the 1993 survey Field Methods prepared for the Seismic Retrofit Project, and the 1997 National Historic Landmark nomination. The Focused APE for the current project included the main Bridge structure (Bridge 27 0052), and two contributing elements: the Round House Gift Center and the Toll Plaza Undercrossing (Bridge 34 0069). JRP, in consultation with Alicia Otani, PQS Principal Architectural Historian, Department District 4, and Jennifer Darcangelo, Chief Office of Cultural Resource Studies, Department District 4, designed an inventory and evaluation update strategy for the property to recognize the extensive information provided in the previous studies and augment that work with current descriptions of changes to the property since the mid 1990s. JRP historians conducted fieldwork at the Bridge on May 8, 2007, and November 20, 2007, to collect updated recordation information and to photograph the property.

JRP prepared the DPR 523 form update to present: a summary of previous inventory and evaluation efforts, updated inventory and evaluation of the Toll Plaza Undercrossing (34 0069), confirmation of the current historic status and character-defining features of the Bridge, and digitized copies of the previous survey forms for the property, which are provided in the HRER.

### **Area of Potential Effect**

The Area of Potential Effects (APE) for historic architectural resources includes two areas: General APE and Focused APE. The APE for the project was established by the District and the Department cultural team. The APE was signed on November 2, 2007, and is provided in Figure 2.3-1.

The General APE was developed to encompass both the project area and the contributing elements of the Bridge historic property that extend past the project area; namely, the appurtenant approach viaducts (the Doyle Drive viaducts in San Francisco County). The Focused APE encompasses only those portions of the Bridge property that may be potentially affected by the project: the main Bridge structures where the proposed project would be constructed, and the construction staging areas in the toll plaza area and along Conzelman Road. The project has no potential to affect historic properties outside of the Focused APE.

In consultation with Brett Rushing, Professionally Qualified Staff (PQS) Archaeologist, it was determined that no archaeological study and therefore no archaeological APE would be required because the construction of the project would take place on the Bridge structure and the project construction staging areas are located on paved and graveled parking areas. No additional road rights-of-way, either permanent or temporary, would be required for this project.

### **Historic Resources within the Area of Potential Effects**

The Focused APE for historic architectural resources encompasses the Bridge historic property. The contributing elements of this property located within the Focused APE include the Bridge (Bridge 27 0052), the Round House Gift Center building, and the Toll Plaza Undercrossing (Bridge 34 0069). The Bridge, Round House, and Toll Plaza Undercrossing, were subject to updated inventory and evaluation in the HRER.

The Bridge historic property includes the Round House Gift Center and the Toll Plaza Undercrossing, which are contributing elements. The main is Bridge 34 0069. The Bridge historic property was determined eligible for listing in the National Register of Historical Places in 1980. The consensus determination in 1980 found the Bridge significant, at the national level, under NRHP Criterion A, Criterion B and Criterion C, with a period of significance of 1933-1938. Subsequent detailed analysis by the National Park Service in 1997, during preparation of the NHL nomination proposed significance under Criterion C only. The Criterion C significance appears to be accurate and is proposed as the correct designation in the updated evaluation of the property presented in the HRER and HPSR for this project.

