Table 2.2-13 Alternative 3: Overall Visual Impact to Views from the Bridge

Viewpoint		Existing Condition		Proposed Condition			Visual Impact
No.	Location	Visual Quality	Viewer Exposure	Visual Compatibility	Visual Dominance	View Blockage	
8	Car View West	Moderate	Moderate	Not Visible	Not Visible	None	Negligible
9	Car View Center	High	High	Not Visible	Not Visible	None	Negligible
10	Car View North	High	High	Not Visible	Not Visible	None	Negligible
11	Car View East	High	High	Not Visible	Not Visible	None	Negligible
12	Sidewalk North	High	High	Not Visible	Not Visible	None	Negligible
13	Sidewalk South	Outstanding	High	Low	Co-Dominant	None	Negligible
14	Bridge Tower	High	High	Moderate	Co-Dominant	Moderate	Adverse

No-Build Alternative

While the No-Build Alternative would continue current suicide deterrent program operations on the Bridge, this alternative would not physically change the appearance of the Bridge. Views towards the Bridge and from the Bridge at all of the viewpoints would remain the same as under existing conditions. Pedestrian and cyclist views from the sidewalks would not be altered. Views from the roadway would also not be altered. Because there would be no change to the physical appearance of the Bridge under this alternative, there would be no impact to existing views.

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 a separate and previously approved project. That project was approved as part of the seismic upgrade program, with the appropriate environmental and Section 106 clearances. Viewpoint 8 illustrates the view of the outside handrail following completion of the seismic upgrade program.

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

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

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:

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

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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.

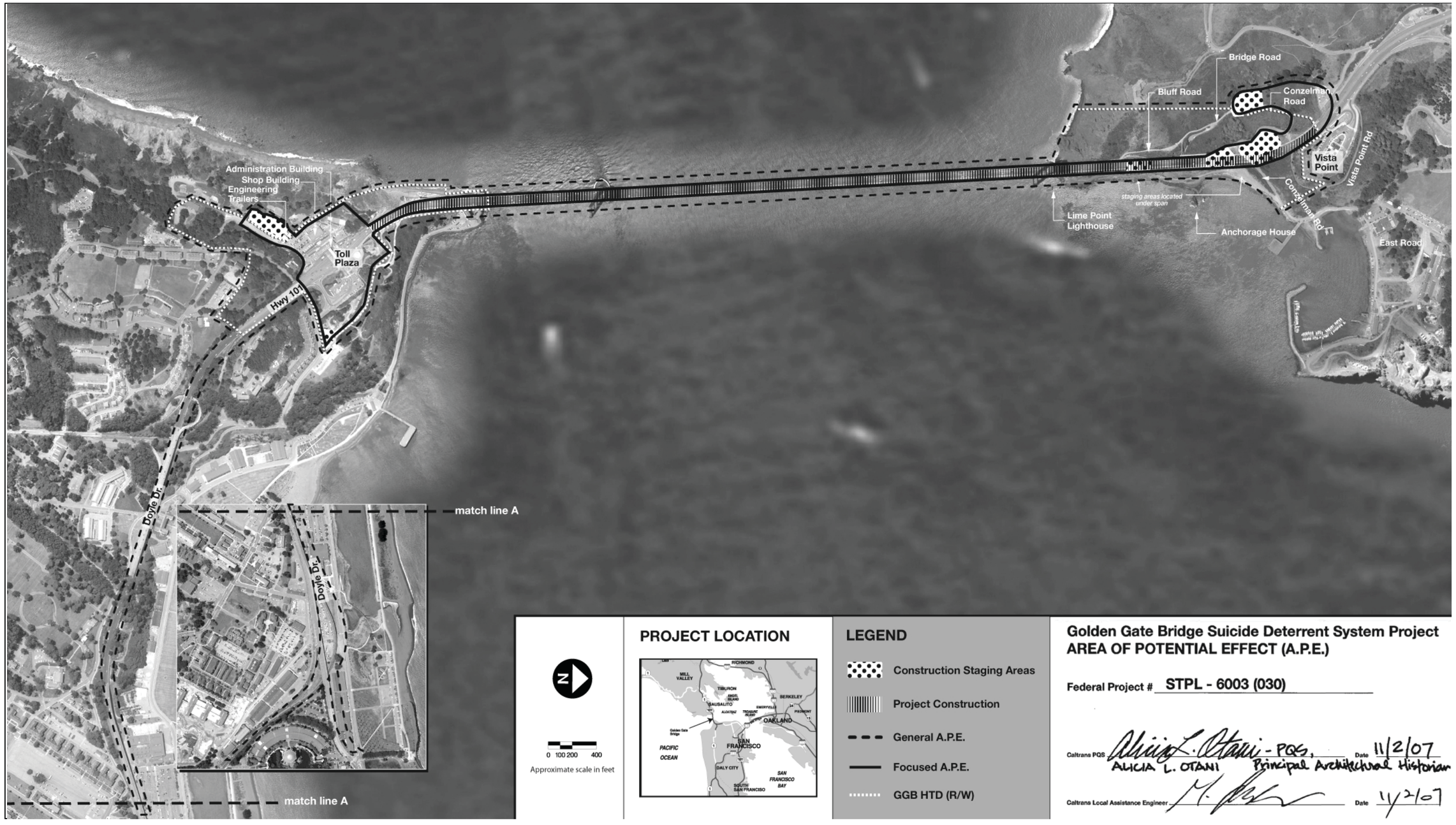

FIGURE 2.3-1
GENERAL AND FOCUSED AREAS OF POTENTIAL EFFECT FOR HISTORIC ARCHITECTURAL RESOURCES

Source: JRP Historical Consulting, LLC 2008

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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 CFR800.5 (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) 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

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.

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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.

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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

used bikeway and the eastern side contains a heavily used pedestrian walkway. The Bridge is heavily traveled by cars and trucks, and is often subject to strong winds given its location at the entrance to San Francisco Bay. These factors and the lack of natural habitats deter wildlife use of the Bridge, although the Bridge is used by some bird species. No natural communities are present on the Bridge.

The four staging areas within GGNRA lands are generally denuded of vegetation and are covered by gravel and compacted dirt, with only small patches of ruderal (i.e. weedy) vegetation present within one of the staging areas. The staging areas have and/or continue to be used for staging and maintenance activities associated with the Golden Gate Bridge Seismic and Wind Retrofit Project. The one proposed staging area within the Presidio is within a paved parking lot.

The staging areas located within the GGNRA are, however, bordered by large expanses of coastal scrub habitat. These adjacent and nearby areas are characterized by a dense growth of native species such as coyote brush (*Baccharis pilularis*), California blackberry (*Rubus ursinus*), poison oak (*Toxicodendron diversilobum*), California sagebrush (*Artemisia californica*), arroyo willow (*Salix laseolepis*), and various lupine species (*Lupinus sp.*), as well as non-native invasive species such as French broom (*Genista monspessulana*), wild radish (*Raphanus sativus*), and fennel (*Foeniculum vulgare*).

Based on the California Department of Fish and Game (CDFG) List of California Terrestrial Natural Communities (CDFG, 2003), the coastal scrub habitat bordering the staging areas is not denoted on the list as "high priority for inventory in CNDDB and thus is not considered a sensitive plant community." Additionally, given that the staging areas are fenced and actively used, they are not part of an expected wildlife movement corridor and their use would not result in habitat fragmentation.

Environmental Consequences

The proposed project does not include the development or direct disturbance of plant communities or aquatic habitats. The Bridge is in a developed condition and the proposed staging areas are generally denuded of vegetation, covered by gravel and compacted dirt, or paved areas. The staging areas within GGNRA lands have and/or continue to be used for staging and maintenance activities associated with the Golden Gate Bridge Seismic and Wind Retrofit Project. The one proposed staging area within the Presidio is within a paved parking lot. Implementation of the avoidance measures will prevent adverse effects to adjacent and nearby coastal scrub habitat.

