

Appendix D

Avoidance, Minimization, and/or Mitigation Summary

Avoidance, Minimization and/or Mitigation Summary

The following is a list of avoidance/mitigation measures. As Alternative 3 has been identified as the Preferred Alternative, the District and the Department will ensure that the appropriate avoidance/mitigation measures are included as a condition of project approval and responsibility assigned to the appropriate party.

Task and Brief Description	Reference	Responsible Party	Task Completed		Environmental Compliance	
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<u>VISUAL RESOURCES</u>						
<p>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. Alternatives 1A, 1B, 2A, and 2B would be painted International Orange to match the material and color of the Bridge. While the horizontal support system and vertical barrier under Alternative 3 (Preferred Alternative) would be painted International Orange to match the existing Bridge structure, the net would be unpainted and uncoated stainless steel to minimize visual intrusion.</p> <p>Measures incorporated into the design of Alternatives 1A, 2A and 3 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</p>	Section 2.2.4	District/ Department				

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<p>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.</p> <p>Alternative 3 (Preferred Alternative), which includes the horizontal net system and a vertical barrier along approximately 3 percent of the Bridge length, represents the strongest contrast with the strong verticality of the Bridge but provides unobstructed views across San Francisco Bay from the majority of the Bridge sidewalks. The vertical barrier along the North Anchorage Housing would interrupt motorists' views from the Bridge for approximately 5 seconds and pedestrian views for approximately 1 to 1 ½ minutes. The net would disrupt a small portion of the views towards the San Francisco Bay looking down from the Bridge sidewalks.</p> <p>The Memorandum of Agreement (MOA) that has been executed as part of the Section 106 consultation process includes photographic recordation of the existing features of the Bridge (see Section 2.3, Cultural Resources).</p>						
CULTURAL RESOURCES						
<p>A MOA has been executed to implement mitigation identified during consultation that will address the adverse effects of the build alternatives on the historic property (36 CFR 800.6 (c), MOA). The MOA stipulates various mitigation activities that will be conducted to address adverse effects this project would have on the Bridge. These measures 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 ensure the completion of additional recordation as identified in the MOA to augment the existing documentation. These measures will include:</p>	Section 2.3.4	Department				
<p>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. Photographs will specifically include the existing east and west</p>	Section 2.3.4	Department				

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outside railings, concrete railing at the north pylon (North Anchorage Housing), and exterior trusses of the Bridge.						
The recordation will follow the National Park Service's (NPS) HAER Guidelines. The HAER 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.	Section 2.3.4	Department				
The Department will ensure that copies of the documentation (including photo documentation processed for archival permanence) will be offered to the San Francisco Public Library, Marin County Free Library, Environmental Design Archives (UC Berkeley), Golden Gate National Recreation Area, (park Archive and Records Center), Presidio Trust, and the Department's Transportation Library and History Center at Department Headquarters in Sacramento.	Section 2.3.4	Department				
The Department will ensure that within one year of the implementation of the proposed undertaking, the District will complete and submit a National Historic Landmark nomination for the Bridge to the National Historic Landmarks Program at the NPS.	Section 2.3.4	Department				
The Department will ensure that an educational brochure will be prepared presenting information on the historic elements of the Bridge being affected by the proposed project, prefaced by an explanation of the need for the barrier installation. The brochure will be made available on-site at the Bridge, Presidio National Historic Landmark, select Golden Gate National Recreation Area locations, and online at the District Web site (www.goldengate.org) during the construction period. The Department will ensure that copies of <i>The Golden Gate Bridge Report of the Chief Engineer, Volume II (2007)</i> will be provided to libraries and repositories at the San Francisco	Section 2.3.4	Department				

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Architectural Heritage, California Historical Society, San Francisco Public Library, Marin County Free Library, Environmental Design Archives at U.C. Berkeley, GGNRA, Presidio Trust, and the Department Transportation Library and Historic Center at Department Headquarters in Sacramento.						
The Department will ensure that interpretive signs or display panels will be installed 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.	Section 2.3.4	District				
For the duration of construction, the Department will ensure the protection of the remainder of the historic property, 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 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. The Department will ensure that these reports will be provided to the District, the SHPO, and the GGNRA, the property owner.	Section 2.3.4	District				
The Department will ensure that any damage to the Fort Point National Historic Site resulting from the project will be repaired in accordance with the Secretary of the Interior's <i>Standards for Rehabilitation</i> . Prior to implementation of repairs, the Department shall provide proposed repair plans to the GGNRA and the SHPO for review and approval prior to the beginning work to ensure that any damage is repaired in a manner satisfactory to the park and in conformance with the Secretary of the Interior's <i>Standards for Rehabilitation</i> .	Section 2.3.4	Department				
<u>BIOLOGICAL RESOURCES</u>						
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) will work in consultation with GGNRA Natural Resources staff, the USFWS	Section 2.4.1; 2.4.2; 2.4.4; 2.4.5; 2.6.8	District				