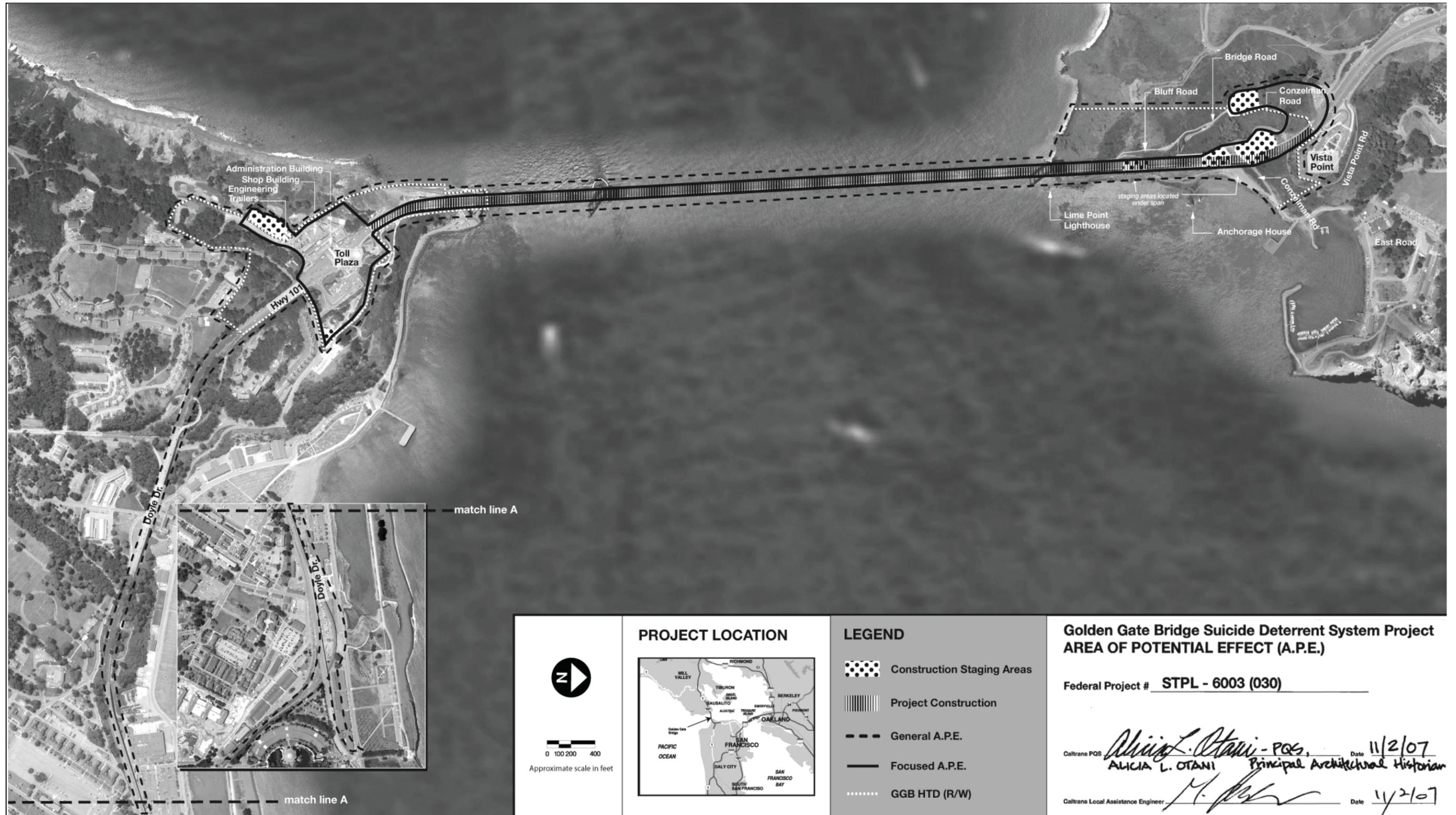


FIGURE 2.3-1  
GENERAL AND FOCUSED AREAS OF POTENTIAL EFFECT FOR HISTORIC ARCHITECTURAL RESOURCES

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The NHL nomination prepared in 1997 has not been accepted and the Bridge is not yet listed as an NHL. The Bridge is listed in the California Register of Historical Resources because it was designated California State Landmark No. 974 in 1987. The Bridge is also City of San Francisco Historic Landmark No. 222, designated in 1999. The Bridge property is a contributing element of the Presidio of San Francisco National Historic Landmark District, a district outside the Focused APE for this project. The Bridge was also partly photographed for the Historic American Engineering Survey in 1985 (Survey number HAERCA-31).

The Bridge is one of the most well-known, internationally recognized and frequently visited suspension bridges in the world. 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. The 1993 survey and the 1997 NHL nomination identified the main Bridge structures from the toll plaza area on the south to the Marin Approach Viaduct and North Abutment on the north, as the primary element of the Bridge historic property. The major components of the Bridge are the main suspension span, suspender ropes and suspension cables, four pylons, Fort Point Arch, the side suspension spans, anchorages, piers, towers, and North and South viaducts.