Avoidance, Minimization, and/or Mitigation Measures

To avoid impacts to coastal scrub habitat, the avoidance measures currently being implemented to as part to the Golden Gate Bridge Seismic and Wind Retrofit Project would continue to be implemented. The continued use of these staging areas for this project would therefore not impact coastal scrub habitat. The measures relevant to coastal scrub habitat include:

Measure 1: A qualified biologist or biologists will be retained by the District prior to the start of construction to act as a biological Environmental Compliance Monitor (ECM) and implement and oversee the below activities/measures.

- The biological ECM will flag and stake native vegetation near the staging areas within GGNRA lands as "Environmentally Sensitive Areas" and will oversee the contractor's installation of protective fencing around the designated ESA(s). Signs will be installed indicating that the fenced area is "restricted" and that all construction activities, personnel, and operational disturbances are prohibited.
- The biological ECM will prepare and provide worker educational materials that describe the value and importance of the coastal scrub habitat bordering the staging areas and the importance of not disturbing the habitat.
- The biological ECM will conduct regular visits of the staging areas to inspect if any damage to adjacent habitats has occurred, to evaluate if dust control measures need to be implemented or increased, to ensure that erosion control devices located near native vegetation and Environmentally Sensitive Areas (ESAs) are functioning properly, and to evaluate if weed control measures need to be implemented.
- Based on the findings of the site visits, the biological ECM will make recommendations to be implemented regarding weed control, re-vegetation of disturbed areas, the need for additional fencing, and other measures to protect biological resources.
- The biological ECM will prepare monthly monitoring reports for the District that will address the effectiveness of the avoidance measures being implemented and identify any other measures to be implemented.

Measure 2: The District will provide specifications for erosion and dust control to the Contractor, which will be implemented.

2.4.2 PLANT SPECIES

Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) share regulatory responsibility for the protection of special-status plant species. "Special-status" species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these area species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see the Threatened and Endangered Species Section (2.4.4) in this document for detailed information regarding these species.

This section of the document discusses all the other special-status plant species, including CDFG fully protected species and species of special concern, USFWS candidate species, and non-listed California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at United States Code 16 (USC), Section 1531, et seq. See Also 50 CFR Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act, Public Resources Code, Sections 2100-21177.

Affected Environment

The four staging areas within GGNRA lands are generally denuded of vegetation and are covered by gravel and compacted dirt, with only small patches of ruderal (i.e. weedy) vegetation present within one of the staging areas. The staging areas have and/or continue to be used for staging and maintenance activities associated with the Golden Gate Bridge Seismic and Wind Retrofit Project. The one proposed staging area within the Presidio is within a paved parking lot. Given the above, and the developed condition of the Bridge, construction-related activities would only occur within areas denuded of vegetation or with only limited ruderal vegetation present. These areas do not provide suitable habitat for special-status plant species.

However, the staging areas within GGNRA are located adjacent to well-developed coastal scrub habitat. Coastal scrub habitat can also support several locally-occurring special-status plant species, such as Franciscan

thistle, San Francisco Bay spineflower, blue coast gilia, San Francisco gumplant, marsh microseris, San Francisco owl's clover, and potentially other species.

Environmental Consequences

Special-Status plant species could occur in areas bordering or near the staging areas within GGNRA lands, such as Franciscan thistle, San Francisco Bay spineflower, blue coast gilia, San Francisco gumplant, marsh microseris, San Francisco owl's clover, and potentially other species. No direct loss of suitable habitat for special-status plant species would occur. Implementation of the avoidance measures will prevent unauthorized intrusion by construction equipment and workers into the coastal scrub habitat bordering the staging areas, which could result in trampling of special-status plant species.

Avoidance, Minimization, and/or Mitigation Measures

To avoid impacts to special-status plant species, the avoidance measures currently being implemented to as part to the Golden Gate Bridge Seismic and Wind Retrofit Project would continue to be implemented. Implementation of these measures would also ensure that the continued use of these staging areas for this project would not impact special-status plant species. The measures relevant to special-status plant species include:

Measure 1: A qualified biologist or biologists will be retained by the District prior to the start of construction to act as a biological Environmental Compliance Monitor (ECM) and implement and oversee the below activities/measures.

- The biological ECM will flag and stake native vegetation near the staging areas within GGNRA lands as "Environmentally Sensitive Areas" and will oversee the contractor's installation of protective fencing around the designated ESA(s). Signs will be installed indicating that the fenced area is "restricted" and that all construction activities, personnel, and operational disturbances are prohibited.
- The biological ECM will prepare and provide worker educational materials that describe the value and importance of the coastal scrub habitat bordering the staging areas and the importance of not disturbing the habitat.
- The biological ECM will conduct regular visits of the staging areas to inspect if any damage to adjacent habitats has occurred, to evaluate if dust control measures need to be implemented or increased, to ensure that erosion control devices located near native vegetation and

Environmentally Sensitive Areas (ESAs) are functioning properly, and to evaluate if weed control measures need to be implemented.

- Based on the findings of the site visits, the biological ECM will make recommendations to be implemented regarding weed control, re-vegetation of disturbed areas, the need for additional fencing, and other measures to protect biological resources.
- The biological ECM will prepare monthly monitoring reports for the District that will address the effectiveness of the avoidance measures being implemented and identify any other measures to be implemented.

Measure 2: The District will provide specifications for erosion and dust control to the Contractor, which will be implemented.

2.4.3 ANIMAL SPECIES

Regulatory Setting

Many states and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Game (CDFG) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state and federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.4.4. All other special-status animal species are discussed here, including CDFG fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Quality Act
- Migratory Bird Treaty Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1600-1603 of the Fish and Game Code
- Sections 4150 and 4152 of the Fish and Game Code

Affected Environment

Construction-related activities would be limited to the Bridge and to five staging areas, which are generally denuded of vegetation and are either paved or graveled. The Bridge is heavily traveled by cars and trucks, and is often subject to strong winds, given its location at the entrance to San Francisco Bay. These factors and the lack of natural habitats deter wildlife use of the Bridge, although brown pelicans and other bird species such as terns and sea gulls often fly at relatively low heights across the Bridge.

Given that the staging areas are generally denuded of vegetation, covered with gravel, or paved, and the developed condition of the Bridge, potential habitat for special-status wildlife species within the project's disturbance area is limited. However, monarch butterfly wintering sites, which are considered sensitive by the CDFG, have been documented in the project area. Additionally, nesting bird species protected by the Migratory Bird Treaty Act and Fish and Game Code could occur near or within the staging areas of the Bridge.

Environmental Consequences

The staging areas within GGNRA lands have and/or continue to be used for similar activities associated with the Golden Gate Seismic and Wind Retrofit Project and do not border areas potentially used as winter roost sites by monarch butterflies. Therefore, the continued use of these staging areas would not adversely affect a monarch butterfly winter roost site. The proposed staging area within the Presidio is paved and used as a parking lot. There are no trees within the parking lot and the preferred winter roost trees of monarch butterflies (i.e., eucalyptus and pine) are not present near the location. Given the above, the proposed project is not expected to have a substantial adverse affect on a monarch butterfly wintering site and no avoidance measures are required.

The proposed project does not include the removal of any trees or vegetation potentially used by nesting bird species protected by the California Fish and Game Code and/or the Migratory Bird Treaty Act. However, construction-related activities could still disturb and potentially result in nest abandonment of active bird nests potentially occurring near the staging and construction areas.