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<p>and Caltrans and implement and oversee the below activities/measures.</p> <ul style="list-style-type: none"> ▪ The biological ECM will flag and stake native vegetation near the staging on within GGNRA lands located north of the Bridge 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. Any chemical weed control must be approved by the GGNRA Integrated Pest Management specialist. ▪ 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. 						
<p>Measure 2: The District will provide specifications for erosion and dust control to the Contractor, which will be implemented. This erosion and dust control plan will be reviewed and approved by GGNRA Natural Resources staff.</p>	Section 2.4.1; 2.4.2; 2.4.4; 2.6.8	District				

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<p>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.</p>	Section 2.4.4; 2.6.8	Contractor				
<p>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.</p>	Section 2.4.5; 2.6.8	Contractor				
<p>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.</p> <ul style="list-style-type: none"> ▪ 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 	Section 2.4.4; 2.6.8	District				

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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.						
<p>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 work in consultation with the USFWS, GGNRA Natural Resources staff and Caltrans and conduct or oversee the following activities.</p> <ul style="list-style-type: none"> ▪ 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. 	Section 2.4.3; 2.6.8	District				
<p>Measure 7: District personnel, in coordination with a qualified avian biologist, the GGNRA Natural Resources staff, USFWS and Caltrans, where applicable, will conduct observations of the net to determine if bird carcasses are present. These observations will be conducted at least two times per month for the 12 months following project implementation during the core of the spring and fall bird migration periods from February to May and August to November. These surveys will include observations from the Bridge sidewalk on the east and west sides of the Bridge. Observations will be conducted within three hours of sunrise immediately following a storm or foggy night when</p>	Section 2.4.3	District				

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<p>collisions with the Bridge structure are most likely. Observers will document the presence of any bird carcasses with photographs and data forms that include the date, time, weather conditions, and location of the observation, and will submit the photographs to biologist staff at GGNRA for identification and interpretation within three days.</p> <p>If mortality levels are beyond pre-established limits (i.e. greater than 10 native birds of any species per month for one month; or one individual peregrine falcon, two individuals of any other raptor species, or four individuals of other special status species during one year) additional observations will be made for six months to determine patters of bird strike, such as the time of day and visibility conditions. In coordination with the CDFG and the USFWS, additional mitigation measures will be designed and implemented, including changes to the netting structure as feasible, to reduce mortality. After these modifications are made, the system will be monitored for six months, including periods where conditions associated with the documented mortality are most likely to be present, or for a period of time determined by the CDFG and the USFWS. If mortality decreased to below the established limits, the changes will be deemed acceptable and monitoring will no longer be required.</p>						
<p>Measure 8: The District will ensure that the horizontal netting does not become an attractive nuisance to nesting birds. The District will ensure that no new stable, wide beams or wind sheltered areas will be created that may be attractive for nesting and that trash and other large objects be removed from the net as needed to minimize the attraction for foraging and nesting material or substrates for nesting. The horizontal netting design will also incorporate the largest mesh size possible to reduce the attraction and viability for nests.</p>	Section 2.4.3	District				

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<p>Measure 9: Regular observations will be made of the horizontal netting by trained District personnel or a qualified avian biologist for one year after installation of the net to determine if bird carcasses are present in or on the net and whether these carcasses are juvenile birds that may have fledged from a nest adjacent to or on the Bridge during the first breeding season after construction. These observations will be conducted weekly during the period when nests are most likely to contain young (i.e. the months of February to July) and may be combined with the migration monitoring visits. These surveys will include searching for nests on the Bridge and bird carcasses in the net and photographing any observed, for identification by GGNRA staff within three days. If District personnel are used, a training program for such personnel will be developed by a qualified avian biologist that will document the methods for detecting and photographing nests on the Bridge structure.</p> <p>If mortality levels are greater than the pre-established limits (i.e. greater than 10 birds of any native species per month for one month; or one individual peregrine falcon, two individuals of any other raptor species, or four individuals of other special status species during one year) in coordination with the CDFG and the Migratory Bird Division of the USFWS and Caltrans, additional mitigation measures will be designed and implemented, including changes to the horizontal netting, as feasible, to reduce mortality. These changes will be implemented prior to the following breeding season (i.e. prior to December of the current year). The modified horizontal netting will be monitored twice per week during the following breeding season (i.e. December to July of the following year). If mortality is reduced to below the levels identified above during this following breeding season, the changes will be deemed acceptable, and further monitoring will not be required. If mortality levels are not reduced below the recommended levels, the District will consult with the CDFG, USFWS, and GGNRA staff to develop a feasible alternative mitigation strategy.</p>	Section 2.4.3	District				

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