The Focused APE for the current project encompasses the main Bridge structures and the Toll Plaza area to account for the proposed project footprint and construction staging areas. The 1997 nomination identified the southern approach road (also known as the Presidio Approach Road, or Doyle Drive), and its two viaducts (Bridges 34 0014 and 34 0019), as contributing elements of the Bridge, as well as the Round House Gift Center (originally a restaurant and traveler comfort station). The nomination considered the entire Doyle Drive feature to be a contributing element of the Bridge.

The Draft HPSR for this project identified the Toll Plaza Undercrossing (34 0069) as a contributing element of the Bridge because it is an original component of the Bridge. The undercross is also listed on the NRHP as a contributing element of the Presidio of San Francisco National Historic Landmark. 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. The west side of the undercrossing is directly underneath the Administration Building (a non-contributing element because of integrity loss, according to both the 1993 and 1997 surveys), as shown in Figure 2.3-1. The rest of the undercrossing carries the lanes of traffic as

they pass through the toll booths. The 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 in 1936.

Railings and original light standards are character-defining elements of the Bridge. The “Stop–Pay Toll” sign facing southbound traffic on the toll booth canopy was identified as a contributing feature, but it has since been removed for installation of FasTrak™ signs. The 1997 nomination also concluded that the Sausalito Lateral (original approach to the north side of the Bridge), was not a contributing element because it had not been included in the final scope of work for the original bridge project, and was not designed, built, or funded by the team that was responsible for the rest of the Bridge. Other non-contributing elements of the Bridge property identified in the 1997 nomination: the Toll Plaza Building, the clock on the toll booth canopy (1949), as well as modern bus shelters, phone booths, light standards and signs.

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, piers, towers, main span and side spans), the plate girder bridge, arch bridge and truss bridges of the approaches, the southern approach roadway (Doyle Drive), main suspension cables, Round House, and Toll Plaza Undercrossing. 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 railings from the original construction and railings replicated to match the original, as well as the layout of the sidewalks – width and construction around piers and pylons – that allow pedestrian use of bridge are essential character-defining features of the property. Although the sidewalks have been extended and widened, they continue to serve as important, human-scale features of the Bridge that make it readily accessible to the commuting and visiting public – functions intentionally included by Chief Engineer Joseph B. Strauss and Consulting Architect Irving F. Morrow.

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 previous evaluations specifically identified the light standards and pedestrian railings as contributing elements of the property, and both were designed by consulting architect Irving F. Morrow. In addition to recommending the red vermilion (known as “International Orange”) paint color that still graces the Bridge today, Mr. Morrow was largely responsible for the architectural enhancements that define the Bridge’s Art Deco form. The pedestrian railings were simplified to modest, uniform posts placed far enough apart to allow motorists an unobstructed view when viewed

perpendicular to the railing. The electroliers took on a lean, angled form and the portal bracing of the main towers have decorative cladding.

Overall, the Bridge has lost some historic integrity through the course of 70 years of operation, maintenance and improvements. Nevertheless, the property retains its primary character-defining features, it clearly conveys its significance as an excellent example of the incorporation of architectural styling to 1930s state-of-the art engineering, as clarified by the updated inventory and evaluation provided in the HRER for this project, and as recognized by the state, local and federal historic preservation programs described herein.

### **2.3.3 ENVIRONMENTAL CONSEQUENCES**

#### **Potential Effects to Significant Cultural Resources**

This section assesses the effects of the alternatives on the Bridge historic property. Because none of the project alternatives would have an adverse effect on either of the contributing elements within the Focused APE (the Round House Gift Center and the Toll Plaza Undercrossing [34 0069]), this section focuses on the main Bridge structures (Bridge 27 0052). The assessment provided below identifies the direct, indirect and cumulative effects as defined in 36 CFR 800.5 (a)(2), and identifies how each alternative does, or does not meet the Secretary of the Interior's (SOI) Standards for the Treatment of Historic Properties. As an historic property, the Bridge is considered a Section 4(f) resource, which would be used by the project. This is discussed in detail in the Section 4(f) evaluation provided in Appendix B.

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

In general, construction of 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 NRHP. The addition of any of these barrier systems would be an alteration to the historic property that is not consistent with the Secretary of the 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 exterior truss). The alternative 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 an historic property; addition of barrier systems where none were originally; use of non-historic materials (transparent panels, winglets, metal rods and cable netting), as well as alteration of the pedestrian experience on the Bridge. These effects are identified in detail below, grouped by project alternative.