The use of vertical transparent panels is a component of several of the alternatives being considered for the physical suicide deterrent system, which could create a potential for bird collisions. Under one alternative, horizontal netting would be used as part of the physical deterrent system, with which birds could potentially collide and become entangled or otherwise harmed. The transparent panels would be installed at the

belvederes, 24 widened areas (each 12.5 feet wide) located on both the east and west sidewalks, and around portions of the two Bridge towers, representing about 5 percent of the total length of the Bridge. The transparent panels would be placed on top of the existing or modified rails (which are 4 feet in height) and would extend up to 8 feet above the rails. Several factors detract from the likelihood of birds attempting to fly over the Bridge or perch on structures at a height which could result in collisions with the transparent panels, such as the relatively low height of the panels (12 feet above the road surface), heavy car and truck traffic, heavy bike and pedestrian traffic on the Bridge's walkways (which would be adjacent to the transparent panels or netting), and that the panels around the tower would encircle a visible solid surface. The horizontal netting would extend out 20 feet from the Bridge and be located approximately 20 feet below the Bridge sidewalk. The horizontal netting's proximity to the Bridge structure, as well as heavy car and truck traffic, heavy bike and pedestrian traffic on the Bridge's walkways would detract from the likelihood of birds coming in contact with the horizontal netting.

However, brown pelicans and other bird species such as terns and sea gulls often fly at relatively low heights across the Bridge and focused studies have not been conducted to determine if bird collisions would be likely and to what extent they may occur. Therefore, it is assumed that the use of the transparent panels or netting could adversely affect various bird species.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance measures would be implemented to address potential impacts to nesting birds, and the potential for bird collisions or other obstructions to bird activities at the Bridge. The measures relevant to animal species would include the following.

Measure 6: Prior to the commencement of construction activities occurring during the nesting season of native bird species (typically February through August), the biological ECM will conduct or oversee the following activities.

- The biological ECM will conduct surveys for nesting birds protected by the Migratory Bird Treaty Act and/or California Fish and Game Code. The survey area will include potential nesting habitat within and bordering the staging and construction areas, as well as all areas that would be subject to elevated construction-related noise levels.
- If an active nest is found, a construction exclusion zone would be established around the active nest. The size of the exclusion zone will be determined by the CDFG and will take into account existing noise levels at the nest location and the sensitivity to noise of the bird species present.

- Construction activities may commence within the exclusion zone only upon determination by a qualified biologist that the nest is no longer active. The biological ECM will also survey for nesting birds during their regular site visits of the staging areas.

Measure 7: Prior to the commencement of construction activities, the District will retain the services of a qualified avian biologist to conduct or oversee the following activities.

- The avian biologist will further evaluate the potential of birds to collide with the transparent panels potentially used as part of the physical suicide deterrent system, and for the use of netting to harm bird species.
- At a minimum, the expected flight patterns of migratory and resident birds relative to the installation locations of the transparent panels or netting will be evaluated, as well as the potential of the transparent panels and associated reflections to alter regular flight patterns and encourage collisions.
- Should it be found that the use of the transparent panels or netting pose a substantial risk to birds, appropriate design modifications would be implemented. These measures may include, but are not limited to visual deterrents such as patterning the transparent material with a UV coating that birds can see but humans cannot; utilizing etching, fritting, and opaque patterned glass to reduce transparency; utilizing bird-legible patterns on the transparent material; limiting the amount of transparent panels or amount of panels without a visual deterrent; modifying the horizontal netting; or other effective means of deterring bird collisions or entrapment.

2.4.4 THREATENED AND ENDANGERED SPECIES

Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United Stated Code (USC), Section 1531, et seq. See also 50 CFR Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NOAA Fisheries) to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species.

The outcome of consultation under Section 7 is a Biological Opinion or an incidental take permit. Section 3 of FESA defines take as "harass, harm, pursue, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code, Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project caused losses of listed species populations and their essential habitats. The California Department of Fish and Game (CDFG) is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined as Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFG. For projects requiring a Biological Opinion under Section 7 of the FESA, CDFG may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

Affected Environment

The project would occur along the Bridge and does not include the direct disturbance of undeveloped lands. However, the project does include the use of four construction staging areas within GGNRA lands. One is an existing gravel area located in a switchback of Conzelman Road. The other three are gravel areas located under the northern span of the Bridge, which are currently being used for similar staging and maintenance activities. There is also one proposed construction staging area within the Presidio in a location that is a paved parking lot, located just west of the toll plaza off Merchant Road.

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).

Environmental Consequences

Given that the staging areas are generally denuded of vegetation, covered with gravel, or paved, and the developed condition of the Bridge, potential

habitat for special-status wildlife species within the project's disturbance area is limited. However, Mission blue butterfly, a federally Endangered Species, is known to occur in areas near the staging areas on the north side of the Bridge. No direct loss of habitat for this species would occur. However, in the absence of avoidance measures, the use of the staging areas could result in other types of impacts to this species.

- Construction-related traffic: vehicular traffic, especially at higher speeds, can collide with and kill or injure flying Mission blue butterflies.
- Unauthorized intrusion into Mission blue butterfly habitat: Potential intrusion by construction equipment and workers into the coastal scrub habitat bordering the staging areas within GGNRA lands could result in trampling of larval host or adult nectar plants.
- Dust: The proposed project does not include grading, vegetation and soil removal, or soil storage, which are often associated within increased dust levels. However, the use of the staging areas within GGNRA lands could result in increased dust levels, which may affect both larval and adult Mission blue butterflies.

Peregrine falcons, a state Endangered species (and Candidate for Delisting), have been reported using the Bridge year-round from 1989 to the present, with nesting being attempted under the roadway on at least two occasions and the towers being used by non-nesting falcons.[1] The proposed project does not include the removal of any potential nesting habitat for the species or barriers to areas potentially used for nesting. However, should an active eyrie (i.e., nest) be present, construction-related activities could result in the abandonment of the eyrie.

Avoidance, Minimization and/or Mitigation Measures

As described below, to avoid impacts to Mission blue butterfly, the avoidance **Measures 1, 2** and **3** currently being implemented to protect the species as part to the Golden Gate Bridge Seismic and Wind Retrofit Project would continue to be implemented so that continued use of these staging areas for this project would not impact Mission blue butterfly. As described below, to avoid the loss or disturbance of an active peregrine falcon eyrie, **Measure 5** would be implemented.

Measure 1: A qualified biologist or biologists will be retained by the District prior to the start of construction to act as a biological Environmental Compliance Monitor (ECM) and implement and oversee the below activities/measures.

[1] Pacific Biology communication with Allen Fish, Director of the Golden Gate Bird Observatory, June 30, 2008.

- The biological ECM will flag and stake native vegetation near the staging areas within GGNRA lands as "Environmentally Sensitive Areas" and will oversee the contractor's installation of protective fencing around the designated ESA(s). Signs will be installed indicating that the fenced area is "restricted" and that all construction activities, personnel, and operational disturbances are prohibited.
- The biological ECM will prepare and provide worker educational materials that describe the value and importance of the coastal scrub habitat bordering the staging areas and the importance of not disturbing the habitat.
- The biological ECM will conduct regular visits of the staging areas to inspect if any damage to adjacent habitats has occurred, to evaluate if dust control measures need to be implemented or increased, to ensure that erosion control devices located near native vegetation and ESA(s) are functioning properly, and to evaluate if weed control measures need to be implemented.
- Based on the findings of the site visits, the biological ECM will make recommendations to be implemented regarding weed control, re-vegetation of disturbed areas, the need for additional fencing, and other measures to protect biological resources.
- The biological ECM will prepare monthly monitoring reports for the District that will address the effectiveness of the avoidance measures being implemented and identify any other measures to be implemented.

Measure 2: The District will provide specifications for erosion and dust control to the Contractor, which will be implemented.

Measure 3: Contractor's vehicles traveling on access roads within GGNRA lands would be restricted to a maximum speed of 20 mph during the period of March 15 to July 4, which is the flight season for the Mission blue butterfly. The Contractor will post and enforce this speed limit.

Measure 5: Prior to the implementation of construction activities the District will implement the following program to assess and avoid any impacts to peregrine falcon. This program will consist of the following activities.