### **Alternative 1A: Add Vertical System to Outside Handrail**

Construction of Alternative 1A would cause the following effects to the Bridge historic property.

- Direct Adverse Effect to Bridge character-defining features through physical destruction of part of the property. Destruction would consist of destruction of posts at the east and west outside railings, and destruction of portions of east and west outside railings where new maintenance access gates are installed. Adverse Effect (36 CFR 800.5 (a) (2)) (i) and (ii).
- Direct Adverse Effect to Bridge character-defining features through alteration of a property that is not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines. Alterations would consist of installation of 12-foot-high posts in the east and west outside railings, installation of 8-foot-high vertical rods into the horizontal top member of east and west outside railings and into the concrete railing at the north pylon, and installation of transparent panels at east and west belvederes. Adverse Effect (36 CFR 800.5 (a) (2)) (ii). Under this criteria of adverse effect, Alternative 1A would not meet the following SOI Rehabilitation Standards: Standard 1, more than minimal change to distinctive features, spaces and spatial relationships; Standard 2, alteration of character-defining features, spaces and spatial relationships; Standard 5, does not preserve distinctive materials and features; Standard 9, destroys historic materials, and character-defining features and spatial relationships.
- Indirect Adverse Effect to Bridge character-defining features through change in the character of the property's use that contributes to its historic significance. The original design of the handrail allows pedestrians to directly approach the railing, place their hands on top and lean into the space over the rail to experience views. Change of character of the design of the rail would alter pedestrian experience of the property by preventing visitor use of the space above the railing. This change could also result in the reduction of pedestrian, bicycle and automobile occupant access to views of and from the property. Adverse Effect (36 CFR 800.5 (a) (2)) (ii) and (iv).

- Indirect Adverse Effect to Bridge character-defining features through introduction of visual elements that diminish the integrity of the property's significant historic features. Introduction of new visual elements would include installation of a new 8-foot railing above the existing 4-foot-high east and west outside railings and the concrete railing at the north pylon, introduction of maintenance access gates in the east and west outside railings, and installation of transparent panels at belvederes on east and west railings. Adverse Effect (36 CFR 800.5 (a) (2)) (ii) and (v).

Construction of Alternative 1A would not cause direct or indirect adverse effects to the Round House Gift Center or the Toll Plaza Undercrossing because the alternative does not directly involve these contributing elements of the Bridge, nor is it close enough to these elements to cause an indirect effect.

### **Alternative 1B: Add Horizontal System to Outside Handrail**

Construction of Alternative 1B would cause the following effects to the Bridge historic property.

- Direct Adverse Effect to Bridge character-defining features through physical destruction of part of the property. Effects would include destruction of posts of the east and west outside railings, and destruction of portions of east and west outside railings where new maintenance access gates are installed. Adverse Effect (36 CFR 800.5 (a) (2)) (i) and (ii).
- Direct Adverse Effect to Bridge character-defining features through alteration of a property that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines. Alterations would consist of installation of 12-foot-high posts in the east and west outside railings, installation of 8-foot-high horizontal cables and a transparent winglet above horizontal top member of east and west outside railings and the concrete railing at north pylon, installation of transparent panels at east and west belvederes, and installation of maintenance access gates in the east and west railings. Adverse Effect (36 CFR 800.5 (a) (2)) (ii). Alternative 1B would not meet the following SOI Rehabilitation Standards: Standard 1, more than minimal change to distinctive features, spaces, and spatial relationships; Standard 2, alteration of character-defining features, spaces, and spatial relationships; Standard 5, does not preserve distinctive materials and features; Standard 9, destroys historic materials and character defining features and spatial relationships.