- Prior to implementation of construction activities occurring during the nesting season of peregrine falcon (typically February through July), the District will consult with the Golden Gate Raptor Observatory (GGRO) and the Santa Cruz Predatory Bird Group to obtain any existing information on the locations of breeding pairs of peregrine falcon potentially using the Bridge.

- Focused surveys for nesting peregrine falcons would then be conducted by a qualified biologist to determine if nesting falcons are present in areas potentially affected by project implementation.
- If nesting falcons are identified, then a construction exclusion zone would be established around the active eyrie. The size of the exclusion zone will be determined by the CDFG and will take into account existing noise levels at the nest location and the type of construction activities proposed near the eyrie.
- Construction activities may commence within the exclusion zone only upon determination by a qualified biologist that the eyrie is no longer active. Alternatively, construction activities potentially affecting peregrine falcons nesting on the Bridge may be conducted outside of the nesting season of the species.

2.4.5 INVASIVE SPECIES

Regulatory Setting

On February 3, 1999, President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration guidance issued August 10, 1999 directs the use of the state's noxious weed list to define invasive plants that must be considered as part of the NEPA analysis for a proposed project.

Affected Environment

The staging areas within GGNRA are located adjacent to well-developed coastal scrub habitat. This plant community is characterized by a dense growth of native species such as coyote brush (Baccharis pilularis), California blackberry (Rubus ursinus), poison oak (Toxicodendron diversilobum), California sagebrush (Artemisia californica), arroyo willow (Salix laseolepis), and various lupine species (Lupinus sp.), as well as non-native invasive species such as French broom (Genista monspessulana), wild radish (Raphanus sativus), and fennel (Foeniculum vulgare).

Environmental Consequences

Invasive plant species currently occur in various densities in areas bordering the staging areas. Soil disturbance and the unintentional

introduction of seeds by construction equipment could result in the further introduction and spread of invasive plant species.

Avoidance, Minimization, and/or Mitigation Measures

To avoid the further introduction or spread of invasive plant species, the avoidance measures currently being implemented to as part to the Golden Gate Bridge Seismic and Wind Retrofit Project would continue to be implemented. The measures relevant to invasive species include:

Measure 1: A qualified biologist or biologists will be retained by the District prior to the start of construction to act as a biological Environmental Compliance Monitor (ECM) and implement and oversee the below activities/measures.

- The biological ECM will flag and stake native vegetation near the staging areas within GGNRA lands as "Environmentally Sensitive Areas" and will oversee the contractor's installation of protective fencing around the designated ESA(s). Signs will be installed indicating that the fenced area is "restricted" and that all construction activities, personnel, and operational disturbances are prohibited.
- The biological ECM will prepare and provide worker educational materials that describe the value and importance of the coastal scrub habitat bordering the staging areas and the importance of not disturbing the habitat.
- The biological ECM will conduct regular visits of the staging areas to inspect if any damage to adjacent habitats has occurred, to evaluate if dust control measures need to be implemented or increased, to ensure that erosion control devices located near native vegetation and ESA(s) are functioning properly, and to evaluate if weed control measures need to be implemented.
- Based on the findings of the site visits, the biological ECM will make recommendations to be implemented regarding weed control, re-vegetation of disturbed areas, the need for additional fencing, and other measures to protect biological resources.
- The biological ECM will prepare monthly monitoring reports for the District that will address the effectiveness of the avoidance measures being implemented and identify any other measures to be implemented.

Measure 4: To prevent the introduction of non-native vegetation or other deleterious materials to GGNRA lands, the Contractor will inspect all construction equipment prior to accessing the staging areas. If any vegetation or deleterious materials are present, the Contractor will

decontaminate its equipment with a high-pressure washer and properly dispose of the wastewater and debris prior to entering GGNRA lands.

2.5 NON-RELEVANT TOPICS

As part of the environmental analysis conducted for the project, the following environmental issues were considered, but no adverse impacts were identified. Consequently, there is no further discussion regarding these issues in this document.

2.5.1 HUMAN ENVIRONMENT

Growth

This project would not foster economic or population growth. The project does not include the construction of additional housing units, nor would it indirectly result in such construction.

The project does not involve any changes in the existing use of the Bridge or the land surrounding the Bridge. It will not affect the location, distribution, density or growth rate of the human population of the area. Therefore, the project will not have an affect on growth.

Farmlands / Timberlands

There are no farmlands or timberland in the project area. The project will not convert prime farmland, unique farmland or farmland of statewide importance to non-agricultural uses. It will not conflict with any existing Williamson Act contract nor will it conflict with a Timber Production Zone contract. Therefore, the project will not have an affect on farmlands or timberlands.

Community Impacts

Community Character and Cohesion

The project does not involve any changes in the existing use of the Bridge or the land surrounding the Bridge. The project will not affect lifestyles, neighborhood character or stability of surrounding communities, nor will it divide or disrupt an established community.

Relocations

The project does not involve any changes in the existing use of the Bridge or the land surrounding the Bridge; it will not affect existing housing, require

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Relocations

The project does not involve any changes in the existing use of the Bridge or the land surrounding the Bridge; it will not affect existing housing, require

the acquisition of residential improvements, cause the displacement of people or create a demand for additional housing.

Environmental Justice

The project does not involve any changes in the existing use of the Bridge or the land surrounding the Bridge; it will not affect minority, low-income, elderly, handicapped, transit-dependent or other specific interest groups.

The project will not affect employment, industry or commerce or require the displacement of business or farms; nor will it affect property values, the local tax base or community facilities. The project would not support large commercial or residential development.

Utilities / Emergency Services

The project would not contribute any waste to existing wastewater and solid waste disposal facilities and would therefore not contribute to the need for new treatment facilities. The project would not exceed wastewater treatment requirements as it would not cause an increase of run-off, nor would it require new stormwater capacities. No water demand would be generated by the project. Therefore, the project will not have an affect on public utilities.

The project would have no operational affect on police, fire, emergency or other public services.

Traffic and Transportation/Pedestrian and Bicycle Facilities

The project does not involve any changes in the existing use of the Bridge or the land surrounding the Bridge, it will not affect traffic and circulation, alter present patterns of movement of people and/or goods, create traffic, exceed LOS standards, require a detour for bike or pedestrian traffic or result in the alterations to waterborne, rail or air traffic.

2.5.2 PHYSICAL ENVIRONMENT

Hydrology and Floodplain

No encroachment within the Bay or 100-year floodplain would result from the project. All project activities would occur on the Bridge or on temporary construction staging areas located outside of the 100-year floodplain.

The project would not deplete groundwater, as it would generate no demand for water supply. It would not substantially alter drainage patterns

or create substantial run-off which would result in flooding on- or off-site. The project would not cause inundation by seiche, tsunami or mudflow. Therefore, the project will not have an affect on hydrology or create floodplain hazards.

Water Quality and Stormwater Run-Off

The project would not result in additional sources of pollutants commonly found in highway run-off, as no increase in traffic on the Bridge would occur. The project would have no affect on drainage patterns, or the rate and amount of surface run-off; it would not increase impervious surface area at the project site. The project would not affect the current discharge levels into the Bay or other bodies of water, nor would it violate any water quality standards.

Geology/Soils/Seismic/Topography

The project does not involve any changes in the existing use of the Bridge or the land surrounding the Bridge; it would not expose people or structures to potential effects from the rupture of a known earthquake fault, strong seismic ground shaking, seismic related ground failure, liquefaction or landslides. The Seismic Retrofit Project is currently being implemented at the Bridge to increase earthquake safety, see Section 2.1, Land Use for more information about this project.

The project would not result in substantial soil erosion or the loss of topsoil; be located on a geologic unit or soil that is unstable; result in lateral spreading, subsidence, liquefaction or collapse; or be located on expansive soil. There are no unique geologic or physical features on the project site. Therefore, the project will not have an affect on geology, soils, topography or create seismic hazards.

Paleontology

Nothing in the design of the project includes elements that would affect paleontological resources as none exist at the project site, and no earth disturbance activities will occur at the off-site construction staging areas where paleontological resources may occur. Therefore, the project will not have an affect on paleontological resources.

Hazardous Waste/Materials

Nothing in the design of the project includes elements that would result in the violation of any standards pertaining to hazardous waste and there is no potential for the project to affect people or the environment due to hazardous waste as none is located on or proposed to be located on the project site. The proposed build alternatives for the project will either add

on to the Bridge outside handrail, replace the outside handrail or add a net system to the outside of the Bridge below the outside handrail. There will be no excavation or construction activities on the lands below or around the Bridge. The proposed staging areas are all located on lands that have been previously disturbed and are covered with either asphalt concrete or gravel. Excavation will not occur in the staging areas and the surfaces of the staging areas do not contain hazardous materials (District, 2008; see Appendix E).

Potential effects relating to hazardous materials associated with project construction are addressed in Section 2.6.7 Construction Impacts.

Air Quality

Pursuant to Code of Federal Regulations 40 CFR 93.126, this project is exempt from the requirement of an air quality conformity determination. Nothing in the design of the project includes elements that would conflict with applicable air quality plans, violate air quality standards, result in net increase of any criteria pollutant which the project region is currently in non-attainment for, expose sensitive receptors to pollutant concentrations or create objectionable odors. The project would not result in changes in air movement, moisture, or temperature, or any climatic conditions.

Potential effects on air quality associated with project construction activities are discussed in Section 2.6, Construction Impacts.

Noise

Nothing in the design of the project includes elements that would result in the exposure of persons to or generation of noise levels in excess of established standards or to the generation of excessive groundborne vibration or groundborne noise levels. The project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

During construction the project would not substantially affect existing noise levels on the Bridge. Construction noise impacts are discussed in Section 2.6, Construction Impacts.

Energy

The project involves no planned use of natural resource beyond fuel and energy needed during construction activities, thus the project would not result in an increase of fuel or energy use in large amounts or in a wasteful manner, an increase in the rate of use of any natural resource or in the substantial depletion of any nonrenewable natural resource. Therefore, the project will not have an effect on energy resources.

2.6 CONSTRUCTION IMPACTS

All construction activities would take place within the limits of District's existing permitted area. Potential construction impacts include temporary transportation impacts, temporary noise impacts and temporary parking displacements. All impacts would be mitigated through construction contracts agreed to by the District and their contractors. The contracts would include project-specific specifications. In addition to the contracts and specifications, the District will monitor its contractors' work and perform quality assurance testing to ensure that the work is performed in compliance with all applicable safety and environmental laws.

2.6.1 CONSTRUCTION PHASING/SCHEDULE/WORK HOURS

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

The work on the west sidewalk would be specified to be performed weekdays during the hours when the sidewalk is not open to the public, so as not to affect the commuter and recreational use on the west sidewalk. The work on the east sidewalk will be specified to be performed at night. If some work on the east sidewalk must be performed during the day, the project specific special provisions will require a 6-foot minimum clear passageway be maintained through the work area with appropriate traffic control and protective measures in place.

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

2.6.2 CONSTRUCTION STAGING AREAS AND STORAGE OF EQUIPMENT

Each of the build alternatives would result in the temporary use of one or more of the five proposed construction staging areas. Construction staging areas are located near the San Francisco and Marin Abutments of the Bridge, as shown on Figures 2.1-1 and 2.1-2, Number 4.

There are four proposed construction staging areas in the GGNRA. These proposed staging areas are located on the northern side of the Bridge in

Marin County below the Marin Approach and Span 4 backspan. One is an existing gravel area located in a switchback of Conzelman Road and the other three are gravel areas located under the northern span of the Bridge, which are currently being used for similar staging, maintenance activities and other Bridge operations.

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

Project-related construction equipment and materials would be stored within one or more of these construction staging areas. A containment plan and Best Management Practices (BMPs) for storage activities will be incorporated in the construction contracts and project specifications to ensure that there are no environmental effects related to the storage of these materials and equipment. No expansion of the construction staging areas will be permitted.

2.6.3 TRANSPORTATION IMPACTS

Temporary Roadway Closures / Traffic Delays

From the staging areas, workers would access the activity areas on the Bridge with small customized equipment. Construction activities may require the periodic closure of vehicle travel lanes. Construction would be limited to one side of the Bridge at a time. If necessary, work requiring access from the Bridge deck would only be permitted during non-peak Bridge traffic hours; therefore, lane closures would not contribute to any increase in traffic delays. The project work may also require temporary closures of parts of Conzelman Road.

Emergency vehicle access will always be maintained during construction activities. Access should not be affected because project construction activities would not affect traffic volumes or traffic flow on the Bridge.

Parking Facilities

The five proposed staging areas will be used to accommodate the parking needs of construction equipment and supplies for the project. The Merchant Road staging area is currently used to accommodate District employee and public parking needs (25 stalls are available to the public). Temporary use of the Merchant Road parking area will displace some employee and public vehicles. There are several other areas near the Bridge that offer public parking, including the District's east parking lot below the Roundhouse Gift center and the NPS parking lot off Lincoln

Boulevard and Battery East Road. On weekends and after 3:30 p.m. during the week, the District's west parking lot adjacent to the Toll Plaza is also available for public use. The available parking supply should be sufficient to compensate for the temporary loss of 25 stalls.

Access (Vehicle, Pedestrian, Cyclists)

The proposed staging area on the south end of the Bridge (Merchant Road employee parking lot) is located in proximity to Lincoln Boulevard. Access to the Merchant Road staging area would be provided via Merchant Road, a two-lane roadway that extends between Lincoln Boulevard and Highway 101 near the toll plaza.

Access to the staging areas north of the Bridge, including those under the Bridge's northern approach, would be made via the US 101 Alexander Avenue exit and west to Conzelman Road via the Sausalito lateral. In the project area, Conzelman Road is a narrow roadway that extends underneath the Northern Viaduct.

Roadways in the project area are characterized by small radii curves, steep grades and narrow shoulders. There is no continuous system of sidewalks, bike trails or bike lands on these roads. During the movement of construction equipment and materials to staging area and construction work areas, the existing pattern of circulation on narrow roads could be temporarily detoured to minimize safety hazards for cars, buses, bikers, and pedestrians. Detours will be coordinated with the GGNRA at least two weeks in advance of closures, and closure will be of the shortest duration possible to accommodate construction activities.

Pedestrian and bicycle access to the Bridge would be maintained during construction of the project. Most construction activities would occur on weekdays during time periods when the sidewalks are closed to the public (7:00 am to 3:30 pm on the west sidewalk and dusk to 5:30 am on both sidewalks). Cyclists are granted limited access to the east sidewalk between dusk and 5:30 am. A minimum six-foot wide passageway on the east sidewalk would remain open to the public during any construction activities at that location.

2.6.4 NOISE

Roadway traffic noise determines ambient (existing) noise levels at most locations in the local vicinity of the Bridge. Traffic noise is higher closer to the roadway centerline and attenuates with distance. Secondary noise sources in the project area include aircraft, wind, and the occasional short-term event (e.g., fog horns). A representative noise measurement taken

during peak traffic hours at the toll plaza and visitor center was 73 dBA L_{eq}. Short-term peak noise measurements generated 82 dBA, L_{eq}, caused by accelerating cars or diesel buses (District et. al., 1995). Sensitive receptors in the project area include hiking trails, picnic areas, Fort Point visitor areas and scenic overlooks.

Noise from construction would be 3 to 12 dBA L_{eq} above the existing peak traffic noise levels (Ibid.). Peak noise levels of approximately 85 dBA L_{eq} could be experienced intermittently on the Bridge, as well as at staging areas and along local roads used during construction activities. The two main sources would be heavy-duty trucks and construction equipment. Noise from trucks would be most noticeable in areas where heavy-duty trucks are historically less frequent, such as Conzelman Road and Merchant Road. Noise increases on Highway 101 would not be noticeable since there are already a high number of vehicles travelling across the Bridge daily, including heavy-duty trucks. To protect construction workers who would be exposed to more long-term exposure to high noise levels, noise protection measures for construction workers would be incorporated into the construction contracts and project specifications.