- Indirect Adverse Effect to Bridge character-defining features through change in the character of the property's use that contributes to its historic significance. The original design of the handrail allows pedestrians to directly approach the railing, place their hands on top and lean into the space over the rail to experience views. Change of character of the design of the rail would alter pedestrian experience of the property by preventing visitor use of the space above the railing. This change would also result in the reduction of pedestrian, bicycle and automobile occupant access to views of and from the property. Adverse Effect (36 CFR 800.5 (a) (2)) (ii) and (iv).
- Indirect Adverse Effect to Bridge character-defining features through introduction of visual elements that diminish the integrity of the property's significant historic features. Introduction of new visual elements would include placement of 8 feet of new railing above the existing 4-foot-high east and west outside railings and the concrete railing at north pylon, introduction of maintenance access gates in the east and west outside railings, and installation of transparent panels at belvederes and winglet at the top of the new railing. Adverse Effect (36 CFR 800.5 (a) (2)) (ii) and (v).

Construction of Alternative 1B would not cause direct or indirect adverse effects to the Round House Gift Center or the Toll Plaza Undercrossing because the alternative does not directly involve these contributing elements of the Bridge, nor is it close enough to these elements to cause an indirect effect.

### **Alternative 2A: Replace Outside Handrail with Vertical System**

Construction of Alternative 2A would cause the following effects to the Bridge historic property.

- Direct Adverse Effect to Bridge character-defining features through physical destruction of part of the property, namely destruction of east and west outside railings. Adverse Effect (36 CFR 800.5 (a) (2)) (i) and (ii).
- Direct Adverse Effect to Bridge character-defining features through alteration of a property that is not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines. Alterations would include removal of east and west outside railings and installation of new 12-foot vertical rod system. Adverse Effect (36 CFR 800.5 (a) (2)) (ii). Alternative 2A would not meet the following SOI Rehabilitation Standards: Standard 1, more than minimal change to distinctive features, spaces, and spatial relationships; Standard 2, alteration of character-defining features,

spaces, and spatial relationships; Standard 5, does not preserve distinctive materials and features; Standard 9, destroys historic materials, and character-defining features and spatial relationships; Standard 10, if new construction were removed in the future, the essential form and integrity of the character-defining railings would be impaired.

- Indirect Adverse Effect to Bridge character-defining features through change in the character of the property's use that contributes to its historic significance. The original design of the handrail allows pedestrians to directly approach the railing, place their hands on top and lean into the space over the rail to experience views. Change of character of the design of the rail would alter pedestrian experience of the property by preventing visitor use of the space above the railing. This change would also result in the reduction of pedestrian, bicycle and automobile occupant access to views of and from the property. Adverse Effect (36 CFR 800.5 (a) (2)) (ii) and (iv).
- Indirect Adverse Effect to Bridge character-defining features through introduction of visual elements that diminish the integrity of the property's significant historic features. Introduction of new visual elements would include construction of a new rod system railing in place of existing east and west outside railings, introduction of translucent panels at belvederes and introduction of maintenance access gates in the east and west outside railings. Adverse Effect (36 CFR 800.5 (a) (2)) (ii) and (v).

Construction of Alternative 2A would not cause direct or indirect adverse effects to the Round House Gift Center or the Toll Plaza Undercrossing because the alternative does not directly involve these contributing elements of the Bridge, nor is it close enough to these elements to cause an indirect effect.

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

Construction of Alternative 2B would cause the following effects to the Bridge historic property.

- Direct Adverse Effect to Bridge character-defining features through physical destruction of part of the property, namely destruction of east and west outside railings. Adverse Effect (36 CFR 800.5 (a) (2)) (i) and (ii).
- Direct Adverse Effect to Bridge character-defining features through alteration of a property that is not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines. Alterations would include removal

of east and west outside railings and installation of new 10-foot horizontal cable system. Adverse Effect (36 CFR 800.5 (a) (2)) (ii). Alternative 2B would not meet the following SOI Rehabilitation Standards: Standard 1, more than minimal change to distinctive features, spaces, and spatial relationships; Standard 2, alteration of character-defining features, spaces, and spatial relationships; Standard 5, does not preserve distinctive materials and features; Standard 9, destroys historic materials, and character-defining features and spatial relationships; Standard 10, if new construction were removed in the future, the essential form and integrity of the character-defining railings would be impaired.