Visitors within about 100 feet of the noise source could experience an increase in noise levels. However, because noise receptors in the project area already experience high traffic-related noise levels, it is not clear how perceptible the noise increase would be. Noise from line sources (such as a roadway) generally attenuates at a rate of 3.0 dBA per doubling of distance from the noise source and, in this case, any increase in noise would not be noticeable. The visitor areas are separated from the proposed construction areas by both topographic change and distance and it is anticipated that the exposure to visitors to construction noise would not generally be perceptible and would be of limited duration.

2.6.5 AIR QUALITY

The project would contribute to short-term emissions of nitrogen oxides (NO_x), carbon monoxide (CO) and hydrocarbons (HC) from fuel combustion associated with the operation of diesel construction equipment and employee vehicle trips. Heavy-duty diesel trucks used to deliver materials to the site from various parts of the Bay Area would generate emissions, but these trips are anticipated to be short in duration. Other mobile equipment on the site during construction would include cranes, wheeled loaders and boom trucks. Fugitive dust would be created as heavy equipment travels from the staging areas to the Bridge. Consistent with the Bay Area Air Quality Management District (BAAQMD) Rules and Regulations, dust and diesel emissions would be reduced through site control measures such as watering and reducing construction vehicle

idling. These control measures would be incorporated into the construction contracts and project specifications.

The construction workers would also generate mobile source emissions from their vehicles during their travel to and from the project site. Mobile sources of NO_x, CO, HCs and fugitive dust would be higher on peak materials delivery days when the heavy diesel truck trips are combined with employee trips and operation of on-site construction equipment. These emissions would be temporary and would not lead to long-term deterioration of air quality.

Stationary sources of HCs from spray paint guns would be limited by the BAAQMD Rules and Regulations. These regulations would be specified in the construction contracts, thus limiting HC emissions.

2.6.6 SOIL DISTURBANCE AND EROSION CONTROL

The four staging areas within GGNRA lands are denuded of vegetation and are covered by gravel and compacted dirt. These areas have and/or continue to be used for staging and maintenance activities associated with the Golden Gate Bridge Seismic and Wind Retrofit Project. Invasive plant species currently occur in various densities in areas bordering the staging areas. Soil disturbance and the unintentional introduction of seeds by construction equipment could result in the further introduction and spread of invasive plant species.

The following avoidance measures, which have successfully been implemented as part of the Golden Gate Bridge Seismic and Wind Retrofit Project, would continue to be implemented as part of the proposed project to control erosion and prevent the spread of invasive plant species.

- The District will provide specifications for erosion control to the contractor, which will be implemented.
- The biological ECM will conduct regular visits of the staging areas to ensure that erosion control devices located near native vegetation and Environmentally Sensitive Areas (ESA) are functioning properly, and to evaluate if weed control measures need to be implemented. ESAs are areas that are fenced off to protect sensitive species and habitats.
- Based on the findings of the site visits, the biological ECM will make recommendations to be implemented regarding weed control.
- To prevent the introduction of non-native vegetation or other deleterious materials to GGNRA lands, the District and contractor will inspect all construction equipment prior to accessing the staging areas. If any vegetation or deleterious materials are present, the contractor

will decontaminate its equipment with a high-pressure washer and properly dispose of the wastewater and debris prior to entering GGNRA lands.

2.6.7 HAZARDOUS MATERIALS

The build alternatives would all require physical attachment of the new physical suicide deterrent system to the Bridge. The existing steel on the Bridge is painted with paint systems consisting of red iron oxides, lead and zinc compounds, and/or barium sulfates. Any work that would disturb the existing paint system could potentially expose construction workers to health hazards and would produce surface preparation debris containing heavy metal in amounts that exceed the hazardous thresholds established in the California Code of Regulations. This information would be included in the project specifications and the construction contracts would require the containment, collection and appropriate handling and licensed disposal of all removed materials painted with the existing paint system and other debris produced as a result of the work, in accordance with all applicable federal, state, and local hazardous waste laws. All of the District's contract specifications for projects that disturb the existing paint system include provisions informing the contractor of the existing paint systems and require that the contractor follow all applicable laws to ensure that the health of all employees and the public, as well as the environment, are protected during the work.

Another potential contamination may be associated with the use and transport of hazardous materials including fuels, oils and other chemicals (e.g., paints, adhesives) used during construction. It is likely that during construction activities these hazardous materials and vehicles would be stored by the contractor(s) on site. Improper use, storage, or disposal of hazardous materials during construction could result in accidental release of spills, potentially posing health risk to workers, the public and the environment.

Appendix E provides a section from a recent District contract that includes provisions for the handling of hazardous materials. As noted in the example contract, the contractor will be required to conduct all activities associated with the transport or use of hazardous materials in full compliance with, applicable Environmental Laws and applicable additional health and safety rules and regulations pertaining to hazardous substances and hazardous materials. Contractor will be required to insure that all temporary hazardous waste storage facilities comply with these Special Provisions and requirements of the U.S. Environmental Protection Agency and the State of California hazardous waste regulations. A project specific

specification will be developed and included in the construction contract should this project move forward with any of the build alternatives.

2.6.8 BIOLOGICAL RESOURCES

The proposed project does not include the development or 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 could result in the loss of special-status species and the degradation of adjacent habitats. Potential biological impacts associated with construction and implementation of the project were identified in Section 2.4.

To avoid construction impacts to sensitive and protected biological resources as well as protect the area from invasive species, the following avoidance measures currently being implemented as part of the Golden Gate Bridge Seismic and Wind Retrofit Project would continue to be implemented.

Measure 1: A qualified biologist or biologists will be retained by the District prior to the start of construction to act as a biological Environmental Compliance Monitor (ECM) and implement and oversee the below activities/measures.

- The biological ECM will flag and stake native vegetation near the staging areas within GGNRA lands as "Environmentally Sensitive Areas" and will oversee the contractor's installation of protective fencing around the designated ESA(s). Signs will be installed indicating that the fenced area is "restricted" and that all construction activities, personnel, and operational disturbances are prohibited.
- The biological ECM will prepare and provide worker educational materials that describe the value and importance of the coastal scrub habitat bordering the staging areas and the importance of not disturbing the habitat.
- The biological ECM will conduct regular visits of the staging areas to inspect if any damage to adjacent habitats has occurred, to evaluate if dust control measures need to be implemented or increased, to ensure that erosion control devices located near native vegetation and Environmentally Sensitive Areas (ESAs) are functioning properly, and to evaluate if weed control measures need to be implemented.

- Based on the findings of the site visits, the biological ECM will make recommendations to be implemented regarding weed control, re-vegetation of disturbed areas, the need for additional fencing, and other measures to protect biological resources.
- The biological ECM will prepare monthly monitoring reports for the District that will address the effectiveness of the avoidance measures being implemented and identify any other measures to be implemented.

Measure 2: The District will provide specifications for erosion and dust control to the Contractor, which will be implemented.

Measure 3: Contractor's vehicles traveling on access roads within GGNRA lands would be restricted to a maximum speed of 20 mph during the period of March 15 to July 4, which is the flight season for the Mission blue butterfly. The Contractor will post and enforce this speed limit.

Measure 4: To prevent the introduction of non-native vegetation or other deleterious materials to GGNRA lands, the Contractor will inspect all construction equipment prior to accessing the staging areas. If any vegetation or deleterious materials are present, the Contractor will decontaminate its equipment with a high-pressure washer and properly dispose of the wastewater and debris prior to entering GGNRA lands.

Measure 5: Prior to the implementation of construction activities the District will implement the following program to assess and avoid any impacts to peregrine falcon. This program will consist of the following activities.

- Prior to implementation of construction activities occurring during the nesting season of peregrine falcon (typically February through July), the District will consult with the Golden Gate Raptor Observatory (GGRO) and the Santa Cruz Predatory Bird Group to obtain any existing information on the locations of breeding pairs of peregrine falcon potentially using the Bridge.
- Focused surveys for nesting peregrine falcons would then be conducted by a qualified biologist to determine if nesting falcons are present in areas potentially affected by project implementation.
- If nesting falcons are identified, then a construction exclusion zone would be established around the active eyrie. The size of the exclusion zone will be determined by the CDFG and will take into account existing noise levels at the nest location and the type of construction activities proposed near the eyrie.
- Construction activities may commence within the exclusion zone only upon determination by a qualified biologist that the eyrie is no longer

active. Alternatively, construction activities potentially affecting peregrine falcons nesting on the Bridge may be conducted outside of the nesting season of the species.

Measure 6: Prior to the commencement of construction activities occurring during the nesting season of native bird species (typically February through August), the biological ECM will conduct or oversee the following activities.

- The biological ECM will conduct surveys for nesting birds protected by the Migratory Bird Treaty Act and/or California Fish and Game Code. The survey area will include potential nesting habitat within and bordering the staging and construction areas, as well as all areas that would be subject to elevated construction-related noise levels.
- If an active nest is found, a construction exclusion zone would be established around the active nest. The size of the exclusion zone will be determined by the CDFG and will take into account existing noise levels at the nest location and the sensitivity to noise of the bird species present.
- Construction activities may commence within the exclusion zone only upon determination by a qualified biologist that the nest is no longer active. The biological ECM will also survey for nesting birds during their regular site visits of the staging areas.

2.7 CUMULATIVE IMPACTS

2.7.1 REGULATORY SETTING

Cumulative impacts are those that result from past, present and reasonably foreseeable future actions, combined with the potential impacts of this project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality and introduction or promotion of predators. They can also contribute to potential community impacts identified for the

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project, such as changes in community character, traffic patterns, housing availability and employment.

California Environmental Quality Act (CEQA) Guidelines, Section 15130, describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts, under the National Environmental Policy Act (NEPA), can be found in 40 CFR (Code of Federal Regulations), Section 1508.7 of the Council of Environmental Quality (CEQ) Regulations.

2.7.2 RELATED DEVELOPMENT PROJECTS

There are several related development projects 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. These projects were taken into consideration when evaluating the cumulative impacts of the project. A more detailed discussion of the related development projects can be found in the summary of this EIR/EA.

Projects on the Bridge (District is Lead Agency)

- Seismic Retrofit Project
- Moveable Median Barrier
- Golden Gate Bridge Main Cable Restoration Project
- Bridge Security Enhancements

Other Projects in Geographic Area

- South Access to the Golden Gate Bridge: Doyle Drive Project (San Francisco County Transportation Authority, California State Department of Transportation, and Federal Highway Administration are lead agencies)
- Fort Baker Reuse Plan (Golden Gate National Recreation Area is the lead agency)
- The Presidio - Environmental Remediation Program (Presidio Trust is the lead agency)

2.7.3 POTENTIAL CUMULATIVE IMPACTS

The CEQ regulations governing the implementation of NEPA (40 CFR 1508.7) define a cumulative impact as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant action taking place over a period of time.

The analysis of the cumulative effects of the proposed project also incorporates the suggestions in the CEQ handbook entitled "Considering Cumulative Effects Under the National Environmental Policy Act" (January 1970), which is intended as an informational document rather than formal agency guidance. Based on the CEQ discussion of cumulative effects, the following principles can be applied to the assessment of cumulative effects of the proposed project.

- Cumulative effects typically are caused by the aggregate effects of past, present and reasonably foreseeable future actions. These are the effects (i.e., past, present and future) of the proposed action on a given resource and the effects (i.e., past, present, and future), if any, caused by all other related actions that affect the same resource.
- When other related actions are likely to affect a resource that is also affected by the proposed action, it does not matter who (i.e., public or private entity) has taken the related action(s).
- The scope of cumulative effects analyses can usually be limited to reasonable geographic boundaries and time periods. These boundaries should extend only as far as the point at which a resource is no longer substantially affected or where the effects are so speculative as to no longer be truly meaningful.
- Cumulative effects can include the effects (i.e., past, present and future) on a given resource caused by similar types of actions (e.g., air emissions from several individual highway projects) and/or the effects (i.e., past, present and future) on a given resource caused by different types of action (e.g., air emissions and traffic from several different development projects).

The analysis that follows considers the potential cumulative effects, if any, which would result from construction and operation of the proposed project, combined with construction and operation of the related projects, listed above and described in the summary of this EIR/EA.

2.7.4 Environmental Resources for Which No Cumulative Impacts Would Occur

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 would not change the use of the Bridge or any surrounding areas and would fully retains the existing function of the Bridge.

Visual/Aesthetics

The proposed project would not contribute to cumulative visual impacts from the landscape units. Cumulative visual impacts address the effect of the project on overall visual quality at the landscape unit scale, or the overall and surrounding visual character of the project area. This analysis reflects the cumulative effects of the project on views from the surrounding landscape units. The change in visual quality at each landscape unit is evaluated by alternative, based on the description of each alternative contained in Chapter 1, Proposed Project, and visual simulations of the build alternatives.

Impacts to the existing visual quality would be minimally adverse to negligible. The No-Build Alternative would have no impact on visual quality since it would not change the existing visual environment, but would instead perpetuate the visual conditions associated with the current structure. 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, as described below. 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, do not result in cumulative visual impacts.

The Presidio

The proposed project would not contribute to cumulative visual impacts at the Presidio landscape unit. The Presidio landscape unit is located directly south of the toll plaza of the Bridge. This landscape unit provides an aesthetic of a natural area in combination with residences and historic buildings, such as the former military structures. This landscape unit primarily includes a woodland image type, consisting mostly of tall eucalyptus and pine trees.

Implementation of the project alternatives would not disrupt the visual quality or integrity of the Presidio landscape unit, as the project would be limited to the Bridge. However, views of the Bridge from the Presidio could potentially be affected as illustrated in the simulations of Viewpoint 1 (Fort Point) and Viewpoint 2 (Baker Beach). Because of the angle of view at Fort Point and the view distance at Baker Beach, views would not be noticeably altered from this landscape unit.

Table 2.7-1 summarizes the change to visual quality at the Presidio landscape unit from each proposed alternative.

Table 2.7-1 Visual Quality Change from Presidio Landscape Unit

Alternative	Visual Dominance of Bridge Handrail	View Blockage	Vividness	Intactness	Unity	Overall Visual Quality
Existing	Subordinate	Low	Outstanding	High	Outstanding	Outstanding
No-Build	No Change	No Change	No Change	No Change	No Change	No Change
Change						
1A	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
1B						
2A						
2B						
3						

Toll Plaza Area

The proposed project would not contribute to cumulative visual impacts at the toll plaza landscape unit. The toll plaza landscape unit is located at the southern end of the Bridge and the northernmost part of the Presidio. The toll plaza area is comprised of a series of toll booths that span across the

southern section of the Bridge. The parking lot on the east side of the toll booths contains a vista point with expansive views of the Bridge, San Francisco Bay and the Marin Headlands. On the west side of this landscape unit, a wooded area surrounds a parking lot that provides parking for District employees as well as tourists. Image types within this landscape unit include the institutional toll plaza buildings, trees and wooded areas, and recreational uses.

The project alternatives would not disrupt the overall aesthetic character of the toll plaza landscape unit, as they would be located on the Bridge span to the north of the toll plaza. Visual impacts related to views of the Bridge from this landscape unit would not conflict with the institutional image types on this landscape unit. The change in visual quality would therefore not be significant.

Table 2.7-2 summarizes the change to visual quality at the toll plaza landscape unit for each proposed alternative.