- Indirect Adverse Effect to Bridge character-defining features through change in the character of the property's use that contributes to its historic significance. The original design of the handrail allows pedestrians to directly approach the railing, place their hands on top and lean into the space over the rail to experience views. Change of character of the design of the rail would alter pedestrian experience of the property by preventing visitor use of the space above the railing. This change would also result in the reduction of pedestrian, bicycle and automobile occupant access to views of and from the property. Adverse Effect (36 CFR 800.5 (a) (2)) (ii) and (iv).
- Indirect Adverse Effect to Bridge character-defining features through introduction of visual elements that diminish the integrity of the property's significant historic features. Introduction of new visual elements would include construction of a new cable system railing in place of existing east and west railings, introduction of transparent panels at belvederes and winglets at east and west railings and introduction of maintenance access gates in the east and west railings. Adverse Effect (36 CFR 800.5 (a) (2)) (ii) and (v).

Construction of Alternative 2B would not cause direct or indirect adverse effects to the Round House Gift Center or the Toll Plaza Undercrossing because the alternative does not directly involve these contributing elements of the Bridge, nor is it close enough to these elements to cause an indirect effect.

### **Alternative 3: Add Net System**

Construction of Alternative 3 would cause the following effects to the Bridge historic property.

- Direct Adverse Effect to Bridge character-defining features through alteration of a property that is not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines. Alterations would include installation of 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 and be covered with stainless steel cable netting incorporating a grid between 4 inches and 10 inches. Adverse Effect (36 CFR 800.5 (a) (2)) (ii). Alternative 3 would not meet the following SOI Rehabilitation Standards: Standard 1, more than minimal change to distinctive features, spaces, and spatial relationships; Standard 2, alteration of character-defining features, spaces, and spatial relationships; Standard 9, destroys historic spatial relationships.

- Indirect Adverse Effect to Bridge character-defining features through introduction of visual elements that diminish the integrity of the property's significant historic features. Introduction of new visual elements would include installation of 20 feet of a new horizontal cable netting system at east and west sides of trusses below deck level. Adverse Effect (36 CFR 800.5 (a) (2)) (ii) and (v).

Construction of Alternative 3 would not cause direct or indirect adverse effects to the Round House Gift Center or the Toll Plaza Undercrossing because the alternative does not directly involve these contributing elements of the Bridge, nor is it close enough to these elements to cause an indirect effect.

#### **2.3.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

In order to mitigate the adverse effect of the build alternatives on the historic property, a draft Memorandum of Agreement (MOA) will be developed for the project and will be coordinated with the Department. The No-Build Alternative will not affect the historic property.

The MOA will stipulate various mitigation activities that will be conducted to address adverse effects this project 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. Mitigation measures proposed for the project include the following:

- Large-format (four- by five-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 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 (NPS) 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), GGNRA, Presidio Trust, Department District 4 Office of Cultural Resource Studies, and the Department's Transportation Library and History Center at Department 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 GGNRA locations, and online at the District Web site ([www.goldengate.org](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 will incorporate information from the contextual history prepared for the brochure.

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.

## **2.4 BIOLOGICAL ENVIRONMENT**

The following description and evaluation of biological resources in the project area summarizes information contained in the Natural Environmental Study (NES) provided in full as Appendix F to this EIR/EA. In preparing the NES, previous biological studies prepared for the project area (Golden Gate Bridge Seismic and Wind Retrofit Project Biological Assessment and monitoring reports) were reviewed, as they address the staging areas within GGNRA lands that would be used to facilitate the proposed Golden Gate Bridge Physical Suicide Deterrent System Project. The latest versions of the California Natural Diversity Data Base (CNDDB) and the U.S. Fish and Wildlife Service (USFWS) list of federally-listed and candidate species occurring in Marin and San Francisco Counties were also reviewed to identify documented occurrences of special-status plant and wildlife species in the project area.

Reconnaissance-level field surveys of the Bridge and staging areas were conducted on June 13 and June 15, 2008. The intent of the surveys was to confirm the graded, graveled, and/or paved condition of the proposed staging areas, to describe the plant communities occurring adjacent to and near the staging areas, to assess the types of wildlife likely to occur in the project area, and to identify locations supporting or potentially supporting sensitive biological resources that could be adversely affected by the proposed project.

### **2.4.1 NATURAL COMMUNITIES**

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

#### **Affected Environment**

The proposed physical suicide deterrent system would be installed along both sides of the Bridge. The western side of the Bridge contains a heavily