Table 2.7-2 Visual Quality Change from Toll Plaza Landscape Unit

Alternative	Visual Dominance of Bridge Handrail	View Blockage	Vividness	Intactness	Unity	Overall Visual Quality
Existing	Subordinate	Moderate	Moderate	Moderate	Moderate	Moderate
No-Build	No Change	No Change	No Change	No Change	No Change	No Change
Change						
1A	Minimally Adverse	Minimally Adverse	Minimally Adverse	Minimally Adverse	Minimally Adverse	Minimally Adverse
1B						
2A						
2B						
3	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible

Marin Headlands

The proposed project would not contribute to cumulative visual impacts at the Marin Headlands landscape unit. The Marin Headlands, located at the southernmost tip of Marin County, are an undeveloped, mountainous area. The north approach of the Bridge connects with the Marin Headlands. Typical image types in this landscape unit include open space and recreational uses, such as ridges and trails. The overall aesthetic character

of this area is undisturbed open space with few manmade features and steep, rocky cliffs meeting with the San Francisco Bay and Pacific Ocean.

As the project alternatives are located on the Bridge, implementation of the proposed alternatives would not disrupt the visual integrity of the Marin Headlands landscape unit. However, as discussed above, Viewpoint 4 (Vista Point) and Viewpoint 5 (Marin Headlands) would represent views of the Bridge from this landscape unit.

Table 2.7-3 summarizes the change to visual quality at the Marin Headlands landscape unit from the proposed project alternatives.

Table 2.7-3 Visual Quality Change from Marin Headlands Landscape Unit

Alternative	Visual Dominance of Bridge Handrail	View Blockage	Vividness	Intactness	Unity	Overall Visual Quality
Existing	Subordinate	Low	Outstanding	High	High	Outstanding
No-Build	No Change	No Change	No Change	No Change	No Change	No Change
Change						
1A	Minimally Adverse	Minimally Adverse	Minimally Adverse	Minimally Adverse	Minimally Adverse	Minimally Adverse
1B						
2A						
2B						
3	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible

San Francisco Bay

The proposed project would not contribute to cumulative visual impacts at the San Francisco Bay landscape unit. The Bridge is suspended above the San Francisco Bay as it meets with the Pacific Ocean. The Bay primarily consists of coastal image types, as the water meets with the San Francisco and Marin County coastlines. The overall aesthetic of this landscape unit is of the expansive blue-green waters surrounded by urban and industrial uses and natural landscapes.

Although the project alternatives would be located on the Bridge as it extends across the blue-green waters of the San Francisco Bay, implementation of the alternatives would not disrupt the overall aesthetic

and integrity of the San Francisco Bay landscape unit. As discussed above, Viewpoint 6 (Boat View East) analyzes the visual impacts to views of the Bridge from the San Francisco Bay.

Table 2.7-4 summarizes the change to visual quality at the San Francisco Bay landscape unit from each proposed alternative.

Table 2.7-4 Visual Quality Change from San Francisco Bay Landscape Unit

Alternative	Visual Dominance of Bridge Handrail	View Blockage	Vividness	Intactness	Unity	Overall Visual Quality
Existing	Subordinate	Low	High	High	High	High
No-Build	No Change	No Change	No Change	No Change	No Change	No Change
Change						
1A	Negligible	Minimally Adverse	Minimally Adverse	Minimally Adverse	Minimally Adverse	Minimally Adverse
1B						
2A						
2B						
3						

Fort Baker

The proposed project would not contribute to cumulative visual impacts at the Fort Baker landscape unit. Fort Baker is located to the northeast of the Bridge at the base of the Marin Headlands. This landscape unit consists of historic army buildings clustered around the waterfront area of Horseshoe Cove. Educational facilities including the Discovery Museum and a conference center are also located at Fort Baker. Typical image types include historic/landmark, institutional/military, and recreational uses. The aesthetic character of this area is of low-density development surrounded by the natural landscape of the San Francisco Bay and Marin Headlands.

Implementation of the project alternatives would not disrupt the visual quality or integrity of the Fort Baker landscape unit, as the project would be limited to the Bridge. However, views of the Bridge from Fort Baker could potentially be affected, as illustrated in the simulation of Viewpoint 3, which represents the closest view of the Bridge from Fort Baker. The

introduction of a physical suicide deterrent system would be a noticeable visual change in the appearance of the Bridge from Fort Baker. The minor changes in visual resources, in light of the overall landscape character at Fort Baker would not represent a significant change in the overall visual quality at this landscape unit.

Table 2.7-5 summarizes the change to visual quality at the Fort Baker landscape unit from each proposed alternative.

Table 2.7-5 Visual Quality Change from Fort Baker Bay Landscape Unit

Alternative	Visual Dominance of Bridge Handrail	View Blockage	Vividness	Intactness	Unity	Overall Visual Quality
Existing	Subordinate	Low	High	Moderate	High	Moderate
No-Build	No Change	No Change	No Change	No Change	No Change	No Change
Change						
1A	Minimally Adverse	Minimally Adverse	Minimally Adverse	Minimally Adverse	Minimally Adverse	Minimally Adverse
1B						
2A						
2B						
3						

Biological Resources

The proposed project would not contribute to cumulative biological impacts. The proposed project would use staging areas within GGNRA lands which have been and/or continue to be used to facilitate the Golden Gate Bridge Seismic and Wind Retrofit Project. As part of that project, a Biological Opinion was issued by the USFWS and measures were implemented to prevent the loss of Mission blue butterfly and its habitat, as well as other sensitive biological resources. The avoidance measures, which have successfully been implemented as part of the Golden Gate Bridge Seismic and Wind Retrofit Project, would continue to be implemented as part of the proposed project in order to prevent adverse affects to Mission blue butterfly, special-status plant species, and coastal scrub habitat. The continued protection of these species in combination with the other habitat conservation activities throughout GGNRA and the Presidio represent a

positive contribution to the preservation of sensitive biological resources in the region.

2.7.5 Environmental Resources Having Potential Cumulative Impacts

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's and bicyclist's 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.

Cultural Resources

Construction of project alternatives 1A, 1B, 2A, 2B or 3 would cause cumulative adverse effects to the Bridge historic property. Cumulative effects analysis takes into consideration that "adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative" (36 CFR 800.5 (a) (1)). 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. The Seismic Retrofit Project includes modification to the outside handrail on the west side of the Bridge between the two main towers and the installation of the wind fairings. No adverse effects to character-defining features, or the qualities that qualify the Bridge for listing in the National Register of Historic Places (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.

Nevertheless, many projects have altered the Bridge property since its construction in 1937, including 1980s and 1990s projects to add a west sidewalk on the North Approach (there was none originally); widen the east sidewalk on the North Approach; replace North Approach concrete guardrails with metal and rehabilitate sidewalk framing, traffic curb, pedestrian railing, and electroliers (light posts); as well as a project in the

1990s that replaced over one mile (6,557 linear feet) of outside handrail on the west side of the Bridge with replicas of the originals. Construction of project 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 include: Moveable Median Barrier (MMB) Project and Cable Restoration Project. The barrier system includes one-foot-wide, 32-inch-high steel clad units filled with high-density concrete tightly pinned together to form a semi-rigid, moveable barrier between the center lanes of traffic. The MMB project is undergoing planning, design and environmental review. The Cable Restoration Project will include installation of portions of new main cable exterior wire wrapping, reconditioning and replacing cable shrouds, and painting and caulking. Neither of these projects is anticipated to cause an adverse effect to the Bridge. The MMB project will not require physical modification of character-defining features of the Bridge. The main cable is a character-defining feature of the Bridge, but the rehabilitation activities of the Cable Rehabilitation Project involve repair and in-kind replacement of some components of the main cable in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR part 68). The project alternatives would not cause an adverse cumulative effect to the Bridge as a historic property in consideration of known future projects.